Increasing Ridership on Montgomery County Public Transit

The Development of an Employer-Based Transit Pass Pilot Program

An Interactive Qualifying Project, submitted to the faculty of
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Abstract

Montgomery County, Maryland has an extensive public transit system. This system is underutilized, leading to increased traffic congestion, particularly in the Bethesda area. The goal of this project was to assist Montgomery County in the development of an employer-based pass program, with the hopes of increasing transit ridership. After background research and data collection, we designed a plan for implementing and piloting such a program. The results of this project will contribute to the creation of an employer-based pass program.

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Executive Summary

Montgomery County, Maryland, is like most areas surrounding Washington, D.C., in that it suffers from heavy traffic congestion on its roads and highways during peak commuting hours. What sets Montgomery County apart is that is has one of the largest suburban public transportation networks in the nation. This network is not utilized fully by the people who work and live in Montgomery County. The goal of this project was to create an employer-based transit pass that will promote occasional ridership on public transportation during peak commuting hours. This pass must also prevent the Washington Metro Area Transit Authority (WMATA) and Ride On Bus Service from losing revenue as a result of implementing the pass program.

To achieve this goal, our group researched employer-based passes that have been implemented in other areas. In every area employing such a pass, the employer is required to purchase passes for all their employees. This allows each individual pass to be inexpensive while providing transit benefits to every employee in a company. This type of system also accomplishes the goal of encouraging commuters to occasionally utilize transit services by giving them a free pass to use public transportation whenever they decide they would prefer it over other modes of transit. Our group also investigated current federal and state tax laws involving transit, as well as tax incentives provided by the State of Maryland.

Data collection was accomplished through the use of several surveys. The Montgomery County Department of Transit surveys businesses in Transit Management Districts (TMDs) each year to gain information on transit usage. Our group also developed and distributed our own supplemental survey to thirteen target companies in the Bethesda area. These surveys

provided us with accurate ridership numbers for businesses in the Bethesda area, the city where Montgomery County plans to launch a pilot program for this pass. Average fare data was provided by representatives of WMATA and the Montgomery County Department of Transportation. Using all the information gathered, our team created a pricing model for our employer-based pass.

The pass itself is based on a flexible pricing model that accounts for fluctuations in ridership numbers, varying transit fare costs, changes in tax laws, and state transit incentives. This pass can be customized to each company that purchases it in order to provide the maximum transit benefit while also keeping the cost at a level where the transit agencies will not lose money. The pricing model has a built in overestimate of the cost to companies to account for occasional users of the pass. This overestimate is based on survey data collected from each company involved in the program. Customization of the pass's pricing was necessary due to the fact that, after the pass is piloted to a test group of companies, the Montgomery County Department of Transportation would like to expand the pass to other geographic areas if it proves to be successful.

The pass will offer employees the use of transit during peak commuting hours on Metro Rail, Metro Bus, and Ride On services. These three modes of transit provide a large area of coverage in Montgomery County and in other areas. If an employee would like to use their pass outside of commuting hours for personal reasons, they have the option to upgrade to an unlimited bus pass for $15.00 per month or an unlimited pass useable on all three services for $25.00 per month. These upgrades will also work on weekends.

In order to demonstrate the advantages of this pass program to employers, our group developed a marketing strategy to display the benefits of such a pass. While in most cases this pass will be more expensive for employers than what they are currently paying for transit benefits, they will gain several advantages. An employer's administrative costs will be reduced by participating in this program, as the process of distributing this pass to employees is more streamlined than the current method of distributing transit benefits. The pass can also be used as a tool to help attract new employees as well as retain current workers. Participation in the program will also assist a company in attaining green certification. Employees will have the option to use public transit more frequently, meaning they will be able to use their travel time efficiently rather than having to devote their attention solely to driving a vehicle. This increases productivity in the morning since employees arrive at work focused and relaxed, thus leading to a more productive work day.

The pass program we have developed accomplishes the goals of providing an employer-based pass to companies that will promote occasional ridership while providing WMATA and Ride On with sufficient revenue to sustain the cost of operating the pass system. Because the pass system was designed to be highly customizable, the program should be able to be easily expanded to other regions of Montgomery County and the Washington, D.C. area.

1.0 Introduction

Today's American lifestyle is based on movement. People are able to travel great distances more easily than has been the case in years past. This allows people to hold jobs that would not be possible for them to get to on a daily basis without current advances in transportation. Trains, buses, carpools, and single occupancy vehicles are a way of life in America. While traveling greater distances allows for greater prosperity of the American people, it also causes problems such as heavy congestion on roads and highways, sometimes lasting for hours at a time. Traffic jams around Washington, D.C., are infamous for being some of the worst in the country. In order to alleviate some of this congestion, transit agencies are pushing to increase the number of people using public transit, also known as alternative modes of travel, for their daily commute.

Montgomery County, Maryland, is not spared from such traffic problems. Hundreds of thousands of people work and live within the County and need to get to work every day. This daily mass migration has caused serious traffic problems on interstates, particularly in and around Bethesda, Maryland. The problem is not how many people are choosing to commute but, rather, it is how they are choosing to commute. Montgomery County has one of the largest suburban public transportation systems in the nation. This network is currently underutilized, causing an imbalance between public and private transportation. If corrected, shifting commuters from single occupancy vehicles toward using alternative modes during peak commuting hours could have a significant impact on reducing highway congestion.

One of the major challenges with implementing this pass is that multiple independent transit agencies operate within the area. A recent survey of employees and employers shows

that they would not be interested in a pass that did not include both bus and rail services, meaning that the pass would have to incorporate multiple transit agencies. This leads to financial problems as money is flowing between different agencies. Montgomery County has $200,000 available from surplus generated by Bethesda's Parking Lot Districts which it plans to use solely for expenses incurred in the implementation of a pilot program in the Bethesda area. As this is the case, our group examined the different ways to allocate this limited amount of funding toward the development of the program. The ultimate goal would be to create a program that does not cost the transit agencies any money to operate while still saving the employers money.

As it is unclear how an employer-based pass system will affect the Bethesda area, it is necessary to look at how similar pass systems have affected other areas. Some of the areas that have been investigated include Boulder, Colorado, Baltimore, Maryland, and San Jose, California. We also examined what services will be needed for individual employees. As an employer will not want to spend extra money on a pass that will have no chance of being used by their employees, our team determined what percentage of funds generated by the pass were needed to cover each of the respective modes of transit involved in this program. By far the biggest challenge presented by this pass program was pricing the passes in a way that allowed for all transit agencies involved to break even in terms of operating costs. This required careful consideration of operating costs as well as understanding the usage of each mode of transit on a daily basis.

The ultimate goal of this project was to develop an employer-based pass system that could be piloted in the Bethesda area before the end of fiscal year 2011. This pass must

promote occasional ridership, thus increasing overall transit ridership, amongst employees working in Bethesda while still providing sufficient revenue to WMATA and the Ride On service to cover operational costs of both agencies. The following report describes the methods our team used to develop this pass program, the results of those methods and the recommendations we have provided to the Montgomery County Department of Transportation regarding the implementation of this program.

2.0 Background

In order to develop the best plan for improving the overall usage of the public transportation network in Montgomery County, it is critical to understand, in depth, a few key points about Montgomery County and also about transit programs in general. Our group must first understand the divisions of authority and jurisdictions within the public transportation network in Montgomery County, as well as how this network interacts with Washington, D.C., and the surrounding area. Additionally, we will review what other major metropolitan areas, both in the United States and internationally, have done to entice commuters to use public transportation, as well as the different technological options for creating transit passes. Having hard data about how and why different programs either flourished or failed in other areas will help narrow down the possibilities for what plan will work best in Montgomery County. We will discuss the economics of the public transportation network because, in the end, this program needs to be financially beneficial for three constituencies: the commuters, the businesses involved, and the transport agencies involved. Utilizing all of this information will allow our team to develop effective recommendations on how best to go about developing a new transit program for Montgomery County.

2.1 Structure of Montgomery County's Department of Transportation and Transit Systems

Montgomery County's Department of Transportation is set up similarly to most other departments of transportation around the United States. The Department of Transportation (DOT) is broken up into five divisions. The Division of Transportation Engineering oversees

much of the planning, engineering, and construction of the transportation infrastructure within Montgomery County. Work zone traffic control, surveillance cameras and traffic lights are taken care of by the Division of Traffic Engineering and Operations. Parking enforcement, both of County-owned garages and lots, as well as parking meters, is handled by the Division of Parking Management. The Division of Highway Services is responsible for the maintenance of roads, bridges, and sidewalks within Montgomery County. All public transportation services fall under the Division of Transit Services. Each of these divisions contributes to keeping the Montgomery County DOT running at full capacity (Montgomery County Department of Transportation, 2010).

What differentiates Montgomery County's DOT from many others around the country is the existence of five distinct Transportation Management Districts (TMDs). These TMDs are small regions where there is often heavy traffic congestion during peak commuting hours. In order to help alleviate the persisting traffic problem, the TMDs were created to focus efforts on increasing the use of public transportation, also known as alternative modes of transportation. The TMDs are areas where transportation is a key focus with either independent contractors or the Department of Transit working to reduce congestion and increase the efficiency of the daily commute. This system allows for necessary changes to be made quickly due to the fact that decisions can be made without the need to consult a higher level of authority within the DOT. Instead, the TMD directors can allocate resources where they are needed to make a policy or service change. TMDs currently exist in Friendship Heights, Silver Spring, Downtown Bethesda and Northern Bethesda. A fifth TMD was recently created in Greater Shady Grove, but, due to lack of funding, no programs are currently in place to help increase the use of alternative

modes for commuting in the area. Montgomery County's DOT oversees most of the TMDs, although they can be contracted out. The Downtown Bethesda TMD, the focus of our project and shown in Figure 1, is run by the Bethesda Urban Partnership (BUP), under the name Bethesda Transportation Solutions (BTS). BTS works with Montgomery County's DOT to provide effective options for commuters wishing to use alternative modes during their commute.

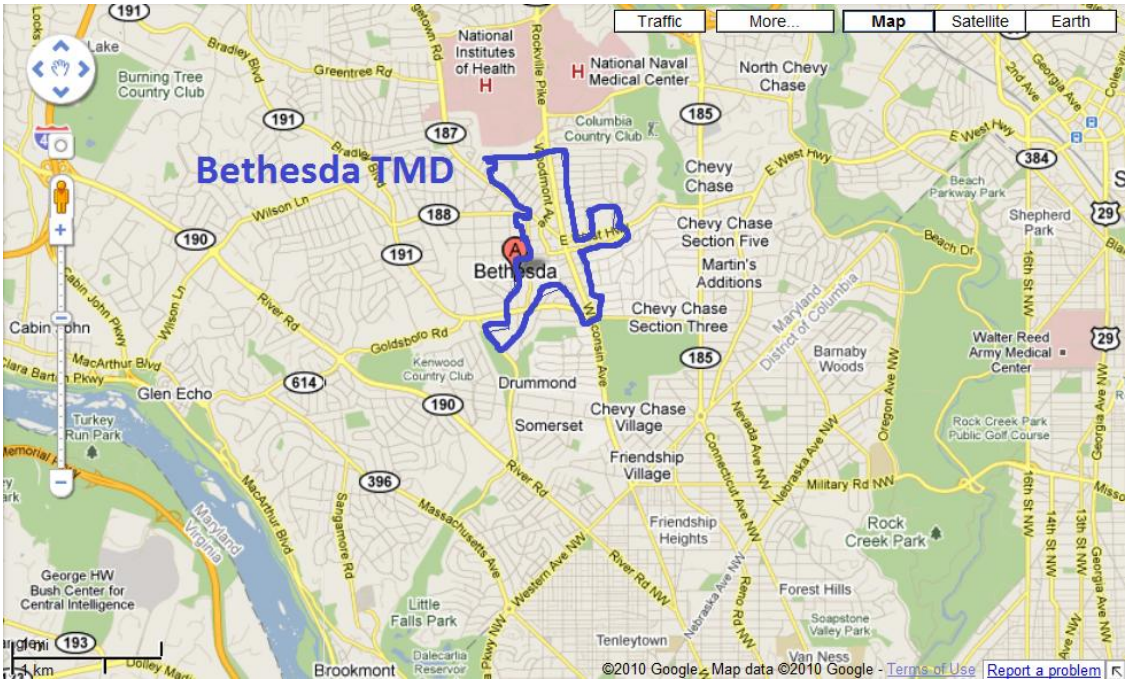

Figure 1: Bethesda TMD Region

Within Montgomery County, public transportation exists mostly in the form of buses. The Ride On bus system is operated by the Montgomery County DOT, and operates throughout the county. There is also a commuter rail system used to move people farther distances within Maryland. The Ride On buses are primarily used by commuters to get to work within the County, as well as to get them to Metro stations. This creates a mutual relationship between the Metro stations within Montgomery County and the county sponsored transportation systems (Montgomery County Department of Transportation, 2010).

2.1.1 Relationship with WMATA

The Washington Metro Area Transit Authority (WMATA) is the organization which runs all main public transit in and around Washington, D.C. WMATA is an interstate agency, with participation from Alexandria and Fairfax Counties in Virginia, Montgomery and Prince George's Counties in Maryland and the District of Columbia. WMATA was created on February 20, 1967 after the Washington Metropolitan Area Transit Authority Compact was passed through the Virginia General Assembly, the Maryland General Assembly, and the Houses of Congress. A compact is a type of contract that functions similarly to a treaty between nations, the difference being that compacts are between States within the United States. Compacts must be approved by the houses of Congress whether or not the District of Columbia will be affected by that specific compact. Compacts are generally used to administer or regulate a shared resource, in this case being the public transportation around Washington, D.C. (WMATA, 2005).

WMATA does not have a direct line of funding. They gain their operating funds through fare collection and money collected from the areas described previously in this section. The federal government is financially responsible for maintaining Metro stations and services within the limits of Washington, D.C. The state governments of Virginia and Maryland are responsible for all Metro services and upkeep within their state boundaries. This means that there is no direct flow of money between WMATA and the Montgomery County DOT. This is due to the fact that the state government of Maryland pays for Metro services and not the county government. All fares are collected by WMATA while the money collected from government agencies allow to WMATA break even. In other words, the governments subsidize public transportation. While there is no financial relationship between WMATA and the Montgomery

County DOT, they do still collaborate. Schedules are created simultaneously in order to optimize the efficiency of the public transportation network as a whole, (WMATA, 2005).

The MetroRail and MetroBus, both run by WMATA, are two of the most heavily used public transit options in the D.C area. The MetroRail has many stops outside D.C. in suburban communities, making it convenient for commuters who live outside the city but work within to use MetroRail services to get to work on a daily basis. Specifically, there are thirteen MetroRail stops within Montgomery County, as seen in Figure 2, (Montgomery County Department of Transportation, 2010).

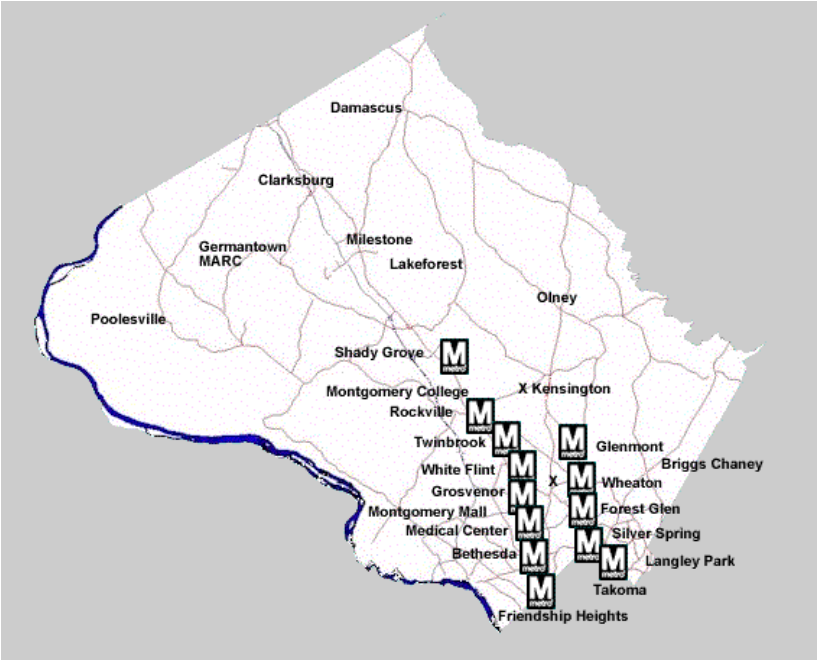

Figure 2: Red Line Metro Stations in Montgomery County

Montgomery County. (2010). Department of transportation: transit services. Retrieved fromhttp://www.montgomerycountymd.gov/content/DOT/transit/routesandschedules/stationlist/placelist.asp

While these Metro stations are not paid for by the tax payers in Montgomery County, they certainly still provide a benefit to them. Although the TMD's main public transportation system consists of buses, known as the Ride On system, many commuters in Montgomery

County rely on the MetroRail to get to work every day. The TMD buses allow commuters to travel from their home to the Metro station without a car, which in turn lightens traffic during peak commuting hours and also financially benefits both the commuters and the TMDs. This relationship between the Metro system and commuters is important. In order for an employer-based pass program to be effective in Montgomery County, it will need to be compatible with the WMATA Metro stations. If this type of program is not well integrated with the WMATA, it will be discouraging to many commuters who rely on the Metro to get to and from work. If an employer-based transit pass program can be made compatible with WMATA transit, it will greatly benefit all parties involved.

2.1.2 Bethesda Transportation Services (BTS)

Transit Management Districts do not have to be managed solely by the Montgomery County DOT. The Bethesda TMD, for example, is run by the Bethesda Urban Partnership, also known as BUP, an agency that is responsible for most of the public workings in the Bethesda area. In the year 2000, BUP created the office of Bethesda Transportation Services to manage transit and other modes of transportation in the Bethesda TMD. The goals of the BTS are to manage traffic congestion in the Bethesda TMD, promote alternative modes of travel, raise awareness of and reduce air pollution, and to promote bicycle and pedestrian access within Bethesda.

The BTS is committed to helping commuters get to their place of employment easily and at as little cost as possible. Some of their services to commuters include helping people find carpools or vanpools. Promoting carpooling allows for lower air pollution levels while lessening the cost on the individual commuter. Commuters pay a small fee for the cost of gas and

maintenance to the owner of the car or van that varies depending on the distance traveled and number of people in the pool. In the case of carpools, the car is owned privately by a commuter. Vanpool vans are owned by the county in most cases. This fee is small compared to the cost of commuting alone as it is split up between all the people in the pool. The BTS also promoted the Super Fare Share Program, discussed later in this background, which helped businesses pay for their employee's commutes at a discounted rate. Guaranteed Ride Home is a program offered by the BTS as an emergency service for employees. This program will call a cab or rental car for an employee who has serious need of it. For example, if there is a family emergency that someone needs to address or an employee has to work an unexpected overtime shift, a car will be called for them to use at no additional charge. This program is offered to all employees involved in a program offered by the BTS (BTS, 2008).

2.1.3 Ride On

The Ride On transit system is a bus system designed to complement services already provided by other transit providers within Montgomery County. The Division of Transit (DOT) plans, schedules, and manages Ride On. Currently, there are 335 County owned and operated buses being used for the program, providing roughly 30 million trips per year. Until recently, a user of Ride On could either buy trips individually or buy a one week unlimited bus pass which would cost $30. The Montgomery County DOT has now incorporated the SmarTrip card on Ride On buses. When an individual uses the SmarTrip card on Ride On, they pay $1.50, rather than the regular fare of $1.70. However, if a senior citizen or a person with disability uses a SmarTrip

Card on a trip, the fares are significantly less, from $0.75 to $0.25, (Montgomery County Government, 2010c).

Although Ride On and programs provided by it have been effective in allowing people to hold jobs, it has not produced a significant reduction in SOV commuter traffic that Montgomery County would like to see. Its effectiveness can be gauged by the fact that Ride On has produced a small increase in commuters taking other modes of transportation. Since many of the Ride On routes stop at Metro stations, it is believed the program would have a greater impact if the Metro system was incorporated into Ride On programs.

2.2 Public Transportation Pass Systems in Other Regions

All major cities in the United States have public transportation systems in place to move people around their respective metro areas. This section will discuss how different cities have implemented electronic pass systems to increase the efficiency of their public transportation infrastructures as well as increase the usage of public transportation as a whole.

One solution to shift the usage of single occupancy vehicles to public transportation that has been implemented is the Eco-Pass. The Eco-Pass is a program designed to help reduce highway traffic congestion by diverting drivers from using the interstates to using the existing public transportation infrastructure. It is an employer-based program, sponsored by the local government, in which both the employees and the employers benefit. The concept is that employers buy into the pass program from the government, specifically the Department of Transportation. They then provide each employee with a pass as part of their benefits package. This pass would work for any public transportation method, whether it is a bus, train, or subway, when used to get the employees to and from work every day. This would be an

incentive for the daily commuters, i.e., the employees, to take public transportation to work every day rather than driving their cars. This Eco-pass program, and other similar programs, has been implemented successfully in metropolitan areas around the country, two of the most well known being San Jose, California, and Boulder County, Colorado, (San Jose Government, 2010), (Boulder County Colorado, 2010).

2.2.1 San Jose, California

San Jose, California, was chosen by our group as a comparison city due to the fact that it has a well established employer-based pass system. As the largest city to employ such passes, it is a good example of how employer passes will function in large areas. Montgomery County is comparable to a massive city in some regards. This means that comparing the county to a large city using an employer pass will provide a good model on how to design and implement our pass.

The Eco-Pass has been implemented in the San Jose metropolitan area to solve traffic problems, but it has done so differently from other cities. With a population of just under 900,000 residents, San Jose is the largest city, by population, in the United States to implement the Eco-Pass (San Jose Government, 2010). In San Jose, the pass has been implemented by the Valley Transportation Authority (VTA), the agency responsible for the public transportation network in the entire Santa Clara Valley area.

The VTA website advertises the benefits to employers to include a "low cost, tax-deductible, employee benefit." The VTA also advertises that employers who use the pass will find their employees arrive at work less stressed, their demand for on-site parking for employees will be decreased, and a reduction in automobile traffic will benefit the environment. For the employees, the VTA website lists the benefits to include "freedom from traffic jams" and "reduced commuting cost and less automobile wear and tear," (Valley Transportation Authority, 2010). The VTA also adds that there is the possibility for car insurance breaks due to the fact that the driver will be spending less time on the road. One very important aspect of the pass in San Jose is their use of the so called "emergency ride home service," (Valley Transportation Authority, 2010). This is a pivotal selling point to the people of San Jose. The purpose of this service is to let the employees not feel stranded at work without a car in the event of an unplanned emergency. If, for example, a worker is at work and his wife is brought into the hospital emergency room after a car accident, the worker can, with permission and authorization from his/her supervisor, call a taxi, which will be paid in full, excluding the optional tip, by the VTA. In order to keep this benefit from being abused, the VTA has given discretion to the supervisors of participating companies to determine the need of this service on a case-by-case basis.

	Number of employees			
Employer's location	1-99	100-2,999	3,000-14,999	15,000+
Downtown San Jose	$80	$60	$40	$20
Areas served by bus and light rail	$60	$40	$20	$10
Areas served by bus only	$40	$20	$10	$5

Source: Santa Clara Valley Transportation Authority, 2001.

Table 1: Eco-Pass Price Schedule - SCVTA (Donald C. Shoup, 2003)

The pricing for the San Jose Eco-Pass is based on number of employees and employer location. As seen in Table 1, passes are priced between $5 and $80, depending on what transit options are available to the location of the business. To keep expenditure per employee low, the cost is distributed among the number of employees, assuming that many commuters still wouldn't take transit even if it was free to them. With this assumption, transit agencies are able to offer the pass at a low rate.

There are currently 83 companies that are involved with the San Jose Eco-Pass program, and that number is on the rise (Valley Transportation Authority, 2010). In fact, the Eco-Pass program has been so successful that the VTA has expanded it to also include residential communities, including condominiums and apartment complexes. The VTA still, however, requires that no individuals buy the pass: only "residential communities" are allowed to purchase Eco-Passes, and all residents within the community must purchase a pass or the VTA will not agree to the sale, (Valley Transportation Authority, 2010).

2.2.2 Boulder County, Colorado

Boulder County, Colorado, was chosen as a comparison area to Montgomery County because their employer pass is based at the county level. Our group wanted to look at an area that has widespread use of a pass that crosses over multiple town and city borders.

Boulder County's pass currently is being used by 145 companies in Boulder County, which covers close to 28,000 employees (Boulder County Colorado, 2010). The pass was first implemented in 1989, but only included bus routes within the city of Boulder under the name "Mobility Pass". After 1991, the program was expanded to have nearly identical benefits as

described for San Jose, with a few key differences. For one, although the pass is purchased through the companies, it is provided to the employees as a pre-tax benefit. Therefore, the employer pays to have the option for the company's employees, and the employees then buy the passes using pre-taxed salary, which also saves the company money in payroll taxes, (Boulder County Colorado, 2010). Pricing for individual companies to take part in the Eco-Pass is based on a few criteria. These criteria include the current number of employees in the company, availability of transit services to the business location, and if the employees are eligible for an Eco-Pass photo ID card, (City of Boulder Colorado, 2010).

Boulder has been using this system for over 20 years and, in that time some remarkable shifts have been made on county roads. Studies done by the Regional Transportation District (RTD) show that "Eco-Pass holders are 5-9 times more likely to ride transit than non Eco-Pass holders" and from a downtown Boulder survey, "80% of new transit trips were shifted from SOV [Single Occupant Vehicles]," (Boulder County Colorado, 2010). Data collected from the City of Boulder Travel Diary Study show similar trends. Between 1990 and 2009, Boulder has seen a decrease in the proportion of individual trips made by residents in a private vehicle from 70.5% to 60.8% with an annual average reduction of 0.51%. The proportion of SOV work commute trips has also shown a decrease from 76.5% in 1990 to 55.9% in 2009, which is an annual decrease of 1.08%, (City of Boulder, 2009).

Table 2 displays the modal shift of trips in Boulder Valley. From 1990 to 2009, the number of SOV trips has decreased by 7.1%, as well as a 2.6% decrease in multiple-occupancy vehicle trips, while transit trips have increased by 3.8% and bicycle trips increased by 6.8%.

Travel Mode	Percent of Trips*									Change 1990 to 2009
	2009	2006	2003	2000	1998	1996	1994	1992	1990	
Single-Occupancy Vehicle	37.1%	38.4%	39.0%	41.5%	40.4%	41.5%	40.5%	42.3%	44.2%	-7.1%
Multiple-Occupancy Vehicle	23.7%	25.0%	23.5%	23.8%	25.0%	25.6%	25.6%	25.7%	26.3%	-2.6%
Transit	5.4%	4.0%	4.6%	4.2%	4.1%	2.8%	2.9%	2.2%	1.6%	+3.8%
School Bus	0.1%	0.1%	0.3%	0.7%	0.7%	0.5%	0.5%	0.7%	0.6%	-0.5%
Bicycle	15.9%	13.6%	14.0%	10.0%	8.2%	9.2%	11.3%	12.1%	9.1%	+6.8%
Foot	17.9%	18.9%	18.6%	19.8%	21.4%	20.4%	19.2%	17.1%	18.2%	-0.3%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
Number of Trips	*5,505*	*6,081*	*6,380*	*6,791*	*5,987*	*6,454*	*6,723*	*6,681*	*7,355*	

Table 2: Modal Split of Trips for Boulder Valley, 1990-2009 (City of Boulder, 2009)

In terms of those commuting to work, Table 3 shows a large shift away from SOV commuting. Since 1990, there has been a 19.2% decrease in SOV commuting, while transit and bicycle use have increased 5.7% and 12.7% respectively.

Table 4 was taken from the Boulder Valley Employee Transportation Survey. The percentage of employees who have an Eco-Pass of some kind increased from just 14.3% in 1997 to 35.7% in 2008. As seen in the previous figure, SOV commuting decreased during this time period. This is evidence that the Eco-Pass did have a positive effect on SOV commuting. If

implemented correctly, a system similar to the Eco-Pass would be a viable option to increase the usage of public transportation in Montgomery County.

Travel Mode	Percent of Work Commute Trips									Change 1990 to 2009
	2009	2006	2003	2000	1998	1996	1994	1992	1990	
Single-Occupancy Vehicle	**47.4%**	**52.7%**	49.6%	57.7%	62.3%	64.8%	59.8%	60.2%	66.6%	-19.2%
Multiple-Occupancy Vehicle	8.5%	10.7%	9.2%	7.6%	8.2%	10.8%	10.1%	9.8%	9.9%	-1.4%
Transit	**9.7%**	**5.1%**	9.8%	8.7%	7.7%	3.9%	5.8%	6.1%	4.0%	+5.7%
School Bus	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%	0.1%	0.2%	0.0%	0.0%
Bicycle	23.3%	20.5%	21.2%	15.6%	9.9%	12.3%	12.4%	14.1%	10.6%	+12.7%
Foot	11.1%	11.0%	10.3%	10.4%	11.8%	8.2%	11.8%	9.6%	8.9%	+2.2%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
Number of Work Commute Trips	*1,021*	*1,101*	*951*	*1,161*	*947*	*1,192*	*1,146*	*1,111*	*1,302*	

Table 3: Modal Split of Trips for the Work Commute, 1990-2009 (City of Boulder, 2009)

*In 1997, employees were not asked what type of Eco Pass they had.

**This category was new in 2005; in previous implementations, these responses would have been included in the category "yes, through my employer."

Do you have an Eco-Pass?	Percent of Respondents				
	2008	2005	2001	1999	1997*
Yes, through my employer	18.6%	11.4%	15.6%	13.4%	14.3%
Yes, a downtown Eco-Pass**	6.4%	6.9%			
Yes, through my neighborhood	2.0%	3.3%	1.4%	1.6%	
Yes, a CU Boulder Student Pass	4.2%	4.5%	3.3%	4.2%	
Yes, a CU Boulder faculty/staff pass	4.6%	0.5%	0.8%	0.7%	
No	64.3%	73.4%	78.9%	80.1%	85.7%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Table 4: Percentage of Employees Using the Eco-Pass in Boulder

2.2.3 Economic Benefits of Eco-Pass

The Eco-Pass is sold as a cheap yet effective means of transporting people to and from their places of work every day. When one realizes just how cheap this system is for the employer and employee alike, the Eco-Pass becomes a valid option for any transit authority trying to increase ridership. A study found that for every $1 an employer spends on a pass program, they will save between $46 and $1,938 per year on keeping a parking space available for an employee, (Eco-Pass, 2007). The explanation for the savings is simple. Businesses must pay taxes on various things, one of these things being property tax. Space in major cities is in high demand, making the initial price of constructing parking and taxes on the land highly expensive. With an Eco-Pass, employers do not need to maintain as many parking spots for employees. Instead they pay a fraction of the cost of those parking spaces and still have their employees getting to work on time, (Eco-Pass, 2007).

The Eco-Pass tries to make the cost of a commute marginally zero dollars for the employee. This means that the pass costs roughly the same amount as if you had driven to work and parked for free. The amount of money that each employee pass is worth depends on where the person lives in relation to their job. For example, in the Santa Clara Valley, an Eco-Pass runs between 1% and 19% the cost of a comparable pass bought through the Santa Clara Transit Authority. The passes offer the same services but the Eco-Pass is at least one fifth the price, (Eco-Pass, 2007).

2.2.3 Montgomery County Environmental Initiatives

Today's business world is making a push to make operating companies as self sustainable as possible. While many would believe that this is mainly due to a certain corporate image, the benefits of making a green push are far reaching and very deep. Because green

initiatives generally span through multiple departments and processes, the entire company must be inspected to see what procedures or habits may be improved upon. In the marketing world, entering the green market can have a positive impact in sales. Recently, Disney started selling only organic cotton t-shirts, and found their sales of t-shirts to have an increase of double digits as a result (Melissa J. Anderson, 2010). This is an example of how companies can use green products to get a competitive edge over other companies who do not offer such items. Other benefits of going green include the reduction of energy and waste, which provides savings, enables certain rebates and incentives to be taken advantage of, improving perceptions of the company by customers, suppliers, etc, and in some cases, could include benefiting the community and supply chain. When Disney switched to selling organic cotton t-shirts, they helped the rural farming community who produces the cotton, creating some much needed jobs. Especially with the Obama New Energy for America plan coming into effect, the incentive to go green is there and will only grow as time goes on (Green Consultants, 2010).

Montgomery County offers an incentive to companies that make an effort to become more environmentally friendly. The MCCCF Green Certification process has several categories that must be satisfied, each with different requirements. Our pass would fall under the Transportation and Travel Policy section. The two main requirements of this section are to provide employees with information on alternative modes of transit and to encourage the use of public transportation, specifically the Guaranteed Ride Home (GRH) Service and Regional Ride Sharing Service, which are both provided through the Maryland Transit Authority (MTA). GRH is a program that allows employees who use an alternative mode of transit at least two days a week for their commute to call a free car to take them to a destination in case of an

emergency. The Regional Ride Sharing Service is organized by the MTA, but there is no standard carpool or vanpool service. Therefore, prices vary depending on what whether or not the vanpool is provided by the employer, or if it's provided by a third party, and whether the drivers of a carpool alternate days, or if riders just pay the designated driver. Both programs are provided by the MTA. As our program promotes the use of transit, users of the pass could easily be made aware of this option when they receive a pass. This automatically promotes the GRH Service. So long as the company provides a transit benefit program or service, they meet the transit requirement for Green Certification.

While these are the only major requirements for certification, there are other factors that can aid companies in their efforts. Some of these include offering employer-paid transit incentives, encouraging non-SOV travel during commutes, and providing opportunities for employees to use alternative modes outside of their normal commutes. Our pass meets all three of these requirements as this pass in an employer-paid transit pass that encourages the use of alternative modes of travel. In addition, the upgrade ability gives employees the opportunity and incentive to use alternative modes outside of their daily commute, (MCCCF, 2009).

2.2.5 Maryland Transit Authority

Currently, the Maryland Transit Authority (MTA) offers a monthly pass that employers can offer to their employees. These passes provide the employees with unlimited monthly travel on MTA buses, Light Rail and the Baltimore Metro subway system. This pass does not include WMATA Metro as this is a more local, in-state pass. Employers have the option of buying the passes for their employees, allowing their employees to buy the pass themselves

using pre-tax income, or a combination of the two (MTA Maryland, 2010b). The cost of the pass is $64.00 per employee per month, but is significantly reduced after tax deductions are applied to the cost (Maryland Transit Authority, 2009a). This employer-based transit program allows employees to receive a substantial transit benefit at little to no cost to either themselves or their employer. This pass is more targeted to everyday transit riders though, as a company must complete a survey which provides the MTA with accurate data on the ridership tendencies of that company's employees. An employer does have the option of buying passes for every employee within the company, but they are able to be reimbursed each month for unused passes. This limits the potential for increasing occasional ridership, which is often one of the main goals of employer-based transit benefit programs (Maryland Transit Authority, 2009b).

2.3 Technology in Transit

The world today relies heavily on technological advances to streamline processes and make the lives of people easier. Transportation is no different. This section will discuss some of the technological advances that are relevant to creating an employer-based transit pass in Montgomery County.

2.3.1 Montgomery County

Being in the immediate geographic vicinity of the nation's capital, Montgomery County must have an efficient system of fare collecting. The Washington Metro, run by WMATA, has implemented a smart chip based card system to collect fares which was named the SmarTrip Card. This card can store up to three-hundred dollars to be used on any public transportation system that accepts SmarTrip as a payment method. The transit systems that support the card within Montgomery County are the Metro Bus, Metro Rail, and Ride On.

The SmarTrip card offers several benefits over paying with other methods. A SmarTrip card user can register their card online so that, in the event the card is lost or stolen, the user can replace the card with all the money that was on it at the time it was reported missing. The card also offers a discount to users. SmarTrip card users pay twenty-five cents less per ride on public transportation than riders who pay their fare using other means. Efficiency is always a major concern when dealing with public transportation. Instead of having to waste time at a fare gate inserting a ticket to pay a fare, SmarTrip users only need to tap their card on a circular receiver that reads their card and automatically subtracts a fare (Figure 3). While this may only save a couple of seconds per person at the toll gate, this time adds up when tens of thousands of people utilize public transportation every day (WMATA, 2010).

Figure 3: SmarTrip Receiver

The SmarTrip database is based on a "bucket" system. There are 256 buckets on each SmarTrip card that can hold different pieces of information. For example, some buckets hold identification information such as the name of the card holder and basic contact information in case the card is lost and needs to be returned. Other buckets hold funds to be used at readers such as the one shown above. When the card is tapped to the receiver, the database runs through the buckets in a specified order, first looking at the name of the person and other

identification information. It then checks for a bucket with a pass in it. If a pass does not exist, it then goes to the bucket holding funds to deduct a fare from the money pool.

2.3.2 Boston, Massachusetts

While Montgomery County has a well established technological base in terms of public transportation, it is by no means a perfect system, nor is any public transportation system. For one, the SmarTrip card has only been able to support transit passes since October 2010. This is a step in the right direction to making paying transit fares easier. Boston, MA, uses the Charlie Card system. The Charlie Card is an example of what the SmarTrip system could be in the future in terms of electronic passes. We chose to use it as a comparison to the SmarTrip card because it works using similar technology and is accepted around Boston just like the SmarTrip card is accepted around Washington, D.C.

The Charlie Card is a plastic card no bigger than a credit card with an imbedded RFID chip that allows it to communicate with a receiver on fare gates at train stations and on buses. The major difference between the two passes is the infrastructure behind them. While the SmarTrip card has not been able to store passes until recently, the Charlie Card has been storing passes for several years now. The passes work by identifying the individual users associated with each pass. When a user touches the pass to the receiver at any terminal, it sends a message to a database. This database then determines if this card has a pass associated with it. If a pass exists for that user on the mode of transit they are trying to board, then no fare is subtracted and the gate will open. If a pass does not exist for that user on the particular mode of transit, the system checks for additional funds added by the user to that specific card. If there is money stored on the card a fare is subtracted from the money pool and

the gates open. This example offers an idea for the structure of the SmarTrip passes and how they can be implemented to accommodate passes such as the one that will be implemented in Montgomery County (MBTA, 2010).

2.3.3 Life Expectancy of the SmarTrip Card and Future Plans

After speaking with Marcy Stehney, the head of the consulting firm that works with WMATA and the Montgomery County DOT, our team received some interesting news. Cubic, the company that makes the chips inside every SmarTrip card, stopped manufacturing the chips and became a clearinghouse company during fiscal year 2009. WMATA bought the remaining two million chips to continue making SmarTrip cards. The chip supply is expected to run out in the summer of 2011. In other words, WMATA will either have to find a company to manufacture the chips for them or devise a new system if they wish to continue collecting fares electronically.

One of the methods being looked at is a credit card based system. Most new credit cards have embedded smart chips to give the option of paying by tapping the card on a receiver. This can be seen at some convenience stores and supermarkets. This system could allow for a pass system to be incorporated into the chips. The main difference would be how the funds were collected. If a credit card company were collecting fares it is understandable that a premium charge would have to be factored into the pass system because such companies rely on profit. While WMATA runs their own system, the cost of system upkeep is worked into their budget. Sending funds out to other companies will require fees for completing transactions which will most likely be charged to the people using the credit cards.

Another method being considered by WMATA is the idea of having a pass built directly into an employee's security I.D. badge. Most companies and government agencies today have some form of standard issue badge to allow access to buildings. The idea is to place a smart chip that is compatible with the Metro fare boxes directly into these badges to hold transit fares and passes. The greatest advantage of this system in terms of an employer-based pass would be abuse prevention. It is possible that an employer could provide transit benefits to employees on a SmarTrip Card and have some of those employees give this card to their spouse or child to use while the employee takes their car to work and collects parking benefits. This means a company could in theory have an employee cost them money on parking and transit while they only receive the benefit of having that employee use a parking space. This is a waste of funds that could go towards other areas of interest that the company has. By having transit passes on personal I.D. badges an employee will be far more likely to have that badge on them at all times during the work day, preventing employees from giving the pass to other users.

2.4 Previous Transit Benefit Programs in Montgomery County

Montgomery County has implemented several programs for public transit in the past. These programs have been effective in providing benefits to employers and employees in the past. By researching them we have gained an understanding of what systems could work and which ones would need to be improved in order to be feasible. This section will discuss these programs.

2.4.1 Fare Share

The Fare Share program was available for all businesses in Montgomery County's TMDs until the fiscal year 2010. When Fare Share was first implemented, it was a three year program, and, at its height, became a five year program due to its popularity. After the length of the program was increased to five years, the County would match up to $30,000 each year for five years to each contributing organization for their employees' public transportation to and from the workplace. During the first year, the County would pay up to $114 per month per employee, and the employer would only have to pay $1 per month per employee. Each subsequent year, the employer would provide a greater contribution, as the County's contribution declined. In the second year of the program, the employer would pay a 50% share, then 60% in year three, 70% in year four, and finally 80% in year five. The combined amount of up to $115 is tax free to the employee and counts as a tax deduction for the employer. Fare Share was improved when Montgomery County introduced the Super Fare Share program, which extended the program length from five to nine years (Montgomery County Government, 2010g).

Fare Share was partially paid for by revenues gained from Montgomery County's Parking Lot Districts (PLD), which helped to fund alternative modes of transportation. Though Fare Share and Super Fare Share were intended to be on-going programs, the funding for the programs was cut during the last fiscal year 2010 due to a lack of funding brought about by the recent economic downturn.

2.4.2 Smart Benefits Program

The SmartBenefits program is an internet-based program offered by WMATA that lets

employers assign a certain amount of transit benefits for each employee every month. The dollar value of the benefits is loaded directly on the employee's SmarTrip card when the employee engages his or her SmarTrip card into the Metro system. If the employee fails to collect his or her benefits at a Metro Station fare box, the employer will receive a credit for the benefit value.

To receive the benefits of this program, an employee in a company offering SmartBenefits must fill out paperwork saying they need transit benefits and how much they think they will need. This data must then be put into the SmartBenefits website by employers on an employee by employee basis before the 15th of the month prior to the when the benefits will be received. For example, if an employee wishes to receive benefits for January, they must have their paperwork processed by the 15th of December. We observed several flaws within this process. The first major drawback we observed was the time it takes to collect and input employee information into the SmartBenefits site. This adds a large amount of paperwork to any company's human resources department while also adding the hassle of having to collect the data long before benefits are actually provided. The second observed drawback to this system is a large room for human error. Asking anyone to predict their habits a month in advance is at best difficult. This could cause some employees to underestimate the funds they will use for transit, causing them to pay out of pocket for their benefits after taxes and wasting money that they could have saved. This program is still in use in by employers located in Montgomery County (Montgomery County Government, 2010g).

2.4.3 Tax Incentives

A current tax credit law that has been enacted is the Maryland Commuter Tax Credit, which enables Maryland employers to claim a tax credit for up to 50% of the cost of provided commuter benefits, up to a maximum tax credit of $50 per participating employee per month. The tax credit can be taken against personal income tax, corporate income tax, or the insurance premium tax. Being able to apply the tax credit before taxes are taken out provides further savings to the employer. This tax credit greatly reduces the cost of supplying employees with transit benefits (MTA Maryland, 2010a).

Transit programs such as the Maryland Transit Authority (MTA) smart cards and passes used by employees are eligible for the credit, as are employers who purchase other various transit passes from the MTA. Other programs that are eligible for the tax credit are vanpool programs, company Guaranteed Ride Home programs (enabling emergency transportation for employees using carpools or public transportation, similar to the San Jose system described in section 2.2.1), and company subsidized parking programs. The company subsidized parking program involves an employer offering an employee the taxable cash equivalent of a parking subsidy to provide the employee a subsidized parking space. The employee can either pay for the parking space with the money provided by the employer, or pocket the money and take public transportation.

Under the Economic Stimulus Bill, signed by President Barack Obama in March, 2009, the amount of tax free money employers were allowed to offer to employees for transit benefits was increased from $120 a month to $230 a month. This increase provided parity between the maximum allowable benefit for both parking and transit. For many employees, the

benefit increase allowed them to use transit more frequently, saving both the employees and their employers money. Unfortunately, a sunset clause was written into the bill. The $230 dollar benefit will extend until the end of 2010 when it will revert back to a $120 monthly allowance for transit benefits. This could deliver a serious blow to many transit agencies, as many current transit riders may revert back to single occupancy vehicles due to the fact that $230 will be allowed to be put into pretax benefits for parking. In order for the transit benefit to remain at $230, the United States Congress would have to pass a tax bill extending the increase. According to the consulting firm working with the Montgomery County DOT, it is very unlikely that the extension will be written into an upcoming tax bill ("IRS increases transit").

2.5 Conclusion

Gathering background information has provided us with a solid foundation for beginning work on a new employer-based pass program. We examined the structure of the existing transit systems within Montgomery County and Washington, D.C., and how they relate to each other. Examination of pass technology being used in other metropolitan transit systems provided us with an understanding of how electronic passes function, and how we can apply that technology to our proposed pass. We also discussed the past transit benefit programs Montgomery County has employed. Understanding why those programs were popular, and why they were discontinued, will give us selling points for both the transit agencies and employers. All of this information will help us to develop an efficient and viable employer-based pass program for Montgomery County.

3.0 Methods

Our project team worked with the Montgomery County Department of Transit to assist in the development, marketing and proposed implementation of an employer-based transit pass program. The main purposes of this program are to alleviate congestion on roads during peak commuting hours by shifting drivers of single occupancy vehicles (SOVs) into alternative modes of transportation, and to increase occasional ridership of commuters on public transit. The program is to be piloted in the Bethesda Transportation Management District (TMD). In order to accomplish our overall goal, we needed to achieve several objectives. First, we needed to gather data regarding the current trends in transit ridership in Montgomery County. We then needed to develop an efficient pricing mechanism for the pass program, and gain an understanding of the technology being used to distribute and operate the pass. Finally, it was necessary for our group to devise an effective marketing strategy that would make our proposed pilot program appealing to both employers in the Downtown Bethesda area and in the wider transit areas. This section outlines the steps taken to achieve these objectives and reach our final goal of recommending a feasible pass system.

3.1 Determining Public Transit Ridership

Commuters in Montgomery County have access to several different modes of public transportation. The difficulty imposed by the variety of choice is the fact that not all of these modes are run by a single umbrella organization, as is the case in some other metropolitan areas. The commuter rails are not run by the same organization as the subway while the bus systems are split among several agencies. This causes pricing and coordination issues for a pass

system in this area because it is difficult to determine the number of riders in Bethesda that use each service for their commute and to what extent each system is utilized.

In order to clear up this lack of information, our group utilized surveys conducted by the Montgomery County Department of Transportation which targeted companies within the Bethesda TMD and surrounding area for the 2009 and 2010 fiscal years. These surveys include data on employers, types of transportation used by commuters, and other information that helped classify employers and their employees' commuting habits.

		Days Used	Col %
Q3. Overall Weekly Mode Split	Drove alone	30,272	72.3%
	CP/VP driver	1,768	4.2%
	CP/VP rider	1,179	2.8%
	Bus	1,856	4.4%
	Train	2,723	6.5%
	Walked /bicycled	970	2.3%
	Other	16	.0%
	Compressed schedule day off	349	.8%
	Teleworked	1,441	3.4%
	Meeting out of office, sick, vacation, or holiday all day	1,280	3.1%
	Total	41,854	100.0%

Table 5:Montgomery Count Annual Commuter Survey 2010 - County Wide

While these surveys are useful, they are also limited. They do not include data on which specific type of transit was used. For example, the surveys only ask if the employee takes the bus to work, not if the employee takes MetroBus, Ride On, or a commuter bus. For our pricing model this information was necessary.

		Days Used	Col %
Q3. Overall Weekly Mode Split	1 Drove alone	6,733	57.9%
	2 CP/VP driver	405	3.5%
	3 CP/VP rider	264	2.3%
	4 Bus	1,027	8.8%
	5 Train	1,988	17.1%
	6 Walked /bicycled	471	4.1%
	8 Compressed schedule day off	41	.4%
	10 Teleworked	266	2.3%
	11 Meeting out of office, sick, vacation, or holiday all day	430	3.7%
	Total	11,625	100.0%

Table 6: Montgomery County Annual Commuter Survey 2009 - Bethesda TMD

Our plan of action was to distribute our own survey to companies in the Bethesda TMD. This was done to give us more accurate employer-focused ridership numbers in the Bethesda area, allowing us to develop a more efficient pricing model. The data gathered from our survey also helped to predict the commuting tendencies of the rest of Montgomery County, which will be useful in the eventual expansion of the pass program. Our survey, and the data that we acquired from the responses to it, can be seen in Appendix C.

3.2 Devise a Transit Pass Based on Background Research and Ridership Data

After completing our background research on employer-based pass systems that were implemented in other areas and collecting data on ridership, our group began modeling an employer-based pass system tailored to the Bethesda TMD. One of the main goals of this pass was to incorporate the MetroRail system into the pass because, in the past, employers have expressed reluctance to buy into a pass system that only included bus travel (personal communication, Sandra Brecher, Montgomery County Department of Transportation). In order to be accepted by both Montgomery County and WMATA, the pass needed to be priced in a way that the agencies would not be burdened with costs not covered by revenues generated by

this pass program. We contacted WMATA and they provided us with data on the average fare for MetroRail riders commuting to and from Bethesda during peak hours. Both MetroBus and Ride On buses have fixed fares, so the daily average fare was easily calculated. We also examined WMATA's operating costs in order to determine how much revenue our program would need to generate in order for the Metro to not lose money (WMATA, 2010). Based on this analysis, and using the ridership data from Montgomery County's 2009 and 2010 annual commuter surveys, we began creating a pricing model that would not only cover the operating costs of each transit agency, but would generate a surplus for both Montgomery County and WMATA. For more information on the pricing model and its development, please refer to section 4.1.

3.3 Developing a Marketing Strategy

In order for our project to be successful we also had to make the pass appealing to employers, employees and the various transit agencies. Our team developed a marketing strategy to present to employers, with the goal of generating interest in our proposed pass system. To accomplish this, our group set up meetings with representatives from companies that we planned on recommending as ideal participants in the pilot program. We developed a set of criteria to determine which companies would be ideal for a pilot program, including varying proximity to the Bethesda Metro Station and company size, and whether or not they had a history of offering transit incentives to their employees in the past. A general version of the PowerPoint presentation given to employers can be found in Appendix D.

3.3.1 Benefits to the Employer

In order to pilot this pass program, employers will have to find the program appealing enough to participate. An employer's biggest concern is how much will the program cost, and what benefits the company will be receiving as a result. The largest marketing points of this program will be the savings in administrative costs, the environmentally friendly perception that a company will acquire by participating in this program, and the potential for increasing employee retention and recruitment due to the presence of a substantial transit benefit. In addition, the employer will benefit from various tax deductions that they will be eligible for because of the transit program, as well as a decreased need for on-site parking and parking benefits because of increased transit ridership. Each of these advantages will be instrumental in convincing employers that our proposed program will be beneficial for their company.

3.3.2 Benefits to the Employee

One of an employer's largest concerns is how a program will benefit their employees. Our program will offer employees a variety of benefits and advantages. The largest benefit is the pass itself. Employees will be provided a transit pass free of charge; the employer pays for the entire cost of the pass, so it is essentially free for the employee. This significantly reduces the cost of commuting for an employee, should they choose to use transit during their commute. Using transit will also mean the employee will have to rely less on a car, meaning the cost of owning a personal vehicle will decrease as their use of transit increases. We also plan to offer employees the opportunity to upgrade their pass, with money out of their own pocket, to unlimited usage on MetroRail, MetroBus, and Ride On buses. This will increase convenience for employees, and offers them a great value if they find themselves using the transit often outside

of their commute or on weekends. These benefits will hopefully provide employees with a much more convenient transit experience.

3.3.3 Environmental Benefits of the Employer-based Pass

The idea here is simple. Our pass program promotes the usage of public transportation by everyone in a company who buys into this pass program. This reduces the number of vehicles on roads by encouraging people into public transit systems and out of SOV's. Reducing the number of vehicles on roads means less emissions and better air quality. In some cases, this pass could lead to a family not needing a second car, completely cutting the emissions of a vehicle.

Our group explored the idea of getting our program green certified through the Green Business Certification Program offered by the Montgomery County Chamber Community Foundation (MCCCF). This program is a designation given out by the MCCCF to businesses who "go above and beyond green measures to reduce their ecological footprint." This certification costs the company $250 dollars and lasts for two years. The application process, from the time the application is sent in to the time certification is received, takes from several weeks to several months. This time period is negligible to the ability of a business to have made an effort to go to the next level in making their operation environmentally friendly, (MCCCF, 2009). Details regarding the MCCCF Green Certification process can be seen in section 2.2.3.1

4.0 Results

After fully compiling all of our background research and analyzing the data that we acquired, our group was able to create a model for an employer-based pass. Based on the existing pass programs which we have examined, we determined that implementing an employer-based pass would have beneficial economic, social and environmental effects. From the data that was collected, we developed an efficient pricing model for the pass system that would provide all parties involved with a benefit. We also looked into the technological challenges of implementing a pass of this nature to determine whether or not the necessary software changes would be possible. Finally, we needed to select companies to market our program to in hopes that they would choose to participate in the pilot. The following sections present our results.

4.1 Determining Public Transit Ridership

After distributing an electronic survey throughout thirteen employers and fifteen hundred employees, we were able to obtain more accurate data regarding ridership and potential ridership. The Bethesda TMD has roughly twenty-eight thousand employees, so in order for our survey to be statistically valid with a confidence level of 95% and a confidence interval of ± 5% our group needed 384 responses. This number was calculated using the following statistics equation, where Z = 1.96, p = .5, and c = .05.

$$\text{Sample Size} = \frac{Z^2 * p * (1-p)}{c^2}$$

We received 120 responses, meaning our survey was not a statistically valid representation of the entire region. However, our survey was statistically valid for the

companies to which the survey was distributed. Based on the 154 responses we received and using a 95% confidence level, our results are statistically valid with a confidence interval of ± 7.5%. This means that we can be 95% certain that the data collected from our survey is accurate within ± 7.5%. Detailed results of our survey can be seen in Appendix C.

From this survey we were able to determine that roughly one third of our target companies' employees regularly use transit in their commute, and of those employees 69% used MetroRail, 19% used MetroBus and 18.5% used Ride On. Visual representations of this information can be viewed in Figure 3 and Figure 4 respectively.

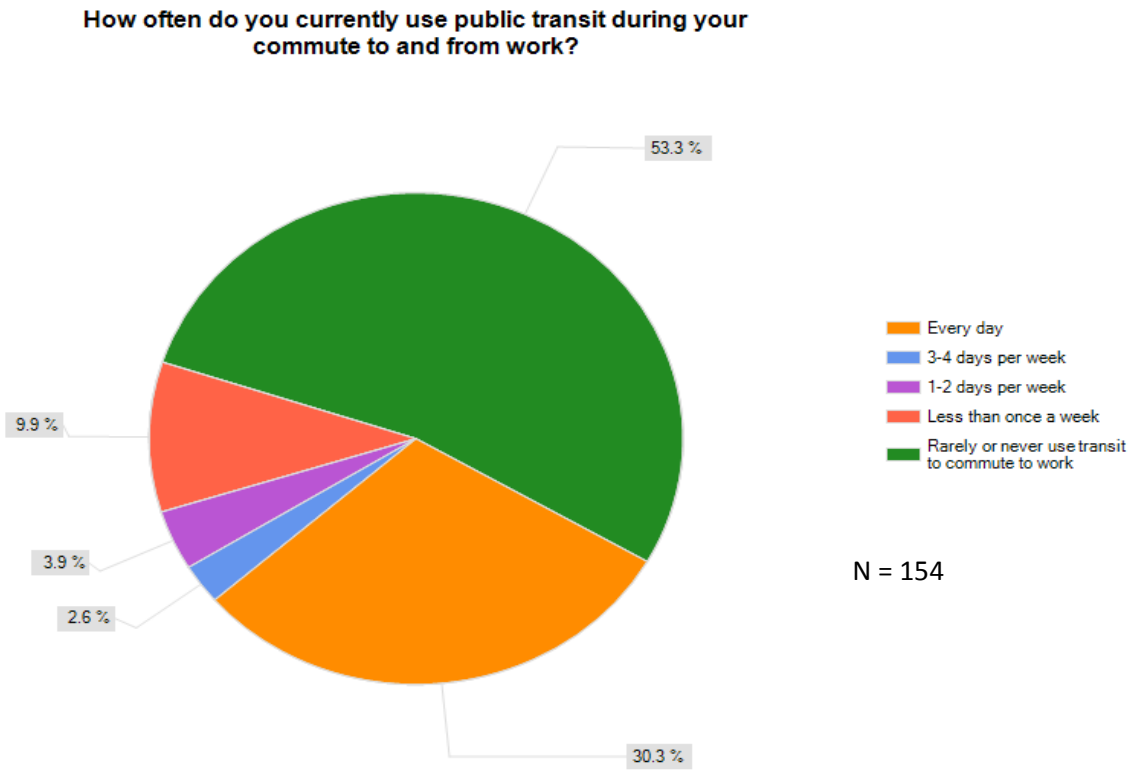

Figure 3: Overall transit ridership results

This data helped us increase the accuracy of our pricing model, as we had precise numbers on how many employees were using transit and how many were using which mode of transit

during their commute. The final pricing model is based off of the data that was collected from the survey.

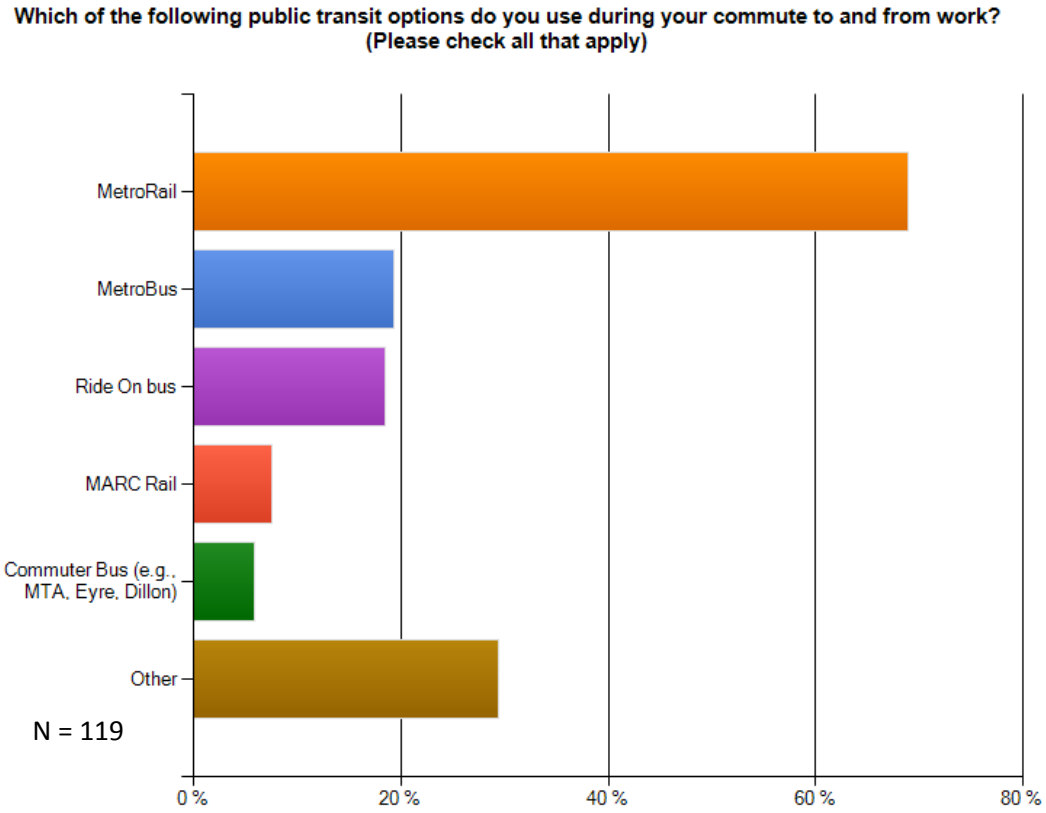

Figure 4: Overall ridership results broken down by mode of transit

We also were able to determine that the majority of trips made by occasional transit riders occur on the MetroRail. As shown Figure 5, the largest number of respondents who used transit to commute either less than once a week or rarely or never used transit chose to use the MetroRail when they did choose to commute using public transit. This is a positive result, as it shows that many people are already considered occasional riders and many would likely increase their ridership if they were to receive a free monthly transit pass from their employers. This information on occasional ridership tendencies also helped to further increase the accuracy of our pricing model.

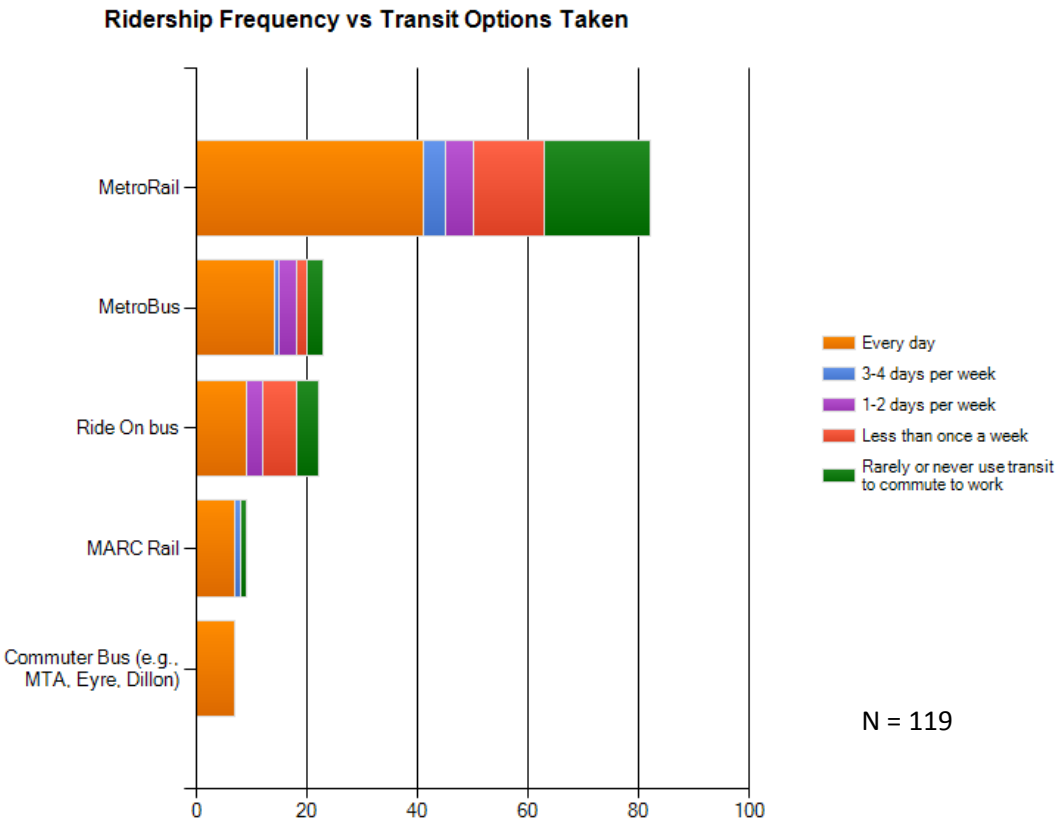

Figure 5: Ridership frequency based on what mode of transit is being used, x axis = number of employees

Unfortunately, the responses we collected pointed to a trend that the majority of transit riders would not drastically alter their current method of commuting based on the acquisition of a free monthly transit pass. Figure 6 shows the rate at which employees responded to whether or not they would increase their transit use based on the presence of a free monthly transit based pass, given out by their employer. Nearly all of the surveyed employees responded that they would not drastically increase their ridership and that they would continue using their current method of commuting. However, of those employees that rarely or never use transit currently, nearly one third responded that they would increase their use of transit. According to our survey, of the 82 respondents who answered that they rarely or never use transit to commute to work, 30 answered that they would increase their ridership by at least

one to two days a week, and 17 of those 30 would increase their ridership by at least three to four days a week. This is promising information, as one of the main goals of this employer-based pass program is to increase occasional ridership.

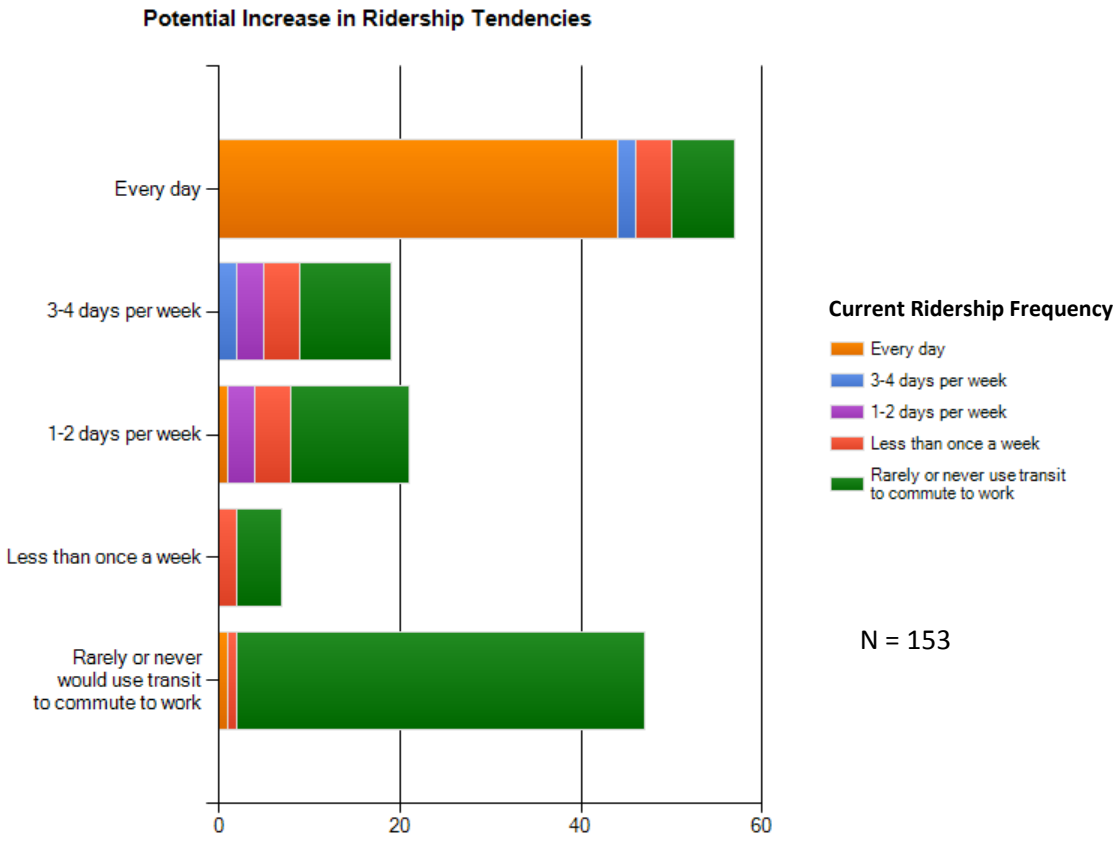

Figure 6: Potential ridership frequency compared to current ridership frequency, x axis = number of employees

We also received information on the popularity of an option to individually upgrade ones pass to have unlimited use on MetroRail, MetroBus, and Ride On buses. Employees were asked to provide a dollar amount that they would feel comfortable paying to upgrade their pass. The responses can be seen in Figure 7 below. Of the 146 respondents to this question, nearly one third stated that they would not be willing to pay any money toward upgrading their own pass. Overall, the average an employee would be willing to pay was $19.32. Excluding outliers in the data, the average cost rises to $24.96. Outliers included responses over $100 and

responses of $0, because responses matching those criteria were very few and not realistic answers to the question that was asked. This data shows that most employees would in fact be willing to spend their own money on upgrading their pass. Currently we have priced the upgrade at $25.00 for unlimited MetroRail, MetroBus, and Ride On bus trips. Our results show that employees would find this price acceptable and beneficial.

One of the proposed passes being studied would allow for free transit use during peak commuting hours only. It would be possible to individually upgrade the pass for unlimited use during other times. How much of your personal money would you be willing to spend to upgrade your pass for unlimited use at all times of day, including weekends?		
Answer Options		**Response Count**
Average cost employees are willing to pay:	$ 19.32	146
# of employees answering $0	49	
Average cost, excluding outliers (responses of >$100 and $0)	$24.96	
answered question		146
skipped question		8

Figure 7: Amount employees are willing to pay for pass upgrade

To help increase the accuracy of our proposed pricing regarding the unlimited upgrades, we asked employees how often they used public transit during non-peak commuting times, including weekends. In Figure 8 one can see that the vast majority of employees surveyed rarely use transit outside of their commute, and that most of those trips are made on the MetroRail system. Based on this ridership data, we believe that the prices we have laid out for the unlimited upgrades are accurate and will provide a benefit to employees and transit providers alike.

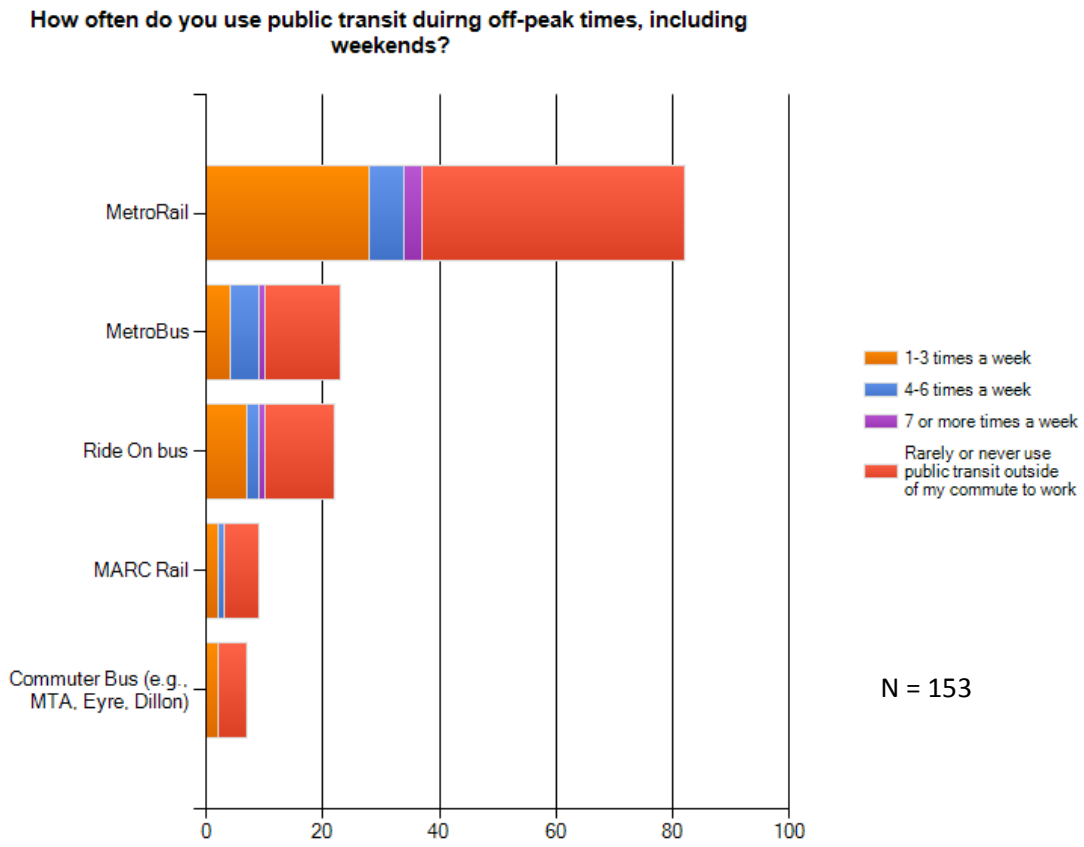

Figure 8: Non peak ridership compared to mode of transit used, x axis = number of employees

We were also able to examine what mode of public transit surveyed employees were using based on how far they lived from the closest Metro station or bus stop. Based on the data displayed in Figure 9, we can see that a large number of employees live within walking distance, less than one mile, from either a bus stop or a Metro station. The largest number of employees who live farther than one mile from a transit stop use MetroRail during their commute to work. This suggests that those employees either drive themselves to the Metro station where they park their car for the day or they ride a bus from their home to the Metro station. Of the surveyed employees who utilized MetroBus and Ride On transit services, nearly half lived farther than one mile from the closest bus stop. This suggests that those employees either do not know of a bus stop closer to their home than the nearest Metro station, or that they would

have to drive to the closest bus stop. This information continues to validate the trend that the MetroRail is the primary transit source for Bethesda employees.

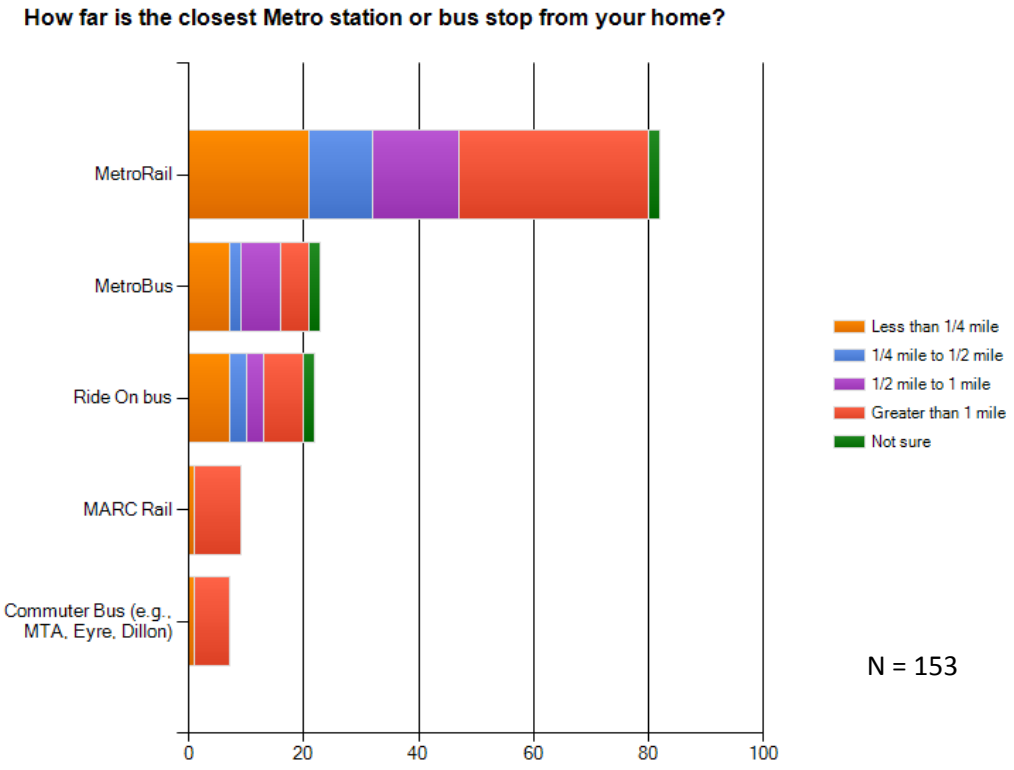

Figure 9: Transit station distance to employees home compared to transit options utilized, x axis = number of employees

Many employees use more than one form of transit during their commute. In order to find this information, we examined the data on which transit options employees were choosing. By cross referencing the data with itself, we were able to see how many respondents answered by selecting multiple transit options. This provided us with information on who was using multiple modes of public transit for their commute to work. Figure 10 is a graphic representation of this data. MetroRail has the largest number of multiple transit mode users, with the majority of those riders also using either MetroBus or Ride On bus services. Combine this knowledge with the data we received regarding distance of the closest Metro station or bus

stop from the employee's home, which can be seen in Figure 9, and we can draw the conclusion that many employees travel to a Metro station via bus.

Conducting this survey provided our group with a lot of useful information. We were able to greatly improve the accuracy of our pricing model based on the ridership data we received, and we discovered that it is likely that our proposed pass system would increase the number of occasional transit riders.

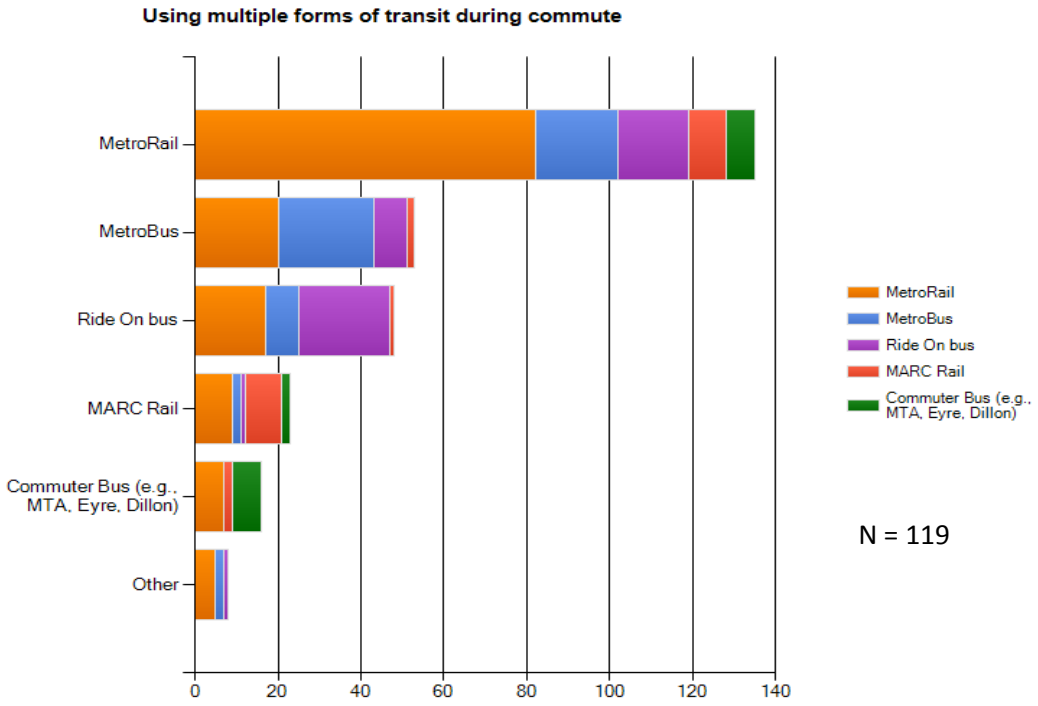

Figure 10: Employees using more than one mode of public transit during their commute, x axis = number of employees

4.2 Devise a Transit Pass Based on Background Research and Ridership Data

The first step in developing this pass was to devise a pricing model that was flexible for employers, yet at the same time would not cause the transit agencies to lose revenue. Using Microsoft Excel, we were able to create a highly customizable and easily modified pricing model. This pricing model allowed for the pass to be customized to individual employers based

on their needs. For instance, if a company has a majority of its transit users paying the maximum fare on MetroRail for their daily commute, their pass will be a bit more expensive per employee than would be the case for a company which has employees who only have to travel a short distance to work or that use the bus system more frequently.

In addition to customizing the pass to individual companies, the pass will also be updated periodically for each company. We are aware that ridership numbers shift as well as fare prices and tax deductions, and in order to make sure that the transit agencies do not lose money it will be necessary to occasionally re-evaluate a company's ridership numbers. This may lead to a slight increase in cost to employers, but it is a necessary part of the program to insure that WMATA and Ride On are provided with enough revenue to cover usage of this pass program. In order to assure that the most accurate price is being offered at all times, it may be necessary for the Department of Transportation to periodically, most likely quarterly, distribute a brief survey to participating companies in order to obtain up to date ridership data.

This survey will be best distributed electronically to company representatives and then down to individual employees. Distributing the survey electronically has several advantages. First, the cost of the survey will be much less than a paper survey. No money will be spent on paper and physical distribution and collection to and from companies. The data will also be on computers the second it is posted, allowing for easier and faster analysis. Faster analysis cuts down on the cost of someone having to actually do the analysis by hand and allows for a quicker return of results. The Montgomery County DOT uses the company CIC Research to conduct surveys and analysis (personal communication, Sam Oji, Montgomery County

Department of Transportation). The most likely method of conducting these surveys would be to use this company.

Another viable option for gathering the data necessary to periodically update the pass's pricing would be to acquire data directly from WMATA. Each SmarTrip card would be able to provide data regarding ridership tendencies, average fare, and which modes of transit were being utilized. Because WMATA is heavily concerned about the privacy of its customers, the best way to receive this data would be to group each employer together. This way no individual trip data is distributed and WMATA is able to protect the privacy of its customers. While it may take some convincing for WMATA to release this information, collecting the data in this way would be far more efficient than distributing a survey.

Allowing for this level of individual customization insures that the transit agencies will be paid appropriately for the services they are providing. Companies will also be able to get the best value for their money, as the pass can easily be configured for smaller or larger companies. An explanation of how the pricing model works, as well as a link to access a downloadable version of the pricing model, can be viewed in Appendix E.

4.2.1 Pricing Model Overview

The proposed pricing model of this pass is based on a simple principle. If an employer must buy the pass for all employees within their company, the cost per individual employee will be much less. The employer would purchase the pass based on the number of employees on the company's payroll, rather than on an individual basis. The revenues gained from those not using the pass as often would make up the difference of those who use the pass daily for their commute. This pass also encourages employers to promote the occasional use of transit

services by their employees. Please refer to the description of the pricing model, which can be viewed in Appendix E.

We will use a company of 100 employees for this example. Using commuter survey data that we have collected, along with data provided by the Montgomery County Department of Transportation, we are able to determine the percentage of people utilizing the different transit options that would be covered by the proposed pass. In the Bethesda TMD, the data collected indicates that the percentages of people using different modes of transit are as follows: 25% ridership of MetroRail, 5% ridership of MetroBus, and 5% ridership of Ride On buses.

In order to determine what the pass should cost per employee, we first must calculate the necessary costs to each agency that must be covered. An average fare price will be needed for these calculations. Using existing data, as well as data provided to us from WMATA, the estimated average fares are as follows: $6.50 for a round trip on MetroRail, and $3.00 for a round trip on MetroBus and Ride On buses. Unfortunately, we cannot base the model on the distances employees within a company will be traveling, so the average fare for commuters with Bethesda as their destination station has been used. We also assumed for the calculations that in an average month there are 20 work days that this pass would be available for use on. The following equations were used to calculate the estimated cost for both WMATA and Ride On.

$$[(\$6.50 \times .25) + (\$3.00 \times .05)] \times (\#\text{ of employees}) \times 20 = \text{Total Cost for WMATA}$$

$$\$3.00 \times .05 \times (\#\text{ of employees}) \times 20 = \text{Total Cost for Ride On}$$

The cost per employee can then be found by dividing the combined costs for WMATA and Ride On by the number of employees within the company. In our model, the exact cost per

employee would be $38.50. This would allow all of the transit agencies within the system to break even. However, we wish to create a system that will generate surplus revenue for all parties, while still providing a good deal to employers. This surplus will allow for fluctuations in cost due to occasional riders and increases in overall ridership. In order to create a surplus, the price per employee needed to be increased. In order to find the lowest possible price that will still protect WMATA and Ride On from losing money, we calculated the cost for both agencies based on the potential increases in ridership we saw from the results of our survey. Based on those results, we believe that there will be a potential 40% increase in MetroRail ridership and a potential 80% increase in MetroBus and Ride On ridership. Using those figures, we developed the following equation for calculating the total potential costs.

[($6.50 x **{**.25 x 1.4**}**) + ($3.00 x **{**.05 x 1.8**}**)] x (# of employees) x 20 = Potential Cost for WMATA

$3.00 x **{**.05 x 1.8**}** x (# of employees) x 20 = Total Cost for Ride On

The combined potential costs of WMATA and Ride On are then divided by the total number of employees in the company to find the real potential cost per employee per month. This figure is then rounded up to the nearest multiple of ten and $5 is added to the final cost. The resulting price is the lowest possible price that the employer can pay, per employee per month, while ensuring that both WMATA and Ride On are protected against losing revenue because of ridership increases. This will provide surpluses of upwards of $1000.00 a month for both WMATA and Ride On, based on a company with 100 employees, allowing for ample fluctuations in ridership due to occasional riders or new everyday transit riders. Based on the data we collected from our survey, approximately one third of employees who previously did

not use transit to commute would consider occasionally using transit to travel to work. The surplus that the program will generate will cover the cost of those new riders.

For a company with 100 employees, the initial price of this pass program would be $6500.00 per month. Should the employer choose to fill out the proper paperwork, which is highly recommended in this case, the Maryland Commuter Tax Credit will provide a 50% reduction to the cost, lowering it to $3250.00 per month for the entire company. Further savings are obtained because the employer may receive federal and state tax deductions. Assuming 34% Federal and 7% Maryland State income taxes, the employer will save an additional $1332.50, bringing the entire amount of savings to $4582.50. This lowers the final cost to the employer to only $1917.50 a month for the entire company. This breaks down to less than $20, $19.18 to be exact, per employee. Should the employer choose to continue offering this benefit, it will cost $23010.00 per year for the entire company, with nearly $55000 saved.

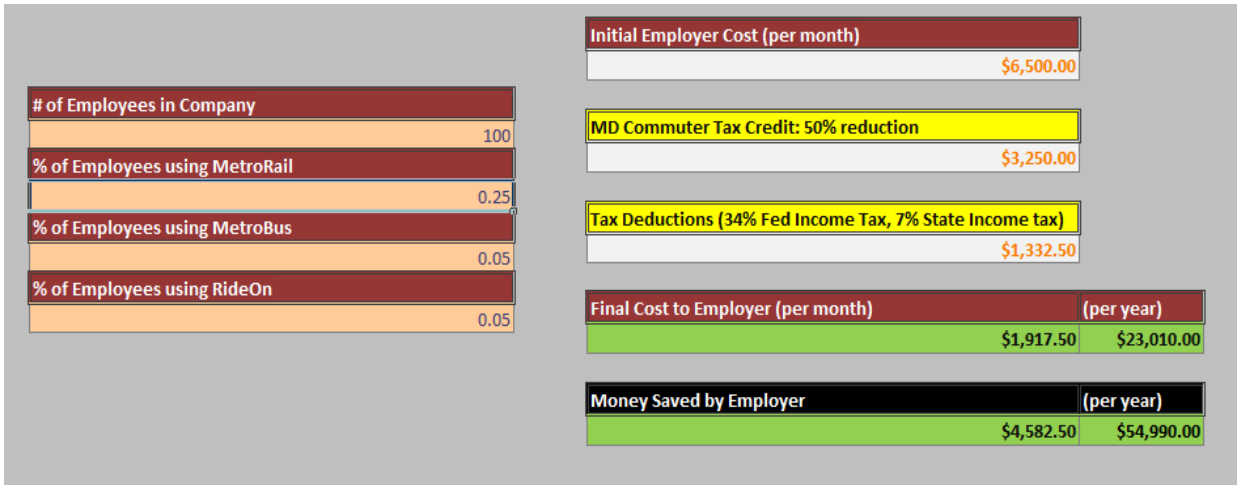

Figure 11: Pass Cost to Employer

If the exact same company was offering a current transit benefit, the max amount they would be allowed to provide is $230.00. After discussing the pricing model with representatives

from BTS, we found that most companies offering transit benefits in the Bethesda TMD offer, on average, $115.00 to their employees for transit benefits. If an employee was commuting to work every day via the MetroRail, the monthly cost of their commute would be $130, based on the average round trip MetroRail fare of $6.50 for Bethesda commuters. The transit benefits offered by the employer do not fully cover the cost of the employees monthly transit use. Based on the previous calculations, the monthly cost for a company with 100 employees and 25% regular transit use that gave out traditional transit benefits would be roughly $850.00. While this is significantly less expensive for the employer, the employees also receive a benefit with significantly less value. And only the employees that regularly use transit and request a benefit from their employer are able to receive this benefit. Our proposed pass, while costing more for the employer, provides a much better benefit to employees who use transit frequently, as well as to employees who may be occasional riders or who would consider becoming an everyday transit rider.

After gathering data on the potential increases in ridership that this employer-based pass may lead to, we tested our pricing model, using a sample company of 100 employees, to see if it would prevent the transit agencies from losing money. Based on the results of our survey, we assumed that ridership would increase from 25% MetroRail, 5% MetroBus and 5% Ride On bus to 35%, 9% and 9%, respectively. Plugging these values into our pricing model proved that the overall cost of the pass would be covered by the surplus that the program generates. Under the initial ridership numbers, WMATA and Ride On have a cost of $3,550 and $300 respectively, and the program creates surplus of $1650 and $1000 respectively. Assuming the increased numbers, the costs to WMATA and Ride On rise to $5,090 and $540 respectively.

This creates a difference of $1540 for WMATA and $240 dollars for Ride On. Because the program generates a surplus, which is intended to cover increased costs due to ridership increases, neither transit agency loses money due to the increase in ridership. A visual representation of this can be seen below in Figure 12.

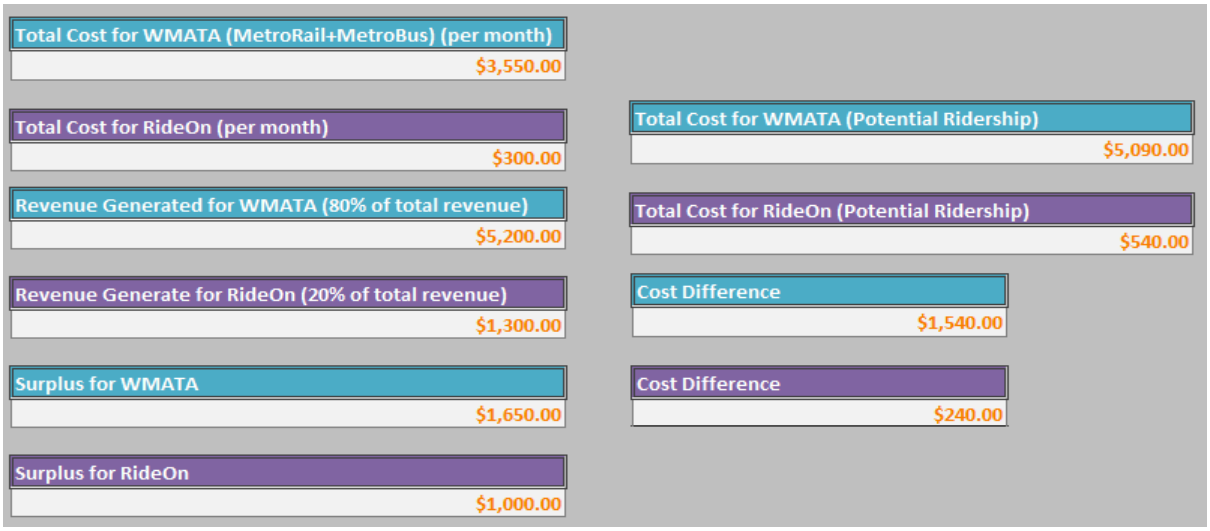

Figure 12: Potential cost increases to transit agencies due to ridership increases

The previous example represents how the pricing model was designed to keep participating transit agencies from losing money. However, the conditions of that test are relatively unrealistic. We believe that increases in ridership will occur overtime, rather than all at once. This means that the costs represented above are over-estimations, as they assume that increases in ridership will happen the moment the pass is given out and that those numbers will remain constant. In reality, transit ridership will increase over the course of the month to a maximum of approximately 35% ridership. The pricing model is designed to accommodate the quick increase in ridership, and this demonstration shows that the surplus generated is in fact enough to cover any potential loses the transit agencies may incur during the pilot of this pass.

4.2.2 Unlimited Pass Upgrade

In addition to the basic pass, individual employees will have the option to upgrade their pass with their own money. One upgrade would allow for unlimited usage of Metrorail, MetroBus, and Ride On, and would cost $25 per month. A second available upgrade would allow for unlimited rides on MetroBus and Ride On for only $15 per month. The upgrades would only be available to current employees of an employer offering this pass, and would be able to be purchased online through the SmartBenefits system. These prices were calculated by assuming five additional round trip rides per month with off-peak hour fares. This allows for the occasional business trip during the week day and the few personal trips one might make over the weekend or after work.

After collecting information from employees on their use of transit during non peak hours, we found that the overwhelming majority of employees use the MetroRail for non peak trips, and that they make one to three trips a week during non peak times. This suggests that our proposed model would cover enough of the cost to the transit agencies, as well as still provide a benefit to the employee.

Using the max non peak MetroRail fare of $2.75, the maximum an employee would be required to pay without the pass would be $66, based on a maximum of twelve round trips a month. With the unlimited upgrade, the pass will pay for itself after approximately eight round trips, based on the $2.75 max fare. Employees would be more willing to travel using transit during non peak hours if they had such a pass, meaning fewer cars on the road at any time of day and an increase in riders during non peak times for the transit agencies.

Based on the survey data which we acquired, a $25.00 unlimited ridership upgrade appears to be appealing to employees. We found that the vast majority of employees use

public transit less than three times a week during off-peak times. Having an unlimited upgrade priced at such a low dollar amount will be beneficial to both employees and transit providers. The majority of a transit provider's revenue comes from peak hour riders. The cost of peak hour fares is raised because there are capacity issues during those times. This means WMATA has to add extra trains and buses, adding to operating costs during those times. During off peak hours, these capacity issues do not exist, meaning trains and buses have empty seats that could be filled. Those employees using transit in off peak times will be filling empty seats on trains or buses that would be in use regardless of how few passengers were riding. Rather than the transit agency receiving no revenue whatsoever from an empty seat, they would be receiving a small amount per trip from the employee who is riding using their unlimited pass. Employees will be able to acquire unlimited access to public transit for a low price, with only a handful of rides required to fulfill the value of the pass. This unlimited upgrade would be most beneficial to employees who ride transit during off-peak times two to three times a week, as it will quickly pay for itself. This pass could also encourage those employees that do not use public transportation outside their commute to use transit occasionally for personal trips.

4.2.2.1 Providing Unlimited Passes as an Employee Benefit

While speaking with representatives from companies, it came to our attention that some companies may want to provide this unlimited upgrade to their employees either as a way to broaden the hours the pass could be used for commuting or as an employee benefit. Some companies have employees that commute during non-peak hours and would not benefit from the base pass option that only allows pass usage during Metro peak commuting hours. In cases such as this, it is possible for employers to provide their employees with an unlimited

upgrade under pre-tax benefits with the argument that their employees will use this upgrade to commute. For example, Imagination Stage, a company we interviewed to collect feedback on this program, has roughly 50% of its employees commuting outside of peak hours. They expressed interest in this pass program as it would allow them to offer a substantial benefit to their employees that commute outside of peak hours. For more information on Imagination Stage, see Section 4.3.1.3.

Unlimited passes could also be purchased by employees wishing to give their employers a benefit of some kind that does not involve commuting benefits. Employers could request the amount of passes they would like to have upgraded and add them to any number of passes they want. It is important to note that in this case the unlimited upgrade would be subject to taxes as it would simply be an employee benefit and not a commuting benefit. However, the option is still there for employers to provide such a benefit if they choose.

4.2.3 Technological Challenges

In addition to developing an appropriate pricing model, we also had to overcome the technological aspects of this pass program. We intend for our pass to be integrated into the SmarTrip program currently employed by WMATA. In order to accomplish this goal, the Montgomery County DOT must have the pass program coded into the SmarTrip software by WMATA's engineers. The cost of this coding will be covered with some of the $200,000 set aside from the Parking Lot District surplus funds available for piloting and implementing this program.

4.2.3.1 Coding the SmarTrip Cards

Coding the SmarTrip Cards to be used in this pass program is essential to achieving the implantation of this pass. As described in the background section, SmarTrip Cards are based on a bucket system with each bucket holding various sets of information. A bucket on the SmarTrip Card must first be coded with timing information while a second must be coded with the pass itself. The timing bucket will work like an on/off switch. If the card is used during peak commuting hours, the timing bucket will direct the system to the pass bucket and allow the fare gate to open with no charge taken off of the SmarTrip card. If the pass is not used during peak hours, the timing bucket will direct the system over the pass bucket to another bucket containing funds for fares. A fare would then be deducted from that bucket. In this case it is easy to think of the timing bucket as a lid for the pass bucket. During peak hours the lid opens, allowing the pass to be accessed. During non-peak hours the lid is shut, preventing the use of the pass. The unlimited pass upgrade would be stored in a third bucket on the SmarTrip card. This bucket would override the timing bucket and cause the pass to be available for use at all times. Several other buckets would need to be coded with company information and any other tracking information that would be needed in order to gather data from the SmarTrip cards during the pilot and actual implementation of this program. As we were not able to schedule a meeting with a WMATA engineering team, these suggestions may change due to unforeseen software issues. However, it is our belief that this proposed method would be viable in the coding of this pass program.

4.2.3.2 Employer Interface

This pass system would need to interface with employers in a way that makes it easy for them to load passes onto their employees SmarTrip Cards. The most logical way we can see

this happening is modifying the SmartBenefits System. As described in Section 2.4.2: SmartBenefits, if an employee does not load their allotted money onto their SmarTrip card it is credited back to their employer. This would not work for this pass program because funds not used by employees either not using their pass or only using it occasionally are needed to cover the costs of employees using their pass more frequently or every day. In order to overcome this problem, we believe it would be necessary to modify the SmartBenefits System.

This pass program would need to be coded in such a way that all funds put into the pass system go to WMATA and Ride On to cover operational costs, instead of the current method of having funds sit in the system until accessed by employees' SmarTrip Cards. Also, instead of loading funds onto a card, this evolution of the SmartBenefits system would code the passes onto pre-registered SmarTrip cards as described in the previous section. This would provide employees with passes as well as giving the transit agencies involved operating money when the funds are loaded onto the system. It also cuts down on administrative work for companies, a benefit that will be described in greater detail in Section 4.3.2.1 Employer Benefits.

4.2.3.3 Future Technological Problems

Another technological challenge of the pass is overcoming the limited number of SmarTrip Cards that are available. Due to the fact that Cubic no longer manufactures the chips needed to make SmarTrip cards, one of two things must happen. The first possibility is that WMATA will use a different system that they manage internally. This means that the pass would not have to be approved by another outside agency. For instance, in several interviews with different agencies, there has been talk of putting the system onto credit cards with smart chips in them. This would be the second and less favorable option. If WMATA was to continue

to manage their own system, they could easily transfer the pass program over to the new fare media they will be implementing. This means that the idea of the pass will already be in place, reducing complications to the companies using the pass. If an outside agency were to get involved and manage the fares that are currently managed by WMATA two problems could arise. First, a fee could be added to all transactions made at fare gates, increasing the cost of the pass. Second, the pass may have to be approved by this outside company. This would give them a say in how the pricing model worked, essentially giving them control over it. This would not be a favorable outcome as they could raise the price of the pass system to increase revenues.

4.2.4 Guarding Against Abuse

A primary concern that was raised by the Montgomery County Department of Transportation was how to prevent the pass from being abused. Should an employee choose to forgo using the pass provided to them by their employer, that employee may choose to hand the pass off to a family member or friend. This would be considered misuse of the employees transit benefit, and is against federal tax law (TranServe, 2009). In order to discourage this kind of activity, several courses of action can be taken.

Integrating the transit pass onto an employee's company identification card would be one method of preventing fraud. The employee would be required to carry the pass with them to work because they would not be able to enter their place of work without their ID. There is a major drawback to this method, however. The cost of printing employee ID cards onto their SmarTrip passes is significant. The overall cost of the program would increase in order to offset

the cost of printing the passes. Because this pass is designed to be priced as low as possible, combining the pass with ID cards is not a viable option.

Employers would have the most to lose from their employees abusing the pass, as abuse may lead to increased ridership numbers and an increase in overall costs. For this reason, it may be in the best interest of the employer to periodically request ridership data from WMATA. This information could be retrieved from employees' SmarTrip cards, and would allow the employer to see if an abundance of unnecessary trips were being made. This would also be the most cost effective to employers, as the information would be easily retrieved and analyzed. Employers would be able to monitor the use of the pass program by their employees, and would be able to take appropriate action if abuse was occurring.

4.3 Marketing Strategy

With the pricing model and technological aspect out of the way, next we had to determine an acceptable number of employers that would provide sufficient data during the pilot, and then select specific companies that would be suitable candidates for piloting the pass program. From this list of companies, and with the help of the BTS, we needed to select employers to market the pilot program to, and hopefully generate enough interest that they will choose to participate. Our group selected companies based on their proximity to the Bethesda Metro station, total number of employees working at that site and the company's history of providing transit benefits. Initially we had targeted over twenty-five different employers, but after speaking with representatives from both the North Bethesda TMD and Bethesda Transportation Solutions we narrowed that number down to less than fifteen employers. We also decided that it would be in the best interest of the pilot to leave out

employers with no history of providing their employees transit benefits. A detailed list of companies can be found in Appendix F.

4.3.1 Selection of Pilot Companies

Choosing companies with varied distances from the Metro station in the Bethesda TMD was one of the major criteria of selection. Companies that are close to the Metro station will have different attitudes to providing transit benefits than a company that a mile or more away from a Metro station. It is our hope that we will be able to collect data to determine the maximum distance from Metro stations or bus routes a company can be before they decide that this pass program, or a similar pass program, would not be in their best interest. To simulate this we chose eight companies within two blocks of the Bethesda Metro station, three companies between two blocks and a half mile from the Metro station, and two companies greater than a half mile away from the Metro station. The reason for the high number of close proximity companies is due to the way the area has grown. Most companies are located close to the Metro station for easy access to transit. The further you travel from the Metro station the fewer businesses you will come across as areas become more residential. This could create a bias in the data collected as companies with a close proximity to Metro Stations are more likely to offer benefits than companies without a Metro Station near their place of business. This attitude can be seen when looking at the Marriott International Company's feedback to our pass system. Their major issue with this pass program was that they are located in an area that only provides bus travel as a means of public transportation, with no easy rail access. The area also provides ample parking for employees. These two factors combined mean that for most employees working at this site it is more convenient to drive to work than take public

transportation. However, due to the way the Bethesda TMD has developed, having companies with close proximity to the Metro Station is almost unavoidable in this area.

The number of employees was also considered as a determining factor for some companies. Our pass is designed in such a way that the more employees you have, the less expensive per employee the pass becomes, with variations depending on ridership numbers. For example, the All-State Insurance Agency in Bethesda was interested in this pass program. However, after speaking with representatives from BTS we learned that they have five employees in their Bethesda office and only one employee uses transit to commute on a daily basis. This employee also uses the max fare on every mode of transit available. It would cost over three hundred dollars a month to provide the pass to all five employees, even though only one employee will be using the pass. In this case, it is more beneficial to provide that employee with the current form of transit benefits, making this pass less than ideal for their situation. This showed us that small companies, with less than fifty employees and very few transit users, would not be ideal candidates for participation in this program.

On the opposite side of the spectrum, a very large company with very few transit riders would be able to buy the pass at a much lower cost per employee. Marriott International is one such company. We were able to gather data from the Montgomery County Department of Transportation's databases on Marriott's total number of employees, and the number of those employees currently receiving transit benefits. While Marriott employs roughly 2,200 workers at its headquarters, only about 5% of those employees are currently receiving transit benefits. Because so few employees commute using transit, the cost of the pass is significantly reduced

per employee, as the cost incurred by the 5% of employees actually using transit is spread across the entire company. Thus, the pass would cost only $15.00 per employee per month, significantly reduced from the starting price of $65.00 per employee per month. This example shows how the pricing model can be adapted based on a company's needs, regardless of the company's size.

While this pass is not ideal for small companies, large companies are perfectly suited for it. Our pass is designed with the idea in mind that most people will not use the pass every day. The chances of every person in a large company using transit every day are very low. Our data suggests no more than 25% of employees in a company will use transit daily. The other 75% still pay for the service even if they don't use it. This covers the cost of people riding transit every day. With the help of the representatives from BTS, our group selected several companies with fewer than a hundred employees, several with a few hundred employees, and several larger companies in order to get an idea of how employer size will affect the program. Of the companies we chose to target for this pilot, the average number of employees per company was 119, the median number was 89, and the range was 5 to 272. Specific data on company size can be obtained in Appendix F.

The decision to include only companies with a history of offering transit benefits in this pilot was discussed thoroughly within the group and with people in the DOT. The reasoning is that we want to see if the mechanics of the pass work for this pilot. Employers offering transit benefits are more likely to be open to the idea of the employer-based pass. For the pilot of the pass we decided it would be beneficial to have companies that already agree with offering

benefits in case we have to rework the pass. That way, if for some reason the pass becomes more expensive due to unforeseen circumstances, these companies will be less likely to immediately deem the pass as a failure and, instead, accept the increase in price as a sign of positive change. While this will cause some bias in the data, especially in how the marketing is perceived, we feel it is the best course of action for this pilot.

4.3.2 Program Benefits

4.3.2.1 Employer Benefits

The goal of our marketing strategy is to show employers that this pass system will provide a large transit benefit to their employees and their company without costing much more than they are paying currently paying to offer transit benefits. This is done by showing employers the benefits they will be receiving through this program and comparing current programs they may be using to this new pass system. One of the focuses was that offering transit incentives not only increases employee retention, but also makes a company more desirable to people seeking new jobs. Assuming the job market opens up, this program could be a selling point for potential future employees. According to a recent survey, 61% of employees are more likely to stay with their current company because of the company's support of transit benefits (Federal Transit Administration, 2009). We also promoted the green incentive, showing employers that adopting our pass program will help them receive Green Business Certification from the Montgomery County Chamber of Commerce. Providing free transit to employees will give the company a greener image and, if those employees actually increase their ridership, the company will be reducing its overall carbon footprint. To review the details of green certification, please see Section 2.2.3.1.

In addition to attaining a more environmentally friendly image, increasing employee transit ridership will also reduce the need for on-site parking. For employers who are considering adding on-site parking, less need for parking means fewer parking spaces that need to be built, saving money on parking area and opening up land for other use. For companies who already have on-site parking, a pass such as this can do three things. First, this pass can cut down on parking congestion in lots. Some companies admit to at times having trouble providing enough parking for all of their employees. This pass can help to eliminate the concern of having too much demand for actual parking space limits. Second, if spaces are sitting unused, companies could begin to provide parking to other commuters looking to park close to their own place of work. This would provide the company with an additional source of revenue. Third, this pass could provide employers with a reduction in the amount they will have to pay out in parking benefits. Because employees will be able to receive a larger parking benefit after the transit bill sunsets, as described in Section 2.4.3 Tax Incentives, the cost of offering parking benefits will be significantly higher than the cost of offering transit benefits. Increasing transit ridership among their employees means employers will not have to provide as much of a parking benefit to those employees, thus reducing their overall costs. Each of these options provides the company with options to save money. Employers may also be provided with a comparison of their existing transit benefit programs and our proposed program, demonstrating that our program will provide a better overall financial value to an entire company, rather than only a handful of individual employees.

Under most employers' current transit benefits, an employee must gather information from all other employees within the company that wish to receive a monthly transit benefit,

calculate the total cost of each individual employee's transit use, and then determine how much of the cost the company will cover through the transit benefit. That information then needs to be entered into the SmartBenefits online resource, and each employee must be assigned the appropriate benefit. This process takes place for every employee that receives a transit benefit, as employers do not want to issue more money than they need to. Because calculating the necessary benefits is a time consuming process, a company would be saving both time and money by adopting our proposed pass program. We plan for the program to be offered through SmartBenefits, which would allow for an employer to load the monthly pass onto every employee's SmarTrip card by simply using the SmartBenefits online resources. With a few clicks of a mouse, an employer can provide the pass to every employee in the company. Rather than spend hours, maybe even days, determining the necessary benefits for each employee, an employer could take five to ten minutes to upload the exact same benefit to everyone in the company.

Employers who provide this pass gain one additional benefit. Employees that commute to work using SOVs are unable to turn their commuting time into productive time. Operating a motor vehicle requires the full attention of a driver. This means that the time it takes for them to commute is unused time in the day, allowing for no productivity. This is not the case for employees using public transportation. Employees using public transportation can be productive during their commuting time. They can check emails, plan their days out, catch up on things that they had missed from the previous day, and generally prepare themselves for the work day. This means when they arrive at the office they will be ready to get straight to work, rather than waste a half hour to forty-five minutes preparing for their day. In other words,

employers gain the benefit of having employees that are completely ready to start their day the second they step into the building. Having morning planning and preparation out of the way also allows for employees to be less stressed. This will allow them to have a more productive day, which is beneficial for any company.

4.3.2.2 Employee Benefits

Employers want to know what their employees will be getting out of a deal. This helps them gauge the costs in relation to the benefits provided by this program to ensure that their employees get the most out of what the employer is spending. Our pass provides several advantages to the employee. First, the pass is essentially free for all employees that use it, as the pass is paid for by their employer. This means that employees will have full access to the MetroRail, MetroBus, and Ride On systems during peak commuting hours at no cost to them. This goes hand in hand with the second benefit to employees: having a pass that covers so many transit systems reduces the employee's dependency on a car for daily commuting. Even if a commuter takes transit occasionally during their commute they will reduce wear on their car, save money on gas costs, and spend less money on maintenance.

As mentioned in the previous section, employees who take public transportation are able to be productive during their commute to work. These employees can start their days off by checking emails, planning their days, and taking care of personal matters. This allows them to start working before they walk through the doors of their workplace, reducing the stress of a morning rush and allowing for a more productive day.

The greatest benefit to employees is the ability to individually upgrade their passes to unlimited passes. For this pilot, the basic pass will only be able to be used during peak

commuting hours. This would require commuters to add money to a separate purse on the SmarTrip card to travel outside of the peak hours. If an employee chooses too, our pass will allow them to pay an extra fee, out of their own pocket, to upgrade their pass to work at all times of day, including weekends. Employees would be able to purchase the upgrade by logging on to the SmarTrip account management site and individually upgrade their pass. This upgrade would be purchased by the employee on a monthly basis. Currently, the program includes two unlimited pass upgrade, one allowing unlimited usage of MetroRail, MetroBus, and Ride On, and the other an unlimited bus pass, allowing unlimited usage of the MetroBus and Ride On systems. While the upgrade is not an actual benefit, as the individual employees would have to pay for it themselves, it is certainly another advantage they would have the possibility of gaining through this program.

4.3.2.3 Benefits to WMATA

Because the development of this pass program directly depends on WMATA's involvement, it will be necessary to explain the advantages of this program to WMATA. In order for WMATA to become interested in taking part in the proposed pilot program, we need to demonstrate the financial benefits that WMATA would gain from our employer-based pass system. This will be accomplished by showing them that the program could be tailored to individual companies in order to ensure that WMATA would not be losing money under any circumstances. In most cases, our pricing model will actually provide a surplus to WMATA, which would act as a buffer in the event that an increase in ridership causes an unforeseen increase in the cost of providing this pass to employees. We will also have to demonstrate to WMATA that they would reap future benefits by spending the money and time to integrate our

proposed pass program into the SmarTrip system. The cost of coding the new pass into the SmarTrip system would hopefully quickly be recouped by the surplus generated from selling the new passes.

In addition to providing WMATA with another source of revenue, our proposed pass program would help to increase off-peak ridership. Our plan includes the option for employees to individually upgrade their pass from peak time use of transit only to unlimited transit use during all times. Because WMATA continues to operate MetroRail and MetroBus services during off-peak times, much of their available capacity is unused. If employees had access to an unlimited transit pass, they would be more inclined to utilize transit outside of their commute during peak times. This will help to fill empty seats on WMATA's trains and buses. When seats are empty, WMATA is receiving no revenue whatsoever. If employees using their unlimited passes are filling what would be empty seats during non-peak times, WMATA is receiving a marginal increase in revenue. Offering the upgrade to employees at a low cost will encourage them to use transit more often during non-peak times, and will thus fill a number of empty seats on trains and buses that continue to operate regardless of how many passengers they have. To review details on the pass's unlimited upgrade, see section 4.1.2: Unlimited Pass Upgrade.

4.3.3 Company Meeting Results

In order to gain an understanding of what employers were looking for in terms of an employer-based pass, we felt it was necessary to speak with representatives of several companies. We selected companies from our list of potential pilot companies and met with them to present our proposed program and listen to any concerns or ideas that they chose to

provide from the employer's point of view. We also met with a representative of Marriot International, a much larger company, to learn about what a large employer would be looking for in terms of a company-wide employer-based pass. Survey results are presented in Appendix D. The following sections outline the details of those meetings.

4.3.3.1 Marriott Executive Meeting

On November 19, our group, along with several members of the Montgomery County DOT and BTS, met with Jim Young, the Senior Director of Corporate Facilities and Services of Marriott. The goal of this meeting was not to extend an offer to join the pass program but, rather, to gain insight on how a large company, with over two thousand employees, would receive the idea of providing such a pass to their employees.

Mr. Young liked the overall idea of the pass and how convenient it would be. He went on to explain how he enjoys the peace of mind of always having his SmarTrip card in his pocket with some stored value on it in case he finds himself needing to take public transportation. This would be an extra benefit for employees who do not currently have a SmarTrip card. Mr. Young also expressed how convenient it would be to not have to worry about keeping track of money for an employee. Not having to worry about how much money is on a SmarTrip card during the morning rush of getting ready for work, possibly getting kids ready for school, and getting out the door eliminates one more thought from a person's mind, allowing them to come into work more focused on what they have to do.

Mr. Young had two major concerns. First was who would pay for the SmarTrip cards that will be used to put the passes on. At five dollars a card, this would amount to upwards of a $10,000 start up cost for Marriott if they were to provide cards for their employees. This would

also change the pricing model drastically. There are several ways to approach this problem. One course of action would involve the employee having to buy the SmarTrip card themselves. That reduces the convenience factor for employees that are not regular transit users, as they must make a trip to buy their own card, and then register it both online and with their company. A second way to address the problem would be for the Department of Transportation to subsidize the cost of supplying SmarTrip cards to employees. This would save employers a considerable amount of money while still allowing them to provide a significant transit benefit to their employees.

Mr. Young's other concern was pricing. Our pricing model overshot what they are currently paying by a few thousand dollars a month. However, Mr. Young pointed out that the figures we acquired from Montgomery County's database showed Marriott's total number of employees to be larger than it actually is. He also made it clear that the majority of transit users within Marriott use buses, rather than the MetroRail system, further reducing the cost. Based on that information, the cost of offering this pass would be reduced to approximately the same amount Marriott is paying to offer their current transit benefits.

When asked how long Mr. Young believed the pilot should run, he answered six months. This gives enough time for the Department of Transportation to find trends in ridership data after a potential initial rush of employees trying the pass out when they receive it. He also liked the idea of quarterly billing for his company. This way paperwork does not have to be filed every month, while at the same time the pricing model could be updated to account for significant increases in ridership.

4.3.1.2 B.F. Saul Meeting

B.F. Saul is a real estate company based in Bethesda with branches that deal with property management, leasing, insurance, and hotels. The branch in Bethesda consists of corporate offices with almost all of the employees following a nine to five work day. This office is also centrally located across the street from the Bethesda Metro Station, making public transportation a convenient option for employees.

On December 8, our group met with Christine Ramos from the Human Resources division of B.F. Saul, with Sandra Brecher of the Montgomery County DOT, as well as Jennifer Zucker and Danielle Milo from the Bethesda Transportation Solutions (BTS) also in attendance. Since B.F. Saul was one of the companies that participated in our survey, and is a likely candidate for the pilot program, our goal for this meeting was to explain the workings of the program, and to see if there would be any difficulty, financial or otherwise, that could hinder their participation.

Some points of clarification had to be made initially to correct the slightly outdated information we had collected concerning the number of employees on site and the transit benefits being offered to employees. We learned that there are 307 employees in the Bethesda branch and its subsidiaries. B.F. Saul is also currently paying between $7000 and $8000 in commuter benefits to their employees per month before taxes. Ms. Ramos also raised a concern that the company is planning to cut its operating budget in the next year. Because of this, budgeting for this program might be an issue and would need to be approved by Kenneth Kovach, the Senior Vice President of Human Resources.

After recalculating the projected price of the program for B.F. Saul, they would have to pay $5,848 per month after tax deductions. This will be an increase of roughly one thousand dollars over what the company is currently paying for transit benefits. However, this pass would also allow for B.F. Saul to cut some of the parking benefits that they currently provide to their employees. They would also be saving money on administrative costs due to the pass. Because the pass is intended to be offered through SmartBenefits, employers will be able to easily give out the monthly benefits, rather than have to individually calculate the necessary benefits for individual employees in their current transit benefits system. This means that B.F. Saul would no longer have to pay an employee to calculate the benefits necessary for each month. Instead of figuring out the exact amount each employee needs in transit benefits each month, an employee would simply have to log into SmartBenefits, load the passes onto every SmarTrip card registered with the company and be done with the process. The time and money that this system would save would likely cover the additional cost of offering this pass program. Also, out of the 42 employees that replied to our survey that they do not use transit to commute, 16 said they would consider using transit at least 2 days per week. This shows us that employees at this office would be open to a pass program.

The fact that the base pass would only be used during peak commuting hours was not an issue for this company. Employees had strict office hours which coincide with the peak hours. Ms. Ramos believed the program would work for B.F. Saul. That being said, she needs to see final numbers before a commitment can be made.

4.3.1.3 Imagination Stage Meeting

Imagination Stage is a theatre company that specializes in teaching theatrical arts to children under the age of 18. The theatre is located in what is known as Old Bethesda and is roughly a ten minute walk from the Bethesda Metro station. There is also a shuttle that runs from the station to the area in which Imagination Stage is located. Imagination Stage is a non-profit organization with 48 employees.

On December 8, we met with Scott Brickman and Wendy Calhoun at Imagination Stage, along with Jim Carlson and Sandra Brecher of the Montgomery County DOT, and Jennifer Zucker and Danielle Milo from BTS. Upon hearing how the base pass would only allow for peak hour commuting, Mrs. Calhoun brought up the fact that many of the Imagination Stage employees do not commute during peak hours. A fair number of employees also work on weekends. We explained that the pass can be tailored to their particular needs, namely adjusting the price to accommodate for non-peak hour commuters. When we mentioned that the base pass may be upgraded to allow for unlimited transit use, Mrs. Calhoun and Mr. Brickman both agreed that the upgrade option would be beneficial to the employees at Imagination Stage. Mr. Brickman asked if the upgrade could also be provided by the employer so that tax credits may be taken advantage of. In this case the pass could be upgraded using pretax benefits as the employees of Imagination Stage will use the upgrade to commute.

The second major issue to be addressed was pricing. As a non-profit organization, Imagination Stage has to closely monitor all of its expenses. Currently, all employees are given a transit benefit. This is due to the fact that all employees received this benefit at the theatre's previous location. When the company moved to its current location, directors of the theater

did not want to cut that benefit. When an employee is hired, a human resources representative calculates how much of a benefit each individual employee will need in order to cover the costs of their individual commute. This allows Imagination Stage to give just enough transit benefits while preventing overspending. Our pass is currently $300 more expensive per month than what Imagination Stage currently pays per month to offer transit benefits to a select number of employees. However, this number is based on peak commuting hour fares. If the pass were to be reworked based on their specific needs, it is safe to assume a model could be made to factor in that most employees at Imagination Stage commute outside of peak times. This would drastically lower the price and make the pass viable due to the fact that non-peak transit fares for riding MetroRail are roughly half the price as peak hour fares. Assuming half the employees at Imagination Stage commute outside of peak hours, this could cut up to a quarter of the price of the program. Also, when the idea of subsidizing the pilot came up, Mrs. Calhoun immediately said she would be interested in proposing this program to the board of directors. She said the idea of the pass was exciting and hoped that we could work out a price that allowed the theatre to participate either in the pilot or after the pilot's completion.

5.0 Conclusions and Recommendations

The main objective of this project was to provide the Montgomery County Department of Transportation with a model for an employer-based transit benefit pass program. Throughout this report we have detailed the processes that have been taken in order to achieve this goal. The following sections will outline the steps taken in the program's development, and will include our final recommendations to the Montgomery County Department of Transportation regarding an employer-based transit pass program.

5.1 Conclusions

An employer-based pass program is not only feasible in Montgomery County, but it is also something that could benefit many people in their daily lives. After examining how such a pass would work, our team has developed a pass to be put on the SmarTrip Card system that can be customized to individual businesses. This is accomplished by accounting for the number of employees involved in the program, fluctuating transit fares, tax laws, and state transit rebates. This flexible model allows for the maximum benefit to be given to the businesses involved while providing enough revenue to the transit agencies so that they will not be losing significant amounts of money by participating in the program. In fact, after reviewing our model and running through several possible scenarios, we predict that the transit agencies will generate a surplus by participating in this program. This model also allows for changes in the aforementioned criteria that the pass addresses, allowing it to be used for years to come.

Employers that buy into this pass will be providing their employees with free transportation on Metro Rail, Metro Bus, and Ride On buses during peak commuting hours for a highly discounted price. In addition, employees may choose to upgrade their pass to an

unlimited usage pass by paying an out of pocket fee. For an upgrade to unlimited use of Ride On and Metro Bus, an employee would pay $15.00 out of their own pocket. For an upgrade to unlimited use of all three services, an employee would pay $25.00. These upgrades would allow their passes to be available for use outside of commuting hours, including weekends.

All in all, this pass is a viable program and could be piloted in the Bethesda TMD before the end of fiscal year 2011. A few challenges still require attention, mainly ironing out responsibilities and technological problems. That being said, it is our belief that using the information we have compiled in this report that these hurdles can be overcome easily with cooperation between WMATA and the Montgomery County Department of Transportation.

5.2 Recommendations

5.2.1 Addressing Technological Concerns with WMATA

In order for an employer-based transit pass to be feasible in Montgomery County, we believe several steps need to be taken. First, the Montgomery County Department of Transportation needs to ensure that WMATA would be willing to participate in the program. Because the intent is to release our pass on the SmarTrip card, WMATA will be responsible for writing all the software necessary to get the pass technology onto the cards. Further complicating the process is the fact that the SmarTrip technology is outdated. WMATA has a very limited supply of the chips used in SmarTrip cards, thus severely limiting any kind of long term planning using the SmarTrip technology. Any program that would be piloted would have to be easily adaptable to the new form of fare media chosen by WMATA. If Montgomery County wishes to begin a pilot program before the end of the 2011 fiscal year, they will need to

begin discussions with WMATA regarding their participation in the development of the program as soon as possible.

In addition to modifying the SmarTrip software, the pass program we are recommending would also benefit from an upgrade to the SmartBenefits program. Currently, SmartBenefits merely serves as a way to load more value onto employees' SmarTrip cards, similar to a debit system. If SmartBenefits was updated to allow employers to go online and automatically load the pass onto their employees SmarTrip cards, the pass program would be easier to access and more desirable. Because many employers that currently offer transit benefits do so through SmartBenefits, they will be expecting to have the same accessibility with the new program. Loading the pass onto an employee's SmarTrip card through SmartBenefits will increase the convenience of participating in this program. WMATA would be responsible for this upgrade, increasing the need for them involved in the development of this program.

We recommend that Montgomery County immediately begin laying the groundwork for accomplishing these changes with WMATA. Contact with WMATA and their software engineering team must be made immediately to discuss the technological challenges of the program and what can be done about solving them quickly. Based on WMATA's history of updating their software, it may take upwards of six months to a year before the necessary changes are completed. To ensure WMATA's cooperation, Montgomery County may want to present, in detail, the pass program to WMATA representatives in order to provide a clear understanding of how the program is intended to function. For details regarding what WMATA has to benefit from participating in this program, see section 4.3.2.3 Benefits to WMATA. If Montgomery County wishes to begin the pilot program before the end of the fiscal year 2011, it

is imperative that they begin working closely with WMATA on the development of this pass program.

5.2.2 Data Collection

The main goal of the pilot program will be the collection of data. In order to find out if the pass is priced appropriately, and whether or not there is a potential to increase public transit ridership throughout the region, it will be necessary to gather information from the companies participating in the pilot. The most important information that can be gathered during the pilot is a measure of the increase in ridership, which modes of transit are being used and how frequently those modes are being used, the average daily round-trip fare for those using this pass, and what times of day it is being used. We believe that data on the aforementioned topics will provide the best gauge of whether or not the pilot program was a success, and whether or not the pass's pricing model needs to be adjusted further.

To gather the best results on the pilot program, we advise that data should be collected through the SmarTrip system. It will provide the most accurate ridership information, as well as information regarding the total cost of all the transit trips taken in relation to what is covered by the cost of the pass itself. With this information, the pricing model can be further tweaked to account for any possible revenue loss experienced by the transit agencies. However, we realize there is a legal aspect to gathering information from individual SmarTrip cards. WMATA is very concerned with the privacy of its customers, and collecting data from SmarTrip cards has not been permitted in the past. Discussions with WMATA about this legal aspect will have to take place in order to work out the best methods for data collection without infringing on the privacy of the card users. We believe that the most efficient and least intrusive way of

collecting data from SmarTrip cards would be to view the data from an entire company at one time, rather than a compilation of the individual users in that company. That way anonymity still exists regarding the identity of individual transit riders, and the data is still available to help improve the program.

5.2.3 Pilot Program Specifics

Regarding the pilot program, we believe that ten to fifteen companies, of varying sizes, would provide the best results. The targeted companies should be within close proximity of a Metro station, allowing for the largest number of transit riders to have easy access to their place of work. This will provide Montgomery County with an estimate on the trends of increasing ridership that can be expected when the program moves beyond the pilot stage. We also recommend targeting only companies who have offered transit benefits to employees in the past. It will be much easier to pilot the program and collect data from companies who already understand the benefits of using transit to commute. Once the pilot is complete and the pass program is further refined based on the results of the pilot, companies with no history of offering transit benefits can be approached for participation in the program.

In order to acquire enough data from the pilot, we suggest that Montgomery County run the pilot for a minimum of six months. This will provide accurate data regarding ridership tendencies, and should allow for any necessary adjustments to the pass system to be made easily. We have selected thirteen employers, based on the above criteria, that we believe would be likely to participate in the pilot program. A detailed list of these companies can be seen in Appendix F.

Choosing to select only companies that previously offered transit benefits, as well as choosing companies located within relative walking distance of a Metro station, will add a bias to the pilot program. However, for the sake of collecting sufficient amounts of data, we believe that it is necessary to analyze the possible increases in transit ridership with companies that have established transit benefits. Companies will also be far more willing to participate if they will be increasing their costs related to providing transit benefits only slightly, rather than adding an entirely new expense, which would be the case for a company with no history of offering transit benefits.

5.2.4 PLD Fund Allocation

Bethesda's Parking Lot Districts (PLDs) have generated a surplus of $200,000 for Montgomery County, and these funds are available for the remainder of the 2011 fiscal year. There will be an initial startup cost to WMATA as they must program the necessary changes into the SmarTrip and SmartBenefits software. In the likely event that Montgomery County will need to reimburse WMATA for upgrading the software, we suggest that the surplus generated from the PLD be used to pay WMATA for their work in upgrading the system. Also, should there be a major increase in the actual cost of providing transit services to either WMATA or Montgomery County that is not covered by the surplus generated by the pass itself, the PLD surplus funds will provide Montgomery County with funding to cover any unexpected losses that the transit agencies may have.

In order to help increase participation, we propose that Montgomery County offer to subsidize the program for the duration of the pilot. This will make it more appealing to employers and will help to increase participation for the sake of better data collection. We

would recommend that Montgomery County offer to pay for the cost of the pass in excess of what the employer was currently paying, using the PLD surplus funds. For instance, if an employer is currently paying $1,500.00 a month for transit benefits, and the pass program would cost $2,000.00 a month, Montgomery County would offer to pay the additional $500.00, so as to not increase the employer's expenses. Based on feedback we received from our meetings with BF Saul Company and Imagination Stage, this option is very appealing to employers. However, it will need to be made clear to employers participating in the pilot that the subsidy is not intended to continue past the pilot.

5.2.5 Pass Pricing

In regards to the cost of the pass, we recommend that Montgomery County use the pricing model we have created. The model is based on survey data that we collected from the companies targeted for the pilot program as well as data that was provided to us by the Montgomery County Department of Transportation. A detailed explanation of the pricing model can be seen in Appendix E. We recommend starting the pass at a price of $65.00 per employee, per month. Combined with the available tax deductions, employers can provide this benefit to every employee in their company at a discounted rate. For more details on how we developed the pricing model, see section 4.1.

5.2.6 Conclusion

In closing, we believe that Montgomery County will be able to offer an employer-based transit pass to companies based within the County. In order to do that, we recommend that the pass be integrated into the existing SmarTrip technology, as well as the SmartBenefits system. This means WMATA will need to be heavily involved in the development of the program and

most likely will need to be compensated financially. It would be best if the pass's pilot program were to have a lifetime of at least six months, and include between ten and fifteen employers of various sizes. It would be most beneficial to the pilot program to target companies who have offered transit benefits to employees in the past. Montgomery County should also consider offering to subsidize part of the pilot's cost, which will increase the interest of employers. We would also recommend using the pricing model we have developed. It allows the program to be highly customizable financially, further increasing its appeal to employers. All of these recommendations have been made based on research and data that was acquired during our time in Montgomery County. We hope that these recommendations prove to be useful to the Montgomery County Department of Transportation in their development of an employer-based transit pass program.

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Appendix A: Sponsor Description

The Montgomery County Government Department of Transit (DOT) is the governing body on public transportation and infrastructure in Montgomery County. To divide up regions the DOT split the county into five Transit Management Districts (TMD's). These TMD's have four main goals within their given areas: cut traffic congestion, increase transportation capacity, reduce noise and air pollution, and promote bicycle and pedestrian access to the public transportation system.

The system of TMD's and the DOT are public agencies and therefore are funded by tax payer dollars. The DOT currently has 457 full and part time employees working in Montgomery County. This number does not include the TMD's. In reality the entire system of public transportation employs thousands of people in the bus system, infrastructure maintenance, and other areas needed to keep the system running smoothly.

For our project the DOT has acquired funding from the Bethesda Parking Lot District amounting to $200,000. We will be working primarily with Sandra Brecher, Jim Carlson, and Sam Oji. We must also look at how the Washington Metropolitan Area Transit Authority (WMATA) will be affected by the Eco-Pass system because many employees will be commuting into the city for work. We must look into if the WMATA will honor the benefits of the Eco-Pass system and how it will be paid for.

Figure 1 shows a flow chart of the distribution of responsibilities within the DOT. Our group will be dealing mainly with the Division of Transit Services (Yellow branch), specifically the Commuter Services Section. This is due mainly to the fact that the program we will be developing will be offered as a transportation benefit service.

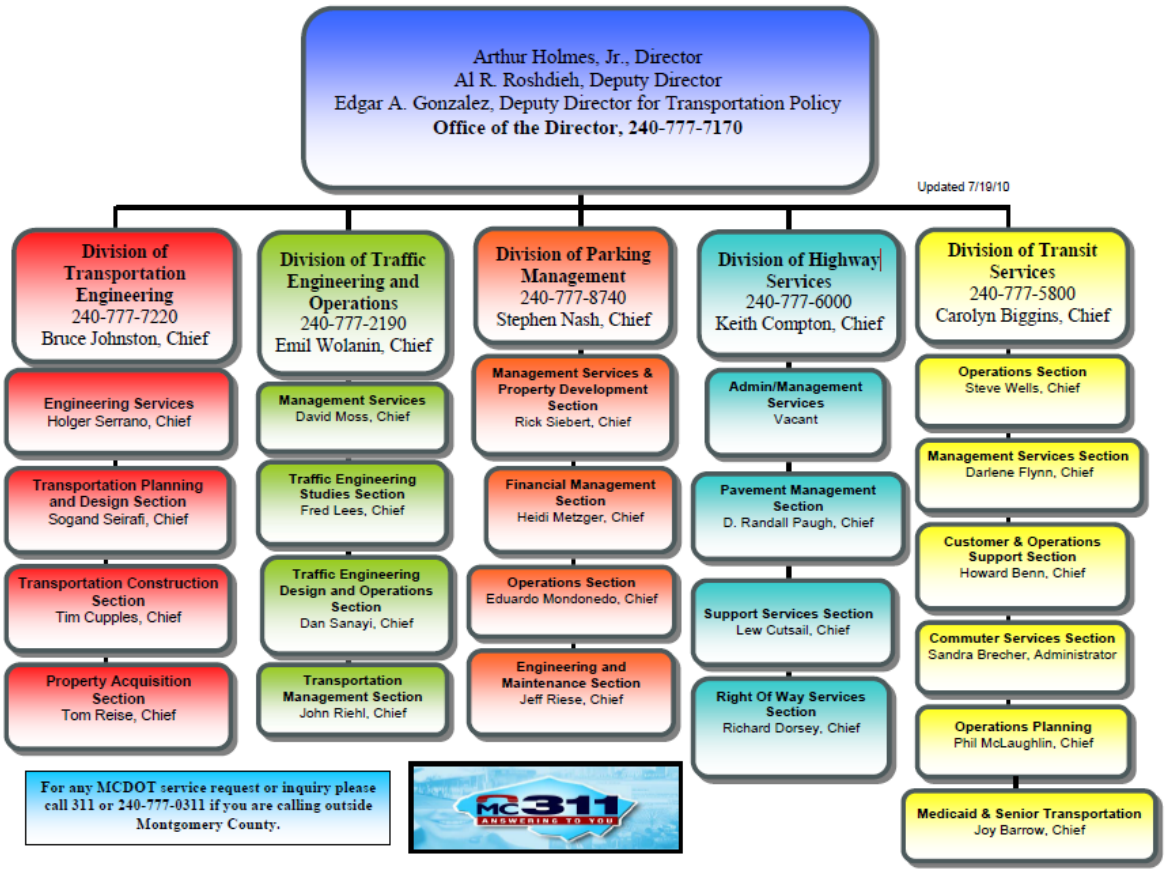


Figure 13: Flow Chart of the Montgomery County DOT

Appendix B: What Makes an IQP?

An IQP is a project that forces students to apply knowledge gained at WPI to social problems not necessarily in their area of study. These projects are generally designed to help a community or other groups of people in an effort to connect the student to people and provide them with a new perspective by working on a problem they would not normally have the chance to take on. The idea of the project is to give experience working on a large scale project while broadening the student's horizons. Off campus projects also give students the opportunity to experience new cultures first hand by allowing students to live in a different part of the country or the world for seven weeks.

Our group's project meets all of these criteria. We are working on a project to help people save time and money on their commutes to and from work. By completing this project we will be affecting the people of an entire county in Maryland as well as anyone outside of the county who will be using public transportation to get into the county. No one in our group has ever taken on a project of this scale or complexity. We will be required to consider how a pass system will affect multiple agencies, businesses, and other groups involved with public transportation in the Montgomery County area. We will be pushed from our comfort zones by going out and working in a transit agency as well as interviewing and interacting with other agencies to collect data on the problem. Our group will also have to work with the people of Montgomery County to develop a system that will work for them. We will also be experiencing a new culture. While Washington, D.C., is not a new country, there are still big cultural differences between the D.C. area and Massachusetts. We will be living this culture for a term. This will provide the group with new perspectives on how to do things that will last for the rest of our lives.

Appendix C Survey Questions, Data, and Analysis

Survey Questions

1. Please enter the name of your employer and your home zip code

Employer Name

Home Zip Code

2. How often do you currently use public transit during your commute to and from work?

- Every day
- 3-4 days per week
- 1-2 days per week
- Less than once a week
- Rarely or never use transit to commute to work

3. Which of the following public transit options do you use during your commute to and from work? (Please check all that apply)

- Metrorail
- Metrobus
- Ride On bus
- MARC Rail
- Commuter Bus (e.g., MTA, Eyre, Dillon)

4. How far is the closest Metro station or bus stop from your home?

- Less than 1/4 mile
- 1/4 mile to 1/2 mile
- 1/2 mile to 1 mile
- Greater than 1 mile
- Not sure

5. How far is the closest Metro station or bus stop from your place of work? [Team – we wonder whether you need this question since you will know location of worksite]

- Less than 1/4 mile

- 1/4 mile to 1/2 mile
- 1/2 mile to 1 mile
- Greater than 1 mile
- Not sure

6. If your employer offered a free monthly transit pass for the Metrorail, Metrobus and Ride On bus, how often would you be likely to use transit to commute to and from work?

- Every day
- 3-4 days per week
- 1-2 days per week
- Less than once a week
- Rarely or never would use transit to commute to work

7. How often do you use public transit (Metrorail, Metrobus, or Ride On bus) outside of your commute to work, including weekends?

- 1-3 times a week
- 4-6 times a week
- 7 or more times a week
- I rarely or never use public transit outside of my commute to work

8. One of the proposed passes being studied would allow for free transit use during peak commuting hours only. It would be possible to individually upgrade the pass for unlimited use during other times.

How much of your personal money would you be willing to spend to upgrade your pass for unlimited use at all times of day, including weekends?

Survey Data Collected

How often do you currently use public transit during your commute to and from work?		
Answer Options	**Response Percent**	**Response Count**
Every day	29.9%	46
3-4 days per week	2.6%	4
1-2 days per week	3.9%	6
Less than once a week	9.7%	15
Rarely or never use transit to commute to work	53.9%	83
	answered question	154
	skipped question	0

Which of the following public transit options do you use during your commute to and from work? (Please check all that apply)		
Answer Options	**Response Percent**	**Response Count**
MetroRail	68.9%	82
MetroBus	19.3%	23
Ride On bus	18.5%	22
MARC Rail	7.6%	9
Commuter Bus (e.g., MTA, Eyre, Dillon)	5.9%	7
Other	29.4%	35
	answered question	119
	skipped question	35

How far is the closest Metro station or bus stop from your home?		
Answer Options	**Response Percent**	**Response Count**
Less than 1/4 mile	22.9%	35
1/4 mile to 1/2 mile	13.7%	21
1/2 mile to 1 mile	16.3%	25
Greater than 1 mile	45.1%	69
Not sure	2%	3
	answered question	153
	skipped question	1

How far is the closest Metro station or bus stop from your place of work?		
Answer Options	**Response Percent**	**Response Count**
Less than 1/4 mile	79.7%	122
1/4 mile to 1/2 mile	9.8%	15
1/2 mile to 1 mile	7.2%	11
Greater than 1 mile	2.6%	4
Not sure	0.7%	1
	answered question	153
	skipped question	1

If your employer offered a free monthly transit pass for the MetroRail, MetroBus and Ride On bus, how often would you be likely to use using transit to commute to and from work?		
Answer Options	**Response Percent**	**Response Count**
Every day	37.3%	57
3-4 days per week	12.4%	19
1-2 days per week	13.7%	21
Less than once a week	5.2%	8
Rarely or never would use transit to commute to work	31.4%	48
	answered question	153
	skipped question	1

How often do you use public transit (MetroRail, MetroBus, or RideOn bus) outside of your commute to work, including weekends?		
Answer Options	**Response Percent**	**Response Count**
1-3 times a week	26.8%	41
4-6 times a week	7.2%	11
7 or more times a week	2.0%	3
Rarely or never use public transit outside of my commute to work	64.1%	98
	answered question	153
	skipped question	1

One of the proposed passes being studied would allow for free transit use during peak commuting hours only. It would be possible to individually upgrade the pass for unlimited use during other times. How much of your personal money would you be willing to spend to upgrade your pass for unlimited use at all times of day, including weekends?		
Answer Options		**Response Count**
Average cost employees are willing to pay:	$ 19.32	146
# of employees answering $0	49	
	answered question	146
	skipped question	8

Appendix D Marketing Presentations

Presentation to Companies

Employee Benefits

- "Free" usage of public transit during peak commuting hours
- Ability to upgrade pass to unlimited usage
  - Unlimited Bus: $15.00 / month
  - Unlimited Metro & Bus: $25.00 / month
- Promotes occasional use
- Cuts the cost of owning a car

Employer Benefits

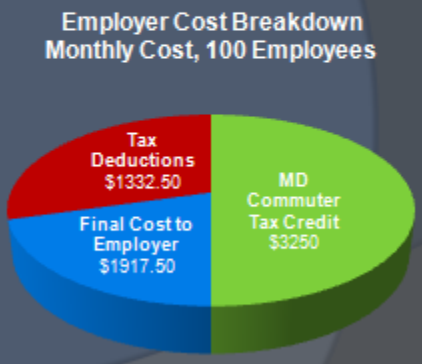
- Tax deductions
  - Federal and State
  - Maryland Commuter Tax Credit
- Provide more fringe benefits to employees
- Reduce company's carbon footprint
- Decrease need for on-site parking

Current Transit Benefits

- Employee gets up to $120/month
  - Pre-tax
  - On an individual basis
  - SmartBenefits
- Super Fare Share

What Will This Program Cost?

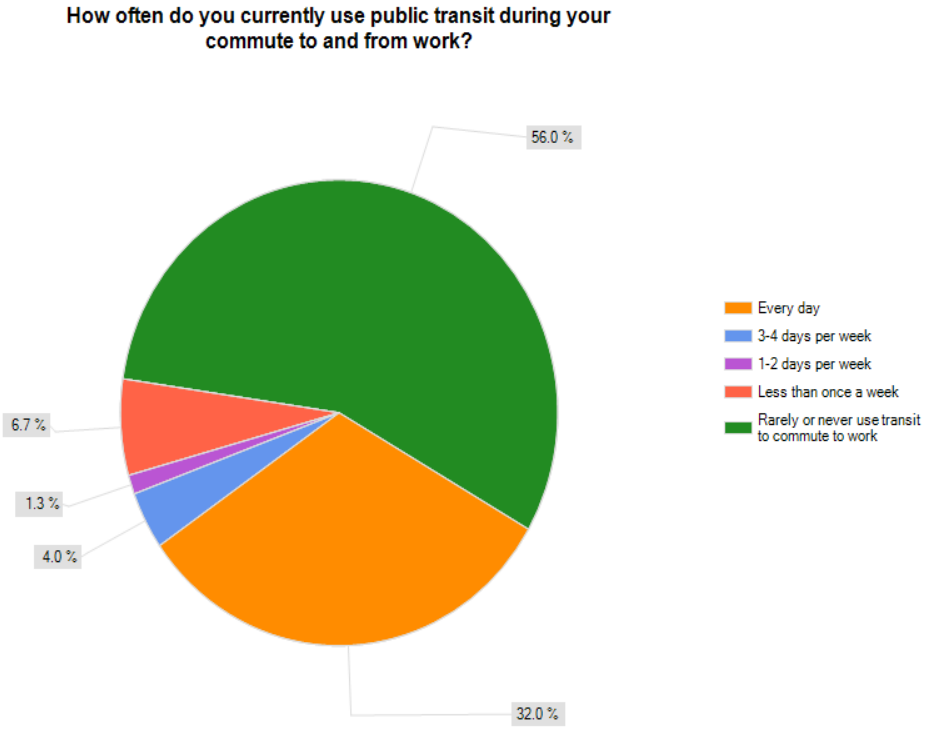
- $65.00/month/employee
- Money saved
  - MD Commuter Tax Credit: $3250
  - Tax Deductions: $1332.50
- Final Cost: $1917.50
- Total Saved: $4582.50
  - **Saved 80%**

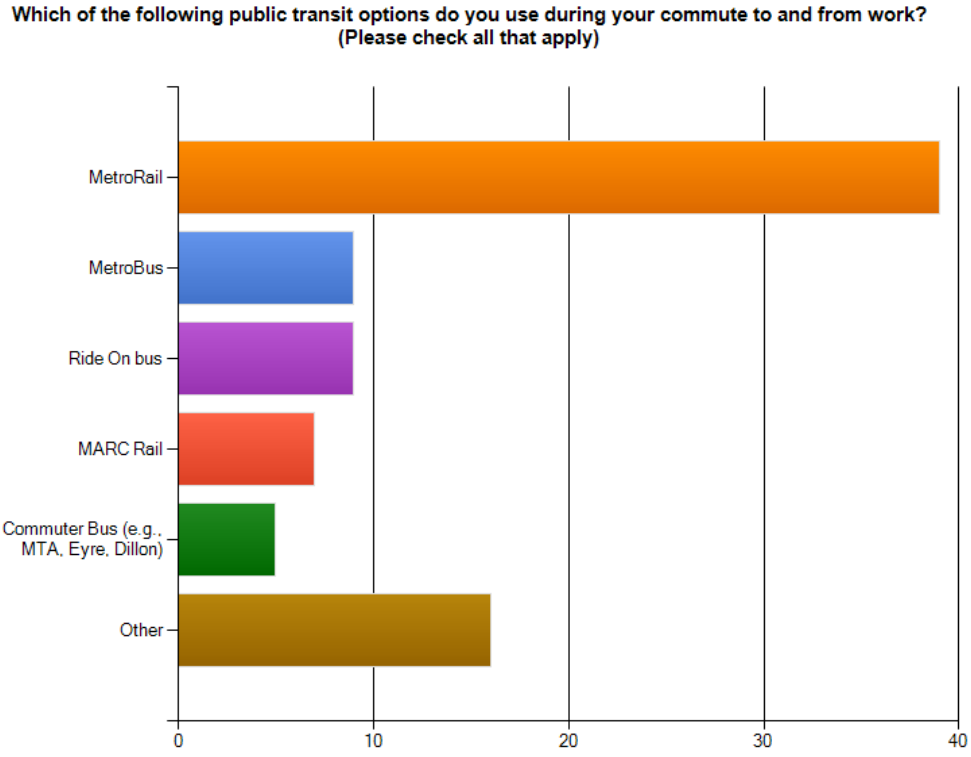


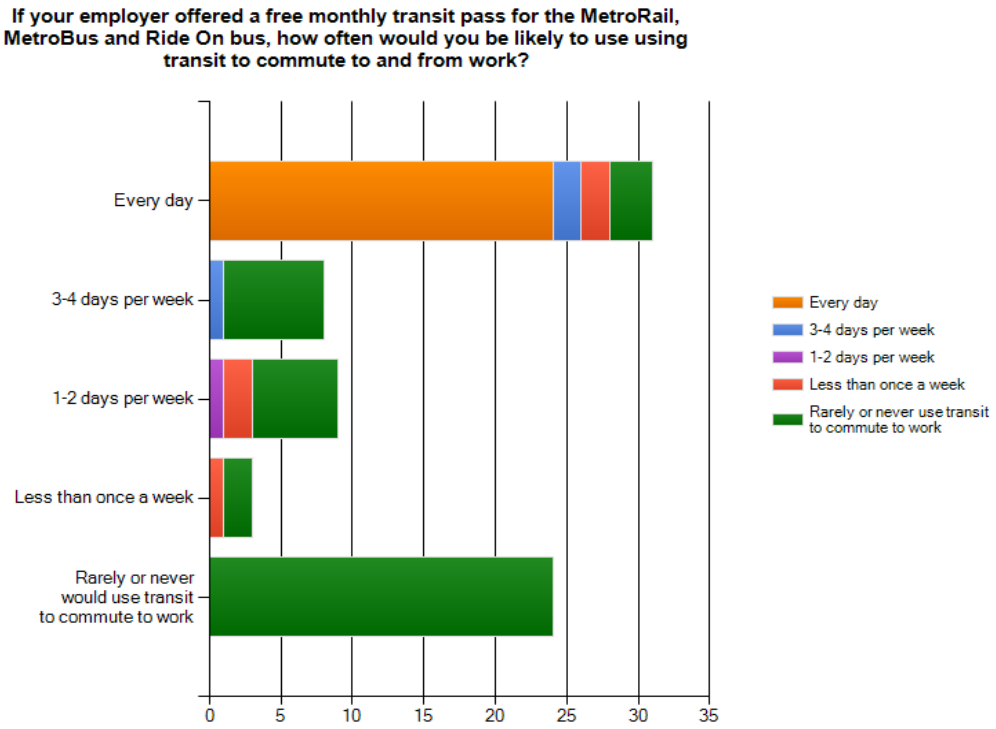
This presentation is able to be tailored to provide the individual employers we would be presenting to with a clear understanding of how their company would benefit from this program. These benefits are primarily financial, but also infrastructure related. Specifically, comparisons of what they are currently paying for employee transit benefits, and what they could be paying under the Eco-Pass program, along with comparisons of their current benefit program and the Eco-Pass program.

Company Specific Survey Information

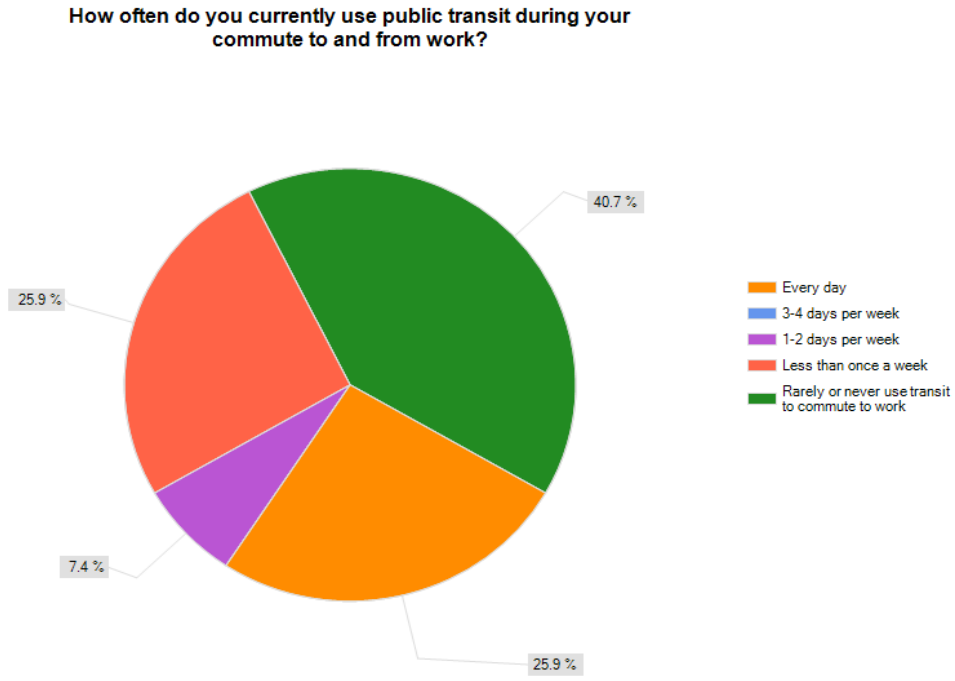
BF Saul Company – 75 responses



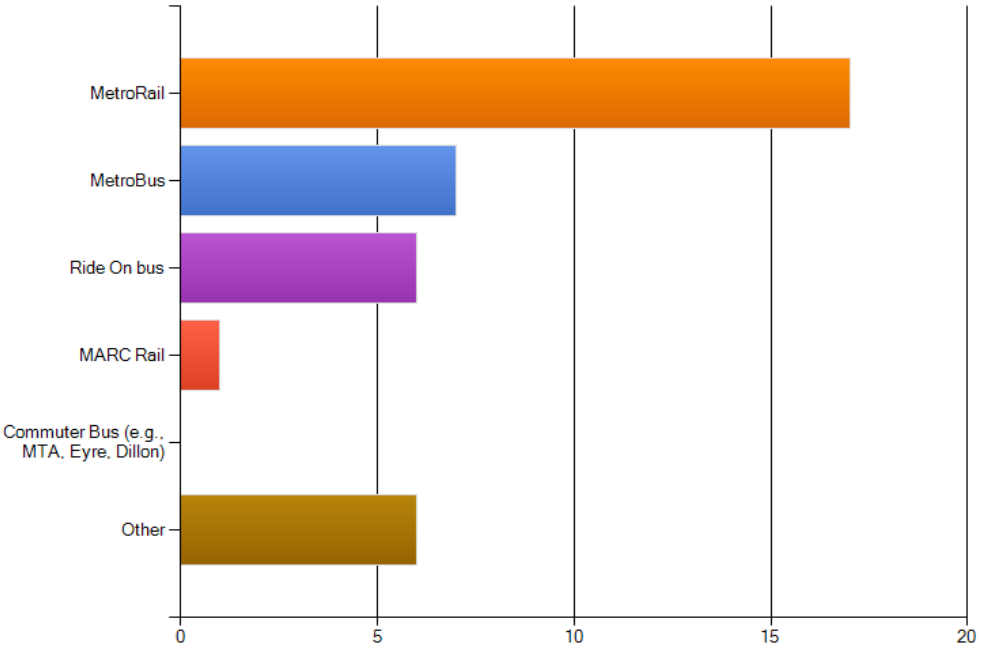




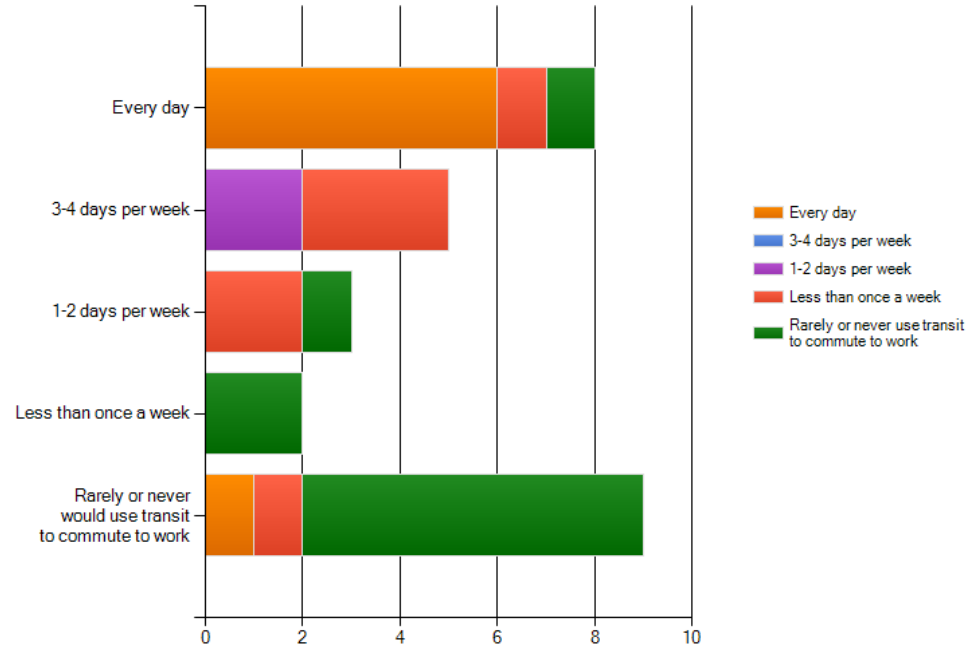
Imagination Stage – 27 responses



Which of the following public transit options do you use during your commute to and from work? (Please check all that apply)



If your employer offered a free monthly transit pass for the MetroRail, MetroBus and Ride On bus, how often would you be likely to use using transit to commute to and from work?



Appendix E Eco Pass Pricing Model

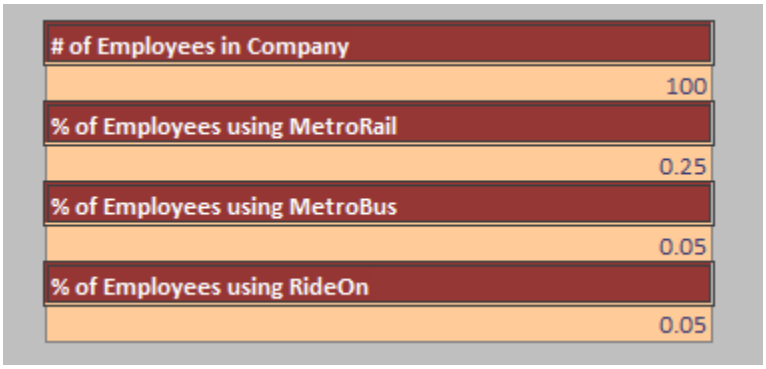
Interactive Pricing Model Download: http://www.mediafire.com/?q9sp3f68a7m9vif

Password to unlock spreadsheet (case sensitive): ecopass
We do not recommend editing the equations that power the spreadsheet. They can be viewed by highlighting the cell and the equation will be displayed in the function bar.

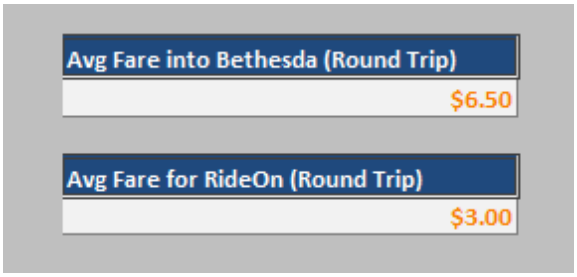
How to use the Pricing Model Spread Sheet

Our pricing model has been designed to allow for the easy manipulation of the pass's financial properties. Here we will discuss the different variables that can be changed by the user, and what information is returned based on the given values. This model was designed to be highly customizable to meet the needs of both employers and of transit agencies. All equations can be viewed in the downloadable Microsoft Excel spreadsheet.

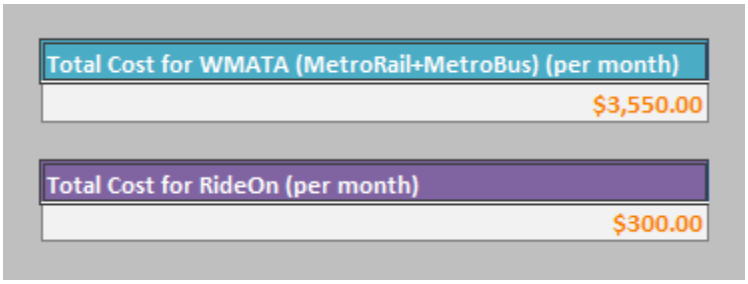
First, the user must enter to number of employees and the ridership data for that particular company. In this example, we will use a company with 100 employees, 25% MetroRail ridership, and 5% MetroBus and Ride On ridership.



Second, the user may enter the average fares for MetroRail, MetroBus and Ride On riders within the company. For this example, we will use $6.50 as the average round trip fare for commuters working in Bethesda, and $3.00 as the average round trip MetroBus and Ride On bus fares.

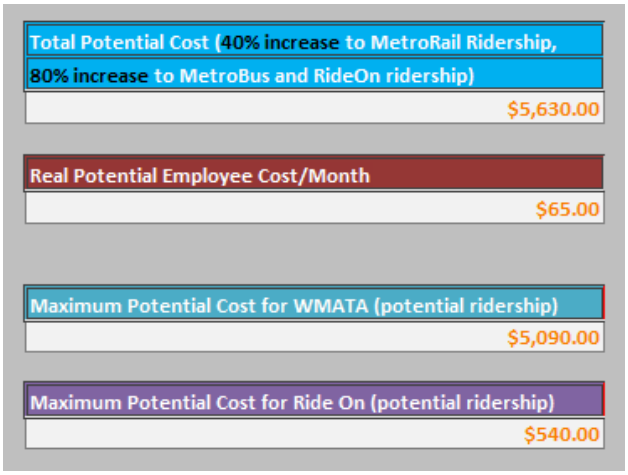


After the user has input the appropriate values, the spreadsheet will begin turning out results. First, the total monthly cost of offering the pass for both WMATA and Ride On is calculated.

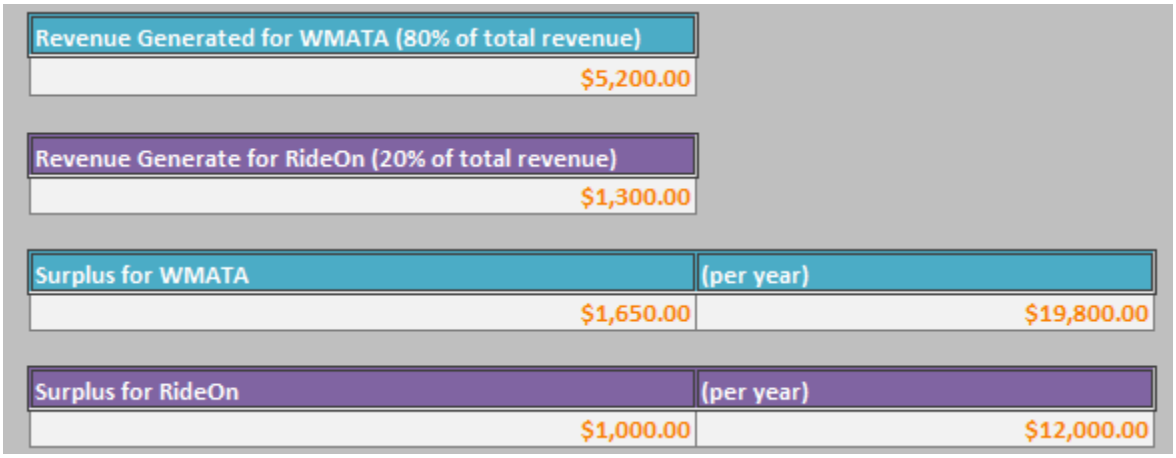


Next, the break-even price of the pass per employee per month is calculated. This price will allow WMATA and Ride On to break even on the cost of the pass. However, the pass is intended to increase ridership, so a surplus of revenue needs to be generated in order to protect WMATA and Ride On from losing money due to drastic increases. The actual price of this pass is calculated by finding the potential cost to WMATA and Ride On, based on the potential increases in ridership we saw from our survey. Based on the survey results, ridership is likely to experience a 40% increase in MetroRail ridership, and an 80% increase in MetroBus and Ride On bus ridership. The new price is found by dividing the potential cost due to ridership increases by the number of employees in the company. This value is rounded up to the closest multiple of 10, and then has $5 added to it. This new price is the lowest possible price that will

ensure that WMATA and Ride On are protected against losing money due to ridership increases.



Based on the new price of the pass, the revenue generated for both WMATA and Ride On is calculated. An 80/20 split is used to divide the revenue between the two agencies, with WMATA receiving 80%. This is done because WMATA's operating costs are much higher than Ride On's. A surplus is also generated for each agency, and that value is displayed on the spreadsheet.



The spreadsheet then determines if WMATA and Ride On will not in fact be losing money by offering this pass. The difference between the potential cost to both agencies and

the actual cost is calculated, and measured against the surplus that is generated by program. If the surplus is greater than the difference between the two costs, the agency is kept harmless. A "YES" or "NO" answer is provided by the spreadsheet to answer that question.

Maximum Potential Cost for WMATA (potential ridership)	Difference	Is WMATA Kept Harmless?
$5,090.00	$1,540.00	YES

Maximum Potential Cost for Ride On (potential ridership)	Difference	Is Ride On Kept Harmless
$540.00	$240.00	YES

In addition to determining the financial outcome for the participating transit agencies, this spreadsheet will also produce results regarding the cost of the program to the employer. The initial total cost of this program is calculated by multiplying the actual price per employee per month by the number of employees within the company. In this example, the initial cost to the employer is $6500. Next, the appropriate tax credits and deductions are applied, showing the money that will be saved by offering this program. The final cost to the employer is shown, broken down both per month and per year.

Initial Employer Cost (per month)
$6,500.00

MD Commuter Tax Credit: 50% reduction
$3,250.00

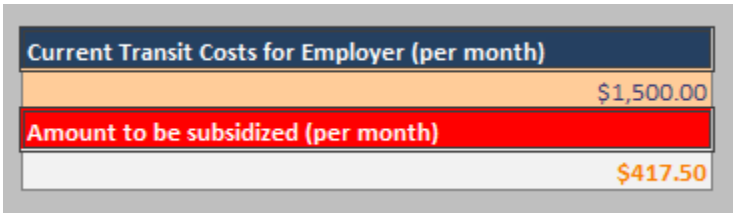
Tax Deductions (34% Fed Income Tax, 7% State Income tax)
$1,332.50

Final Cost to Employer (per month)	(per year)
$1,917.50	$23,010.00

Money Saved by Employer	(per year)
$4,582.50	$54,990.00

Finally, the amount we have recommended to be subsidized by Montgomery County's Department of Transportation is calculated by subtracting the employer's current cost of

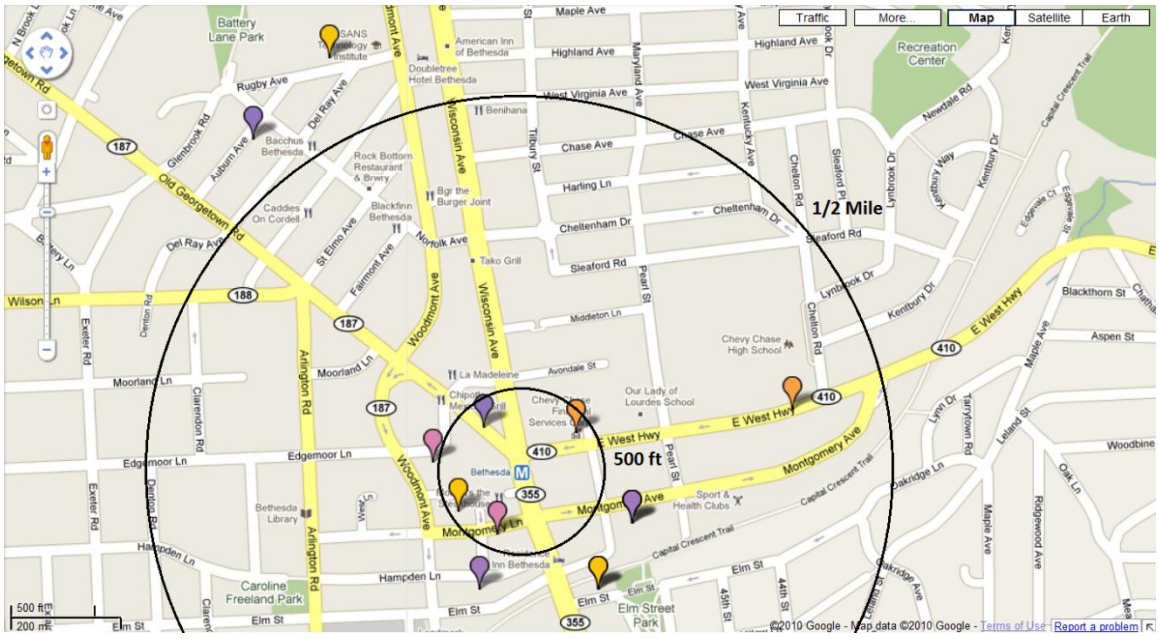
offering transit benefits from the cost of this program. If the program happens to be less expensive, the spreadsheet will inform the user that no subsidy need be provided. In this example, the employer was paying $1500 per month on transit benefits, so Montgomery County would have to subsidize $417.50.



Appendix F Potential Pilot Companies

Employer Name	Past Transit Benefits Offered	Total # of Employees
Abt Associates	former super fare share/$65 - 85 users	244
American Capital Strategies	former transit subsidy/$100 - 17 users	272
American Occupational Therapy Association	former super fare share/$65 - unknown number of users	72
BF Saul Company	former super fare share/$65 - 25 users	218
Calvert	former super fare share/$65 - 55 users	189
Catapult Technology	former super fare share - unknown number of users	70
IPREO	former super fare share/$65 - 18 users	89
Allstate Insurance	Former SuperFare Share (SFS)	5
EuropAssistance	Could not make SFS work for company; offers pre-tax benefits	160
Cambridge Systematics	Former SFS; 17 employees receiving $60/month	33
Imagination Stage	Former SFS; has many p/t employees who work nights. May not work o	49
ICF Macro	Former SFS; has 50 emps receiving benefits through SmartBenefits	108
CBIZ	Offers a subsidy	46
	Total # of Employers=	13
	Total Employees=	1555
	Mean=	119.6153846
	Median=	89
	Max=	272
	Min=	5

Employer Name	Address 1	Address 2	City	Zip Code
Abt Associates	4550 Montgomery Avenue	#800 North	Bethesda	20814-3343
American Capital Strategies	2 Bethesda Metro Center	14th Floor	Bethesda	20814-6319
American Occupational Therapy Association	4720 Montgomery Lane		Bethesda	20814
BF Saul Company	7501 Wisconsin Avenue	#1500	Bethesda	20814
Calvert	4550 Montgomery Avenue	#1000 North	Bethesda	20814
Catapult Technology	7500 Old Georgetown Road	#1100	Bethesda	20814
IPREO	4833 Rugby Avenue	#600	Bethesda	20814
Allstate Insurance	7315 Wisconsin Avenue	#53N	Bethesda	20814
EuropAssistance	4340 East-West Highway	10th Floor	Bethesda	20814
Cambridge Systematics	4800 Hampden Lane	#800	Bethesda	20814
Imagination Stage	4908 Auburn Avenue		Bethesda	20814
ICF Macro	7315 Wisconsin Avenue	#400 West	Bethesda	20814
CBIZ	3 Bethesda Metro Center	#600	Bethesda	20814



Appendix G Meeting Notes

Conference call with Marcy Stehney, Consultant for WMATA

November 4, 2010

In Attendance: Sandra Brecher, Howard Benn, Jim Carlson, Marcy Stehney, Cory Rutledge, Adam Campisi, Steve Tidwell

- How many purses per SmarTrip card?
    - 256 purses/buckets on a SmarTrip card
    - Stored value "bucket"
    - "buckets" for different passes
    - A bucket for a serial number, buckets for lots of things
    - At one time, there were 18 different transit systems using SmarTrip card
    - Fare simplification
        - Everyone had the same fare
        - Hoped to use "proximity" card in future
- Nancy Brookes: project manager of WMATA
- SmarTrip cards expected to run out in 2012
    - Credit cards are beginning to have chips built in, allowing them to be used to pay for transit
- Would it possible to upgrade the pass individually?
    - Smart Benefits allows for some of this
    - In short, yes, you can go online and add value to your pass. The method of it actually being "activated" to your card varies, mostly happens when you use it at a MetroRail Station
- Possible ballpark number of cost to recode system for our pass
    - Not available
- WMATA has been involved in SmarTrip for 10 years
- Worked on expanding use of SmarTrip within the area
- 256 purses/buckets per SmarTrip card
    - Used for ID, different passes, and values
    - How many would be available to MCG if we wanted to make a pass
    - Could certainly use 5, not many of the 256 have been used
        - Eco pass would require 2 buckets
- Next Fare 5
    - Software used on MetroRail and bus fare boxes to enact fare policy, allows passes to be held on the card.
    - Made by Cubic
- Could one go online and upgrade a limited pass to an unlimited pass, under our proposed program?
    - Basically, no idea
    - Would need to talk to engineers
    - Possible 2nd purse, for non-peak hours

- Account linked product
    - As customer uses SmarTrip card, funds are debited from main central account
- The whole SmarTrip system seems immensely inefficient
- Limiting pass to peak period
    - Done to cut cost
- Use SmartBenefit funds to purchase a pass
    - Could be used to bus passes, etc
    - THIS IS NOT HOW WE WANT THE PASS TO FUNCTION
- How long would it take to get the necessary changes made, and how much would those changes cost??
    - Marcy was unsure on how long or how much to make the necessary software upgrades

Meeting with Bethesda Transportation Solutions (BTS)

November 15, 2010

In attendance: Sandra Brecher, Jim Carlson, Sam Oji, Peggy Schwartz, Mirza Donegan, Jennifer Zucker, Anne Kaiser (phone), Cory Rutledge, Adam Campisi, Steve Tidwell

- Introduce our pass idea to BTS representatives
    - Gave an overview of pass program to get feedback
- Went over draft of PowerPoint presentation for employers
    - Commuters crossing jurisdictions was a concern that was raised
- When explaining employer benefits, don't lead with tax deductions
    - Sandra - Attract employees first, taxes are secondary
    - BTS reps disagree
        - Give the bottom line early, finances are more important in our current economic situation
- Montgomery County Chamber Green Certification
    - Talk to them (Montgomery County Chamber), put into presentation
    - Get info from Sam
- Compare our program to Super Fare Share costs
- Clarify "costs" section of presentation
    - No one gives out $230 dollars for transit benefits
        - Most companies give out around $100-$115 in benefits
    - Hypothetical example of current costs could be helpful
- Sell the unlimited upgrade, it is a good point
- Companies that have used transit benefits will need a pitch style
    - They already understand the social benefits, focus more on financial benefits
- Minimum pilot time frame: three months

    - Depends on company size and subsidizing
- Benefits to pilot companies
    - Possible subsidy during pilot, let employers know upfront
        - If subsidy is only offered during pilot, make sure this is made very clear to employers
- Target companies already providing transit benefits for the pilot
- What about MARC rail riders, van pool users, commuter bus, etc
    - Possible pricing upgrade, may prove to be too expensive
    - Add commuter bus to survey questionnaire to gather data on ridership

Meeting with Marriott International

November 19, 2010

In attendance: Sandra Brecher, Jim Carlson, Peggy Schwartz, Mirza Donegan, Jim Young, Dedie Giuliani, Cory Rutledge, Adam Campisi, Steve Tidwell

- Make sure of parking challenges
- Current transit benefit cost for Marriott: $12-13,000 a month, before taxes
- Ease of administration
- $110 dollar cap, per employee a month, on company transit benefits
- Regarding the additional employee benefits our pass program would offer Marriott's employees
    - Jim Young - Would think about it
    - Convenience of not having to keep track of money is appealing
        - Having a monthly pass removes the need of calculating an employee's actual cost of transit and then providing the necessary benefits
- Initial cost of SmarTrip is $5, one-time fee
    - Possibly change pricing model, incentivize employees to buy their own SmarTrip card
    - If Marriott needs to supply SmarTrip cards to all of its employees, that represents a significant start-up cost
- Parking is a major benefit concern
    - Parking is offered in a separate pool of money, so cannot be included in a transit benefit program
- Quarterly model is more appealing than a monthly model
- 6 month pilot period would be sufficient for Marriott
- Would be possible to receive a zip code distribution for Marriott employees
    - Would help to see what transit options are available to what percentage of the companies employees

Meeting with Imagination Stage

December 8, 2010

In attendance: Sandra Brecher, Jim Carlson, Danielle Milo, Jennifer Zucker, Wendy Calhoun, Scott Brickman, Cory Rutledge, Adam Campisi, Steve Tidwell

- Non-Profit organization
    - Funds are tight
- Imagination Stage offers subsidized transit and parking
    - Offers over $600 in benefits
- Many of the employees don't commute during peak hours
    - Should be able to customize the pass using survey data and average fairs to account for this
- Scott and Wendy like the idea of the unlimited upgrade
- Pricing slide should be brought up earlier
- Would consider it on a different economic situation
    - Could work with a subsidy
        - Would like to participate if the subsidy took place
- Ten minute walk to the Metro at a "good pace"

Meeting with B.F. Saul Company

December 8, 2010

In attendance: Sandra Brecher, Danielle Milo, Jennifer Zucker, Christine Ramos, Cory Rutledge, Adam Campisi, Steve Tidwell

- Currently paying $7000 - $8000 per month
- BF Saul owns their building
- Budgeting for this program is going to be an issue
    - Had to run it by Supervisor
    - Plans to cut $50,000 in budget
- Employees strict to office hours
    - No problems with base peak hour pass
- Kenneth Kovach is the one who will have the final say
- Interested, will need to finalize numbers