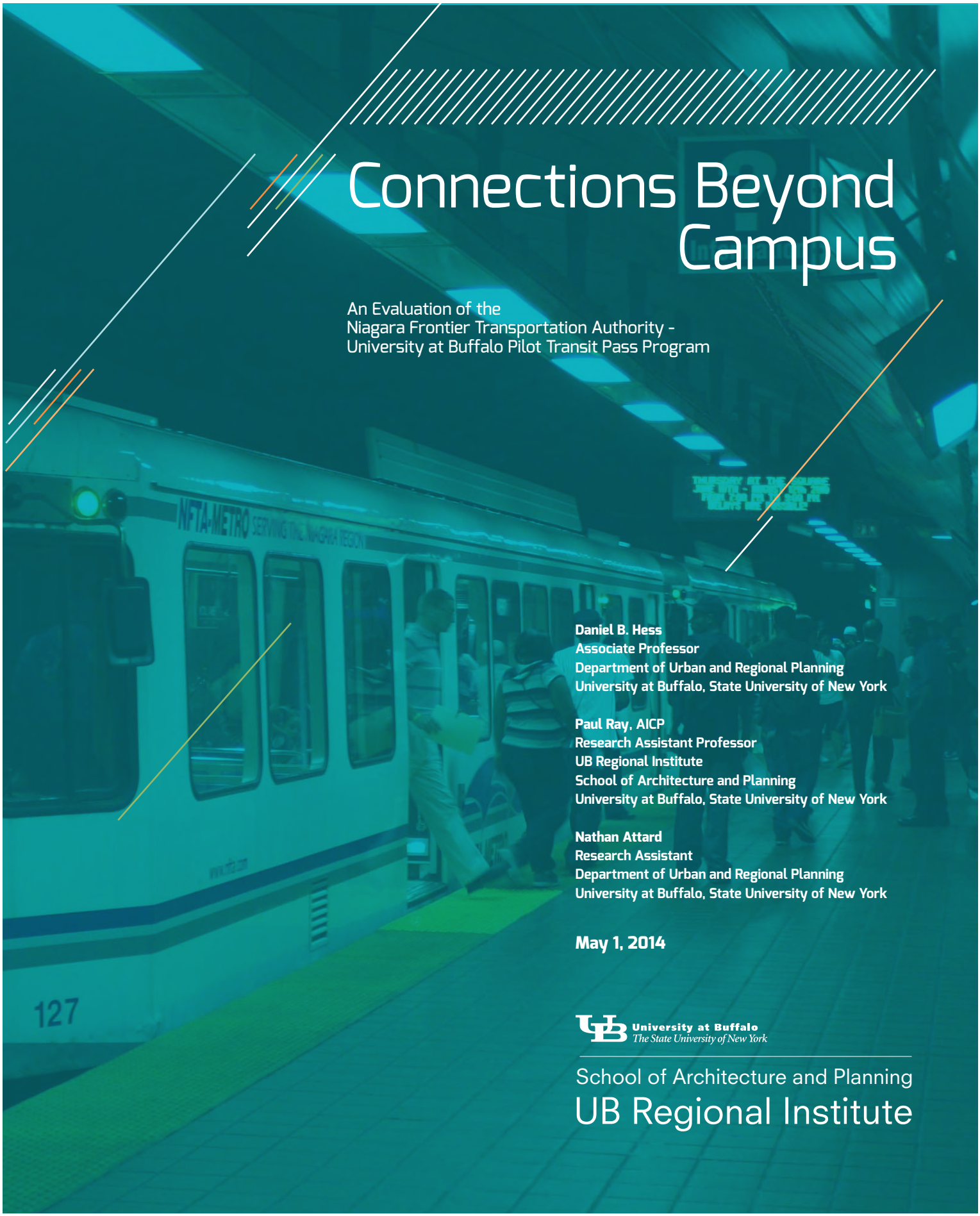

Connections Beyond Campus

An Evaluation of the
Niagara Frontier Transportation Authority -
University at Buffalo Pilot Transit Pass Program

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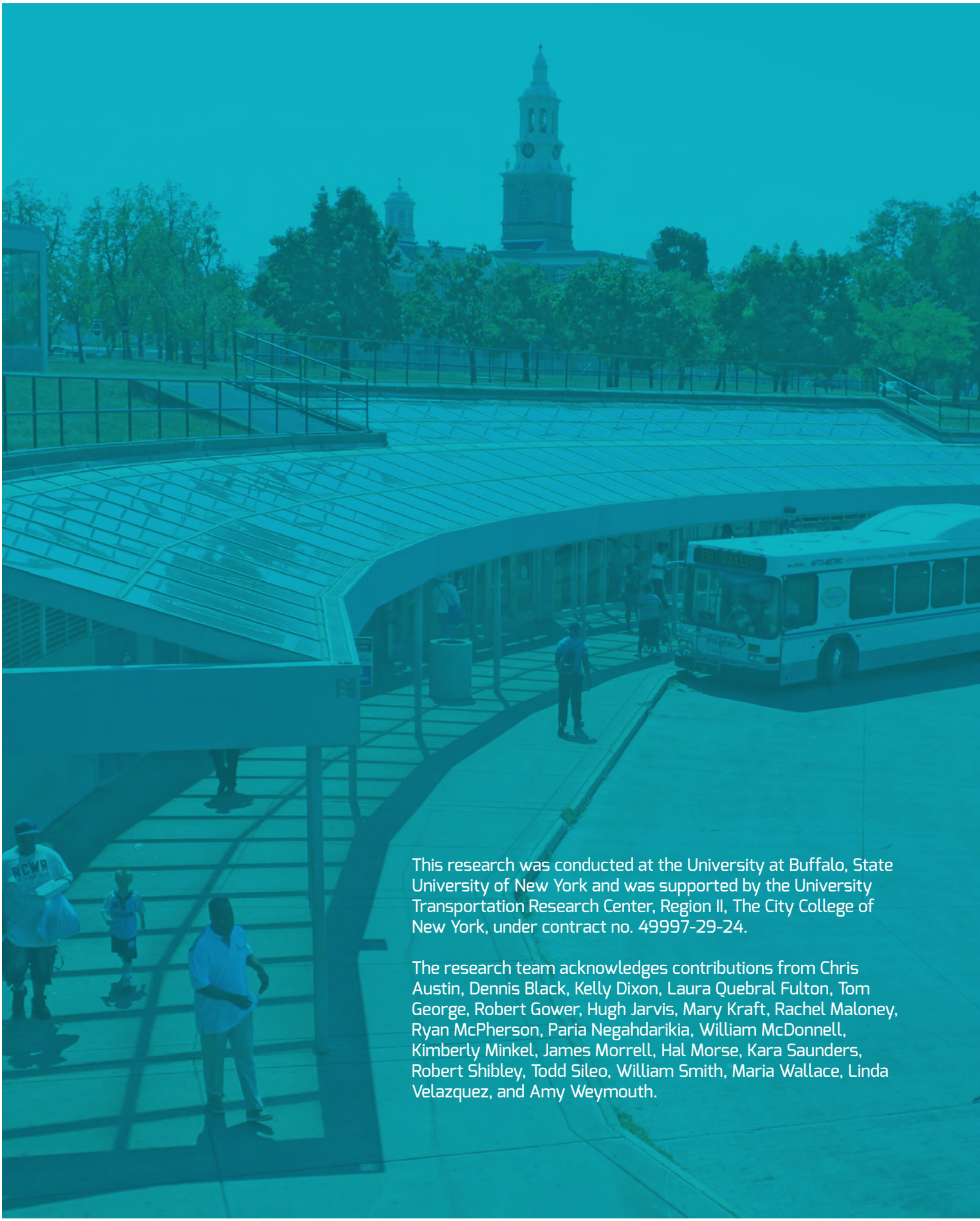

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Preface

This research project, sponsored by the Research and Innovative Technology Administration / USDOT (RITA) through the University Transportation Research Center – Region 2, evaluates a pilot transit pass program. The transit pass program provided students, faculty, and staff of the University at Buffalo with pre-paid unlimited rides between 2011 and 2012 on Metro Rail (operated by the Niagara Frontier Transportation Authority). The evaluation is intended to assist stakeholders in understanding the costs and benefits of the transit pass program and to further sustainability goals at the University at Buffalo, throughout the region, and beyond. Findings are intended to be useful for better understanding how pre-paid transit passes can influence travel behavior decisions and re-align financing of urban transportation systems.

The Niagara Frontier Transportation Authority's light rail rapid transit system, dubbed Metro Rail, was envisioned as a critical part of the expansion of the University at Buffalo (UB). On February 25, 1971, the trustees of the State University of New York announced that the University's South Campus would be rehabilitated as the University's Health Sciences Campus. That same day, Robert L. Ketter, recently sworn in as the eleventh president of the University, stressed UB's need for a rapid transit system that linked the City of Buffalo and the new UB suburban campus in Amherst (Greiner et al., 2007). Ketter, a civil engineering professor turned administrator, clearly saw the importance that high-capacity rail transit could play in linking UB's two campuses. In planning for the new campus of a rapidly growing University, Ketter and other UB officials envisioned housing and mixed-use development along a light rail route between South Campus and North Campus. North Campus was being designed, and South Campus redesigned, with limited student housing as a means to conserve funds for the construction of new academic facilities. This plan for the campuses meant that public transit was a key ingredient in their development and redevelopment.

The light rail system would not be complete for another 14 years, however, and would ultimately lack the connectivity for which President Ketter hoped, since only a 6-mile "starter system" was constructed, connecting Downtown Buffalo with South Campus but failing to continue to Buffalo's northern suburbs and UB's growing North Campus. Some people hoped for extensions to the starter line, but population decline and economic stagnancy in Buffalo throughout the 1970s, 1980s, and 1990s made this impossible.

Forty years after President Ketter's hope for town-gown collaboration on public transit, and after many years of discussions and negotiations, the NFTA Metro Rail collaborated with UB in a new, formal capacity. Though students, faculty, and staff likely purchased tickets to commute from their homes to South Campus the day Metro Rail opened in 1986, a new pilot transit pass program between UB and the NFTA began in January 2011, when University students, faculty, and staff became eligible for unlimited pre-paid rides on Metro Rail. This program sought to ease travel for UB community members between the newly created Downtown Campus and the historic South Campus, offering riders unlimited access to a fast and frequent light rail link between two campuses. As a University with three campuses, UB assumes a responsibility to its community members to provide efficient transportation between its campuses, and a partnership with the NFTA, already providing fast, frequent, and efficient service along the corridor linking South Campus with the Downtown Campus, was an obvious solution.

UB and the NFTA have the potential to create a strong future together. As UB's Downtown Campus expands, Metro Rail will become an even more important link between UB campuses and the city and region. With the UB-NFTA Pilot Transit Pass Program, UB learned that incentivizing travel on Metro Rail can help reduce automobile trips to its campuses and provide an increased level of service for travel between the South and Downtown campuses. By providing unlimited pre-paid trips for the UB community on Metro Rail, UB took a step toward creating a public transit riding culture in Buffalo, a process long challenged by the ease and affordability of automobile use in the city and surrounding region.

In light of challenges that climate change is predicted to pose during the coming century, it is critical for UB to serve as a regional leader in promoting sustainable transportation solutions, as President Ketter did in 1971. With the UB-NFTA Pilot Transit Pass Program concluding in 2012 without being renewed, it is imperative that UB and the NFTA work together to create new programs which can help promote sustainable transportation on the UB campuses, in Buffalo, and beyond.

Executive Summary

Unlimited Access transit passes have become used to further sustainability programming at many colleges and universities in cities both large and small across the United States. After many years of discussions and negotiations, in 2010 the University at Buffalo (UB), in partnership with the Niagara Frontier Transportation Authority (NFTA), established a pilot program to provide eligible students, faculty, and staff with unlimited pre-paid use of the NFTA Metro Rail, a 6.2 mile light-rail rapid transit system which connects Downtown Buffalo and UB's South Campus and the neighborhoods between the two. Though other colleges and universities in Buffalo have been providing transit passes to students at their institutions since 2003, this was the first time UB, the region's largest institution of higher education with 28,600 students, entered into a transit pass agreement with the NFTA. This fulfilled strategies articulated in two official university documents: Building UB, The Comprehensive Physical Plan and UB's Climate Action Plan, both published in 2009.

The UB-NFTA Pilot Transit Pass Program concluded after 20 months at the end of the summer 2012 session. The program offered rail passes to 1,072 students and 246 faculty and staff during the Spring 2011 term, and to 2,813 students and 310 faculty and staff during the 2011-2012 academic year. As the program concluded, it was not officially evaluated by UB. This report seeks to evaluate the effectiveness of the program in a number of focus areas, including the cost of the program to the parties involved, and the benefits obtained both by the participating organizations and by individual transit pass users. This is accomplished through the use of both qualitative and quantitative analysis of the results of a university-wide survey conducted by the research team in April 2013.

The analysis of this project revealed expected and unexpected results. Some users of the transit pass program were new Metro Rail riders, and some previously paid their own fares. The UB-NFTA transit pass was under-priced, which benefited UB and led to lost revenue for the NFTA throughout the course of the program. The program allowed 10 percent of survey respondents to cease owning a vehicle, and 25 percent of respondents to delay owning a vehicle, effectively reducing the cost of a UB education by thousands of dollars a year for participants who could utilize Metro Rail to commute to campus in place of an automobile.

Findings suggest that 87.5 percent of respondents had previously rode Metro Rail. Among the six percent of riders who previously had never rode Metro Rail and used the pass at least one day a week, there was a significant increase in ridership. This resulted in increased passenger miles for Metro Rail, reduced demand for parking on UB campuses, and reduced miles driven and greenhouse gasses emitted. Among the users of the pilot transit pass program overall, however, there was not a statistically significant increase in ridership. Transit pass users were able to travel freely between campuses and other destinations served by Metro Rail, enhancing their ability to reach jobs, internships, and volunteer opportunities.

In discontinuing the UB-NFTA Pilot Transit Pass Program, UB officials have stated that an inter-campus shuttle bus, the Blue Line, provides an adequate inter-campus link between the Downtown Campus and South Campus, the same corridor served by the NFTA Metro Rail. Analysis of survey results suggests the opposite—most survey respondents found the Blue Line shuttle to be inferior to riding Metro Rail using transit passes. The Blue Line also does not serve the former pass users who commuted to UB campuses from one of the six stations between the South and Downtown campuses. The pilot transit pass program cost UB $70,990, which is less than the approximately $133,333 in cost savings obtained by UB through reduced Blue Line service during the pilot program (full service has since been restored). If UB eliminated the Blue Line altogether, $160,000 annually would be made available, which could be used to pay for many transit passes in a permanent UB-NFTA transit pass program, although the most equitable transit pass program would include all UB students, faculty, and staff.

The UB-NFTA Pilot Transit Pass Program increased transportation choices and for the first time provided university community members a transportation subsidy which did not take the form of a parking space. UB officials have stated, however, that the intent of the UB-NFTA transit pass program was to provide a link between the South and Downtown campuses and was not to serve as a commute subsidy. The UB-NFTA Pilot Transit Pass Program had the potential to change modes of travel for students, faculty, and staff to the three UB campuses, and did for a short period of time, even if it was done unintentionally. Many survey respondents reported that widening their travel options, using public transit more, driving less, and reducing their carbon footprints were important personal benefits of the pilot transit pass program.

UB's pilot transit program provided many benefits to community members, from increased access to new destinations and housing, to reduced demand for parking. The design of a permanent UB-NFTA transit pass program, if an agreement is reached in the future, should help the NFTA mitigate lost revenue from pass holders, and should be understood as a means for UB to reduce future capital expenses and greenhouse gas emissions. Additionally, in creating a sustainable transportation system to serve its campuses, UB must carefully consider the equity implications of its existing parking and transportation fee structure, which in its current form incentivizes driving and penalizes public transit users and non-motorized travelers.

UB & NFTA Pilot Transit Pass Program

Providing Campus Connections through Metro Rail

In 2010, UB and the NFTA establish a pilot program to provide select students, faculty and staff with unlimited, pre-paid use of the NFTA Metro Rail, a 6.2 mile light-rail line connecting Downtown Buffalo and UB's South campus.

Program Participants (2011-2012)

2,813 Students
(undergraduate and graduate)

310 Faculty & Staff

Survey Response

10% of survey respondents ceased owning a vehicle

25% of survey respondents delayed owning a vehicle

6% of survey respondents were new riders to the Metro Rail

How program participants saw themselves benefitting from the program...

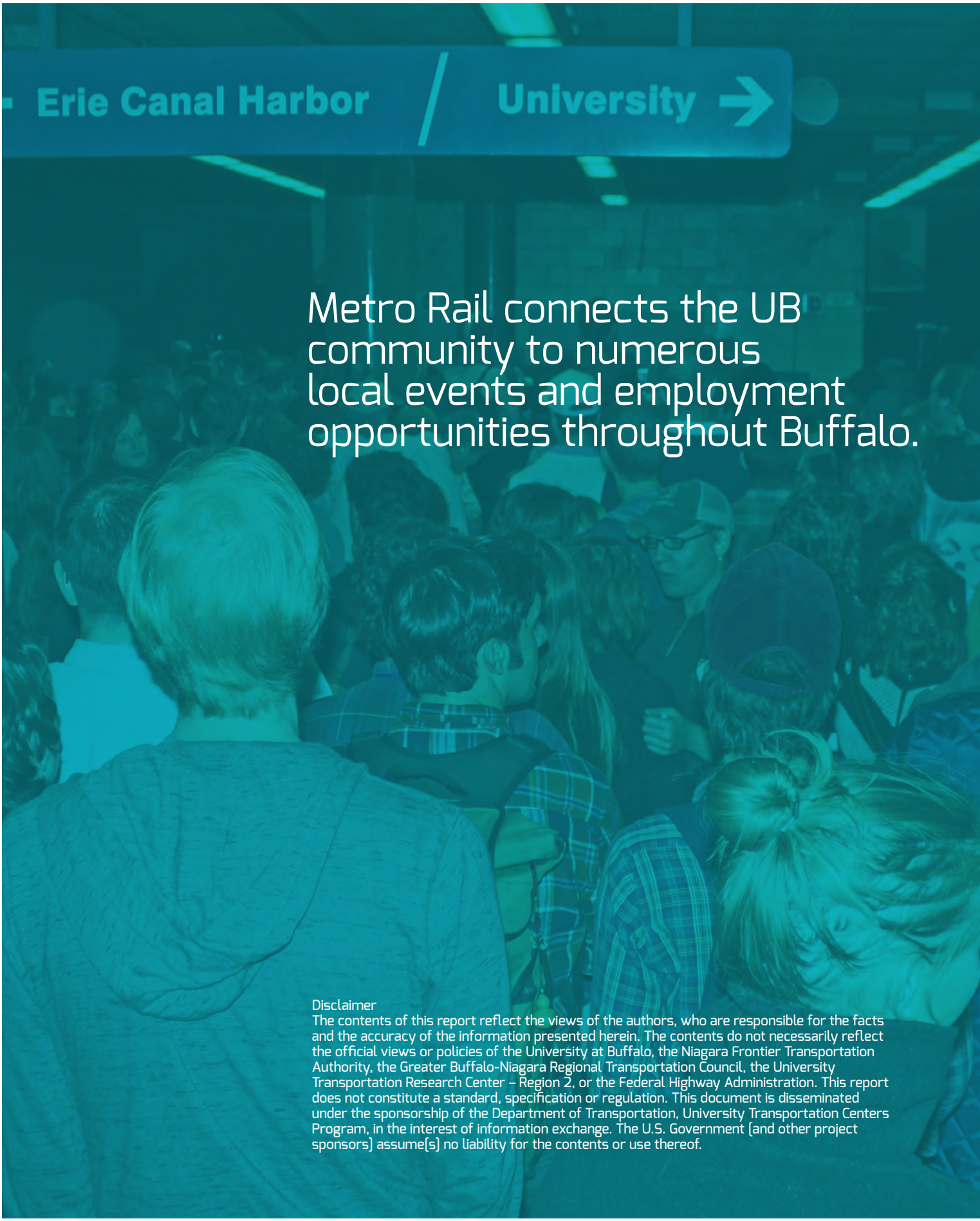
"...widened my travel options

...used public transit more

...drove less

...reduced my carbon footprint"

The pilot transit pass program cost UB $70,990. UB estimates it saved $80,000 per year by cutting service in half on the Blue Line during the pilot program.



Metro Rail connects the UB community to numerous local events and employment opportunities throughout Buffalo.

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Appendix available online at:
http://regional-institute.buffalo.edu/pdfs/ConnectionsBeyondCampus_Appendix.pdf

universities are critical partners in creating sustainable transportation systems

1. Introduction

Utilizing existing public transit service is one of the most efficient ways to connect students, faculty and staff traveling to, from and between college campuses and their surrounding communities.

Urban planners, policymakers, and elected leaders in metropolitan areas across the United States are working to promote urban sustainability and enhance the multimodal aspects of their transportation systems. Within these metropolitan regions, universities are critical partners in creating sustainable transportation systems in order to improve access and mobility for their students, faculty and staff. Enhancing sustainable transportation can help university administrators meet institutional goals of environmental stewardship and fiscal responsibility while simultaneously creating prototype systems of sustainable transportation to inspire businesses and institutions.

Whether motivated by a growing demand for parking, energy conservation, pressure to reduce carbon emissions, or a strategic goal of becoming a leader in innovation and applied sustainable solutions, creating alternatives to single occupancy vehicle travel is at the forefront of planning efforts in metropolitan regions and institutions of higher education. A university campus can constitute a laboratory for testing and implementing various alternative transportation strategies, reducing infrastructure costs and minimizing their impacts on surrounding areas (Balsas, 2003). Universities and their surrounding communities collaboratively seek accessible, safe and affordable transportation systems that efficiently connects key points of origin and destinations—campuses, housing centers, places of employment, and points of interest.

Utilizing existing public transit service is one of the most efficient ways to connect students, faculty and staff traveling to, from, and between college campuses and their surrounding communities (especially when alternatives involve providing new transport infrastructure or programs). For public transit agencies, partnerships with universities and other institutions offer an opportunity to boost overall system ridership and revenue and nurture lifelong transit advocates and riders. By combining resources and jointly subsidizing the cost of travel on public transit, an increasing number of universities and transit agencies are creating and enhancing strategic partnerships to achieve the sustainability goals of their respective institutions and provide robust transportation systems that create more livable campuses, communities, and metropolitan areas (Brown et al., 2001).

Traditionally, campus transportation planning has focused on automobiles and automobile-related infrastructure, except for those university campuses in the largest city centers. However, automobile-dominated transportation systems have hidden costs and subsidies. Parking systems are generally underpriced on university campuses. Cross-subsidies for parking often occur, as tuition and fees are used to maintain a system that benefits drivers at the expense of non-drivers. This results in less funding available for other transportation options (and also less funding available for the core university missions of teaching and research). However, as the fiscal, environmental and health concerns of auto-centric transportation systems have come to light over the past two decades, many universities have begun to encourage a modal shift away from cars by providing incentives for walking, bicycling, ridesharing and using public transit.

Transit pass programs can reduce demand for parking, increase access to housing and employment, and help universities recruit and retain students, faculty, and staff.

Transit Pass Programs

Transit pass programs, in which pre-paid transit passes are supplied to defined groups of people, have been created for universities, places of employment, apartment complexes, and neighborhoods across North America in order to increase people's ability to travel independently—without relying on automobiles—to, from, and between sites they visit for education, employment, and recreation. Dozens of colleges and universities have for decades offered such pre-paid transit pass programs, known as "unlimited access" (Brown et al., 2001). Transit pass programs do not provide free transit service, since a partner organization pays the transit agency for transit passes issued to eligible members of a community. This arrangement converts public transit fares from marginal costs paid by riders to fixed costs pre-paid by partner organizations; doing so can produce mode shifts.

Transit pass programs can reduce demand for parking, increase access to housing and employment, and help universities recruit and retain students, faculty, and staff (Brown et. al., 2001). In addition, such arrangements provide greater revenue stability and increased ridership for transit agencies while creating a new generation of life-long riders on public transit. Furthermore, transit agencies report that transit pass programs fill empty seats at off-peak times, improve transit service, and reduce transit agencies' operating cost per rider. Increases in transit ridership among students ranged from 71 percent to 200 percent during the first year of transit pass programs at the colleges and universities analyzed in 2003 by transportation researchers at the University of California, Los Angeles, and growth in subsequent years ranged from 2 percent to 10 percent per year (Brown et al., 2001; Brown et al., 2003). Transit pass programs also have the benefit of incentivizing car owners to use public transit, as the costs of auto ownership are fixed and the marginal costs of driving are generally less than the value of a public transit fare. Therefore, pre-paid transit passes invert conventional transportation cost structures by making the marginal cost of riding public transit zero, encouraging people to leave their cars at home. Overall, transit pass programs can create modal shifts from vehicles to public transit, reduce overall vehicle miles traveled, reduce congestion, and reduce emissions.

Purpose

In November 2010, the University at Buffalo (UB) in Buffalo, New York, entered into a pilot program agreement with the Buffalo-area public transit agency, the Niagara Frontier Transportation Authority (NFTA) to provide transit passes for eligible students, faculty, and staff on the NFTA Metro Rail beginning in January 2011 (Vidal, 2010). The transit pass program was designed to help UB meet the following objectives:

- Increase access and connectivity between UB's three campuses
- Reduce redundancy in the transport system
- Reduce the number of private vehicles driven by UB faculty, staff, and students for work and school-related travel between its Downtown and South Campuses

The NFTA entered the pilot program with the following objectives:

- Increase revenue for the NFTA
- Increase ridership on Metro Rail
- Expand the NFTA's College/University Unlimited Access Pass Program
- Induce mode shifts from automobiles to public transit
- Increase support and advocacy for the NFTA's much larger regional transit system

The UB-NFTA pilot program operated for 20 months from January 2011 until its expiration and discontinuation in August 2012. Since the costs and benefits of the pilot program have not yet been evaluated, the purpose of this study is to analyze and report the effects of the program on access, travel patterns, and parking. The evaluation will be useful to public transit agencies and institutions with which they might partner, as well as anyone interested in evaluating sustainable transportation programs.

2. Background

The Niagara Frontier Transportation Authority (NFTA) and the University at Buffalo (UB) are major regional stakeholders in Buffalo-Niagara

The Niagara Frontier Transportation Authority (NFTA) and the University at Buffalo (UB) are major regional stakeholders in the Buffalo-Niagara region. Both are state agencies; the NFTA is a public authority and UB is a component of the State University of New York system. Both are major regional employers. This section seeks to provide background on these two entities in order to understand the intricacies involved in creating the pilot transit pass in 2010 and to understand the challenges the two agencies face in creating a permanent transit pass program.

Niagara Frontier Transportation Authority

The NFTA is a public agency with a mission to provide transportation services for the people of Western New York. Employing more than 1,500 people, it operates Metro Bus and Metro Rail and provides other transportation services to the region. This section will detail those services, the agency's Metro Rail system, its governance structure, and ridership trends.

Overview

The NFTA was created by an act of the New York State Legislature in 1967 as a successor agency to the Niagara Frontier Port Authority. From the Port Authority, the NFTA took over operations at the Buffalo and Niagara Falls Airports and the Port of Buffalo. Utilizing federal and state grants, the NFTA purchased the existing bus service in metro Buffalo, Niagara Frontier Transit, in 1973. In 1979, the NFTA began construction of a light rail rapid transit system, known as Metro Rail, which began full operation along a 6.2-mile route in 1986 (Niagara Frontier Transportation Authority, n.d.-b). Today, in addition to Metro Rail, the NFTA continues to operate a regional bus system, an intercity bus terminal, two commercial airports, an 1,100 slip marina, and two commercial warehouses. [1]

In fiscal year 2013, the NFTA estimates annual operating revenues of $106,572,000, operating expenses of $178,888,000, and operating assistance of $92,880,000, including $13,442,000 in federal assistance, $46,496,000 in New York State assistance, and $33,577,000 from Erie and Niagara Counties (Niagara Frontier Transportation Authority, 2012). The surface transportation unit, which operates Metro Bus and Metro Rail and receives most of the NFTA's government subsidies, expected to receive $39,081,000 in fiscal year 2013 from fare revenue and advertising space, with $128,675,000 in allocated expenses.

[1] The marina and commercial warehouses are legacy assets of the Niagara Frontier Port Authority, and revenue from these facilities has helped subsidize bus and rail transportation (McCarthy, 2011). In September 2013, the NFTA agreed to transfer the marina and surrounding waterfront property to the New York State Office of Parks, Recreation and Historic Preservation and the Erie Canal Harbor Development Corporation due to mounting costs in repairing its waterfront facilities. The transfer of these assets could lead to lower revenue for the NFTA. Its two commercial warehouses will also be sold (McCarthy, 2013).

Structure

A Board of Commissioners made up of 13 members governs the NFTA. All are recommended by the Governor of New York to the State Senate for appointment to the board. The Erie County Executive and Erie County Legislature each recommend one of the members to the Governor for appointment.

The NFTA Board is responsible for the appointment of the Executive Director, General Counsel, and Chief Financial Officer. The Executive Director oversees the nine units of the NFTA, one of which is Surface Transportation, which is responsible for operating Metro Bus and Metro Rail. The Surface Transportation Committee of the Board of Commissioners has additional oversight power over the Surface Transportation Unit. The management structure the NFTA is depicted in Figure 2-1.

Ridership

The NFTA serves approximately 105,000 weekday trips on Metro Bus and Metro Rail (APTA, 2013; National Transit Database, 2013). Metro Rail serves approximately 21,600 of those daily trips, with boardings per mile among the highest for light rail systems in the U.S. (McCarthy, 2012). This statistic is indicative of high ridership over a short distance, facilitated by connections to the broader Metro Bus system and low rates of vehicle ownership in the City of Buffalo (Hess, 2005). Ridership on Metro Rail was gradually declining prior to 2008 (Hess and Almeida, 2007); the 2008 recession produced a spike in Metro Rail ridership, which has since begun to erode with improved economic conditions (Figure 2-2).

Fares and Costs

In 2013, a one-way ticket on Metro Bus or Metro Rail cost $2, with an unlimited day pass costing $5 and an unlimited monthly pass for the entire bus and rail system costing $75 (Niagara Frontier Transportation Authority, n.d.-a). Reduced price fares and passes are available for qualified low-income individuals with proper proof of eligibility.

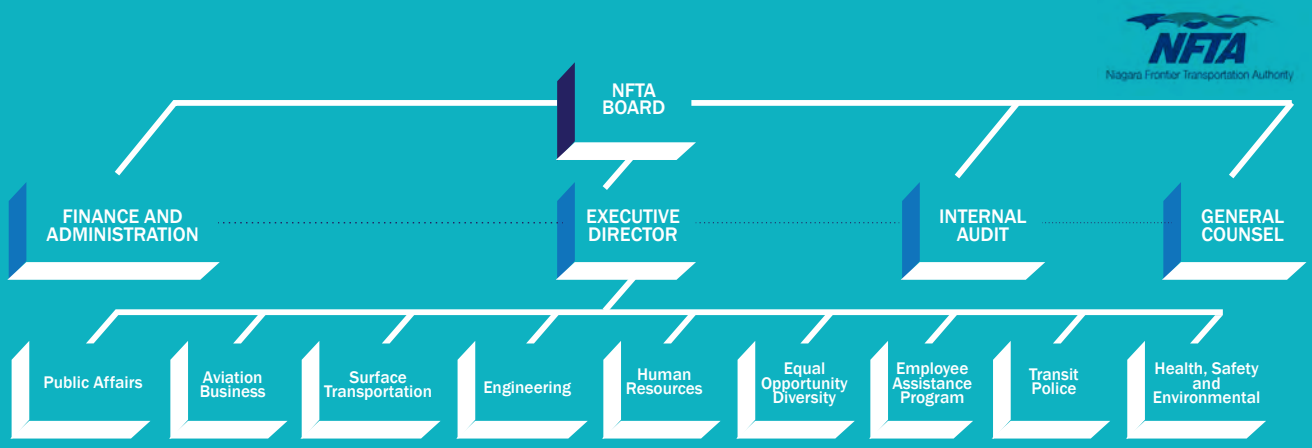
NFTA has previous experience with unlimited access passes. In 2003, NFTA-Metro began entering into agreements with area institutions of higher education to provide students with pre-paid transit passes for the bus and rail system. The College/University Unlimited Access Pass Program is currently available to students at Buffalo State College, Canisius College, Bryant and Stratton College, and the three campuses of Erie Community College (which together enroll more than 29,000 students).[2] These colleges exist on campuses both urban and suburban, however each institution has at least one campus located within the City of Buffalo, where the level of transit service is highest in the region. When a college or university enters into an agreement to participate in the pass program, it purchases the ability to access the entire Metro Bus and Rail system for all of its students; some colleges also initiate supplementary agreements to purchase additional service specific to their campus, such as a bus route linking a parking area to campus.[3] The colleges and universities purchase a transit pass for each enrolled student at their institution, whether or not pass holders choose to ride transit. The NFTA devotes a section of its website to this program, offering instructions to students on where they can obtain their university's pass (Figure 2-3).

The current price that the NFTA charges the four institutions for pre-paid transit passes is $47 per student per semester for each full time equivalent student enrolled in that college or university, lower than published fares for the public.

[2] Buffalo State College and Erie Community College currently have 3-year transit pass agreements with the NFTA. Canisius College has a 1-year transit pass agreements.

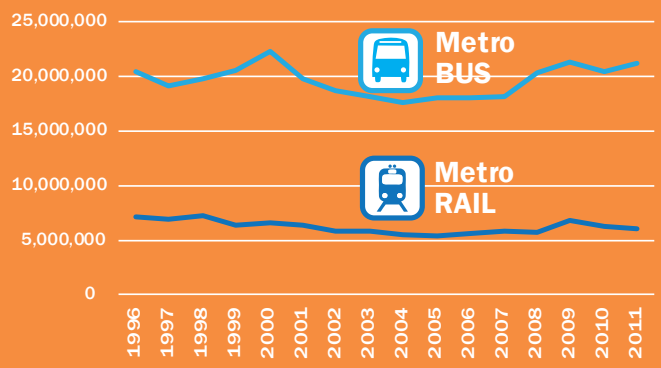
[3] In addition, NFTA has a contract with the Buffalo Board of Education to provide transport on public transit for public school children. The transit passes are purchased at the full market value, which is justified by other services (policing, direct service, etc.) not included in the college/university pass program.

Figure 2-1: How the NFTA is Structured



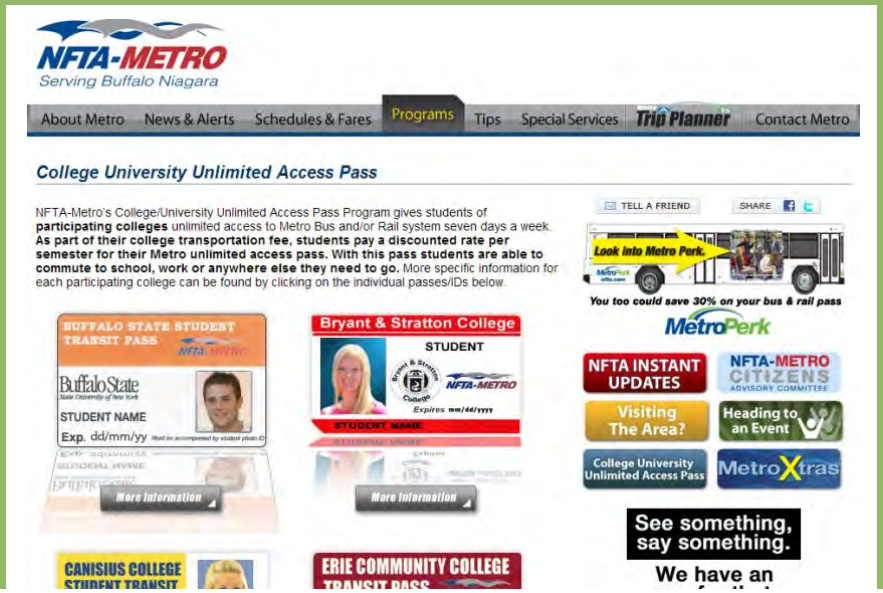
The NFTA is a public agency with a mission to provide transportation services for the people of Western New York. Today, in addition to Metro Rail, the NFTA continues to operate a regional bus system, an intercity bus terminal, two commercial airports, an 1,100 slip marina, and two commercial warehouses.

Figure 2-2: Annual Ridership on NFTA Bus and Rail, 1996-2011



Source: National Transit Database, Agency Profile for Niagara Frontier Transportation Authority (NFTA-Metro), 1996-2011

Figure 2-3: NFTA's Connection with Colleges and Universities



University at Buffalo

UB is one of four doctoral-granting university centers in the State University of New York (SUNY) system and is the largest and most comprehensive of all SUNY university centers (University at Buffalo, 2013d). This section will detail the University, its sustainability aims, and its existing transport system, which provide context for the 2010 agreement between UB and the NFTA.

History

The University at Buffalo dates to 1846, when the private University of Buffalo was chartered. In 1962, the trustees of the University of Buffalo voted to merge with the State University of New York to become the State University of New York at Buffalo. It adopted its current name—University at Buffalo, State University of New York—in 1997. This merger led the formerly small, commuter-oriented university to gradually expand more than four-fold, from about 7,000 students in 1962 to nearly 29,000 students in 2013 (University at Buffalo, 2011). This expansion took place with the help of sizable state investments both in operating and capital construction funds, which allowed for the creation of new academic programs and a new campus in Amherst (Greiner et al., 2007). As a SUNY center, UB began to attract students from outside the region, from across New York State, the nation, and the world.

STUDENTS

19,505 undergraduate students

9,447 graduate students

Enrollment and Employment

As of 2013, UB enrolls 28,952 students. This includes 19,505 undergraduate students and 9,447 graduate students. Additionally, the University employs 2,298 faculty and 4,324 staff (University at Buffalo, 2013d). International students have long been attracted to UB: currently, 17.1 percent of UB students are international students. In the 2012-2013 academic year, UB enrolled 5,804 international students, the largest number ever seen (Institute of International Education, 2013).

FACULTY & STAFF

2,298 faculty
4,324 staff

Structure

As a component of the State University of New York, UB is governed by the UB Council, a board of ten members, nine of whom are appointed by the Governor of New York for seven year terms, and one who is a student member, elected annually by UB students. The UB Council directly oversees the President and senior University officials, including the vice-presidents who oversee the seven divisions of the University. One of these University divisions—the Division of University Life and Services, which includes the department of Parking and Transportation Services—is closely related to the topic of this study Additionally, the Office of Sustainability falls within this division of UB.

Three Campuses

UB has two well-established campuses—South Campus in the City of Buffalo (near the Town of Amherst border) and North Campus in the Town of Amherst—and an emerging Downtown Campus north of Buffalo's Central Business District.

South Campus

The oldest of the current campuses is the South Campus, which originated when UB was deeded the former Erie County Almshouse in 1909. The 154-acre site located in the northeast corner of the City of Buffalo borders the University Heights neighborhood of Buffalo and the Eggertsville neighborhood of Amherst. By 1953, most of the University had moved from buildings scattered throughout Downtown Buffalo to the South Campus.

With the construction of a new campus in Amherst in the 1970s to accommodate growth, it was envisioned that all UB programs would move to the suburban campus and that South Campus would close. However, budgetary constraints and concerns from clinical faculty and academic deans in the Health Sciences schools about the remoteness of the North Campus led the University to instead rehabilitate the South Campus for the purposes of the health

Figure 2-4: UB Governance Structure

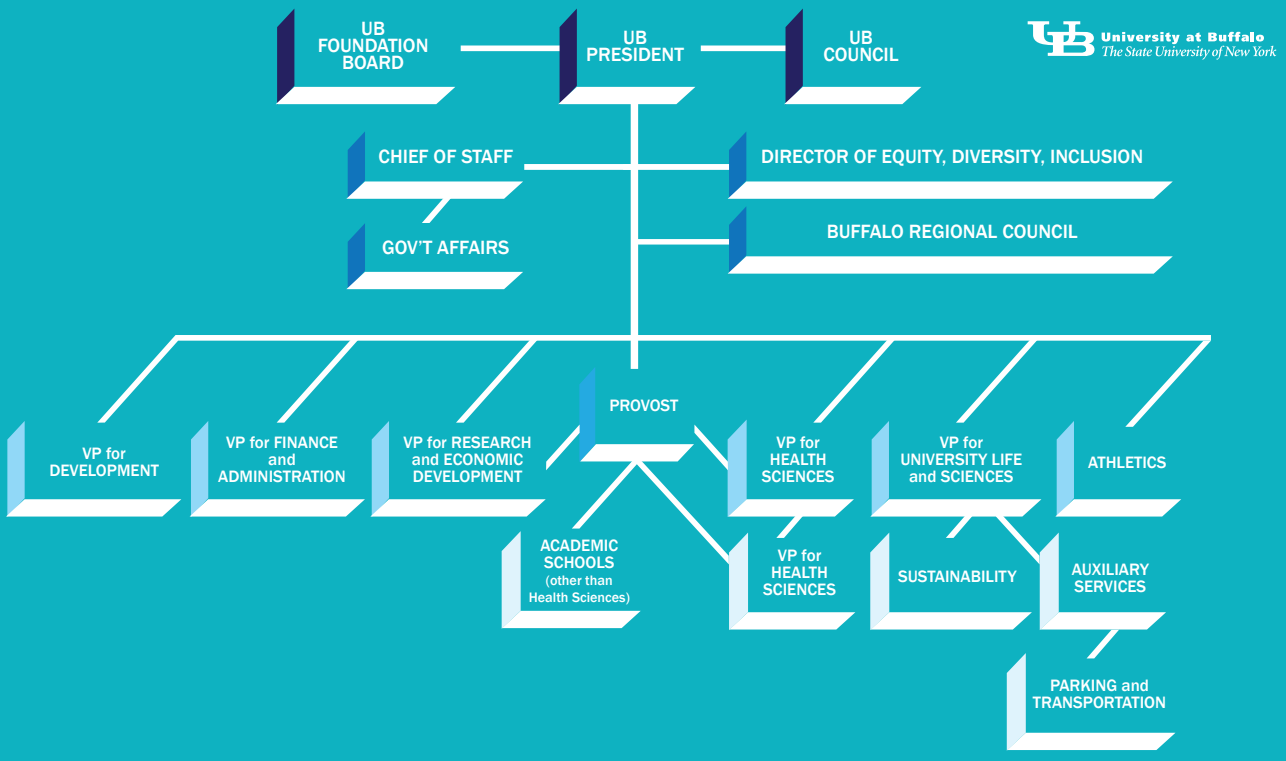
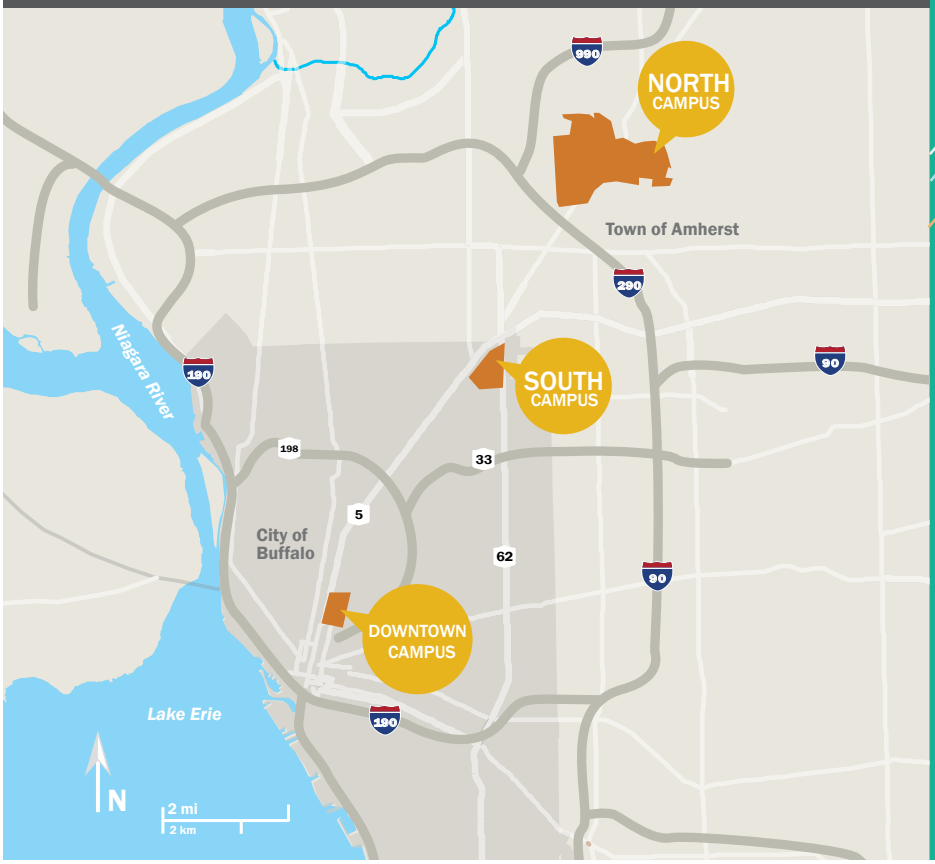


Figure 2-5: Three Campuses: One University



UB, as the largest SUNY University Center, is comprised of three campuses with nearly 29,000 students and over 6,500 faculty and staff. UB's transportation system connects the three campuses to ease travel for students, faculty, and staff.

sciences schools (Greiner et. al., 2007). Today, the University's Academic Health Center, composed of the schools of Medicine and Biomedical Sciences, Dental Medicine, Pharmacy and Pharmaceutical Sciences, Nursing, and Public Health and Health Professions, along with the School of Architecture and Planning, are located on the South Campus.

North Campus

After considering numerous alternative locations, UB chose in 1964 to acquire 1,192 acres of land in suburban Amherst, New York for its North Campus, approximately 4.5 miles to the northeast of the South Campus (Greiner et. al., 2007). Classes were first held there in 1973. Based on a site plan prepared by Sasaki, Dawson, and DeMay, it contains two major components, the Academic Spine, a mile-long plaza bordered by interconnected academic buildings, and the Ellicott Complex, six interconnected quadrangles of academic buildings and residence halls. The remoteness of the campus and the physical distance between and across these two complexes leave those who study and work there few convenient transportation options besides driving. This physical plan required UB to construct significant parking infrastructure, with some transportation demand met by shuttle bus systems that connect the various corners of the campus. In total, there are more than 12,300 parking spaces on North Campus.

UB North Campus is now the home of the University's largest colleges, the College of Arts and Sciences and the School of Engineering and Applied Sciences, and professional schools such as the SUNY Buffalo Law School, the School of Social Work, the Graduate School of Education, and the School of Management. Additionally, most of the University's administration, libraries, athletic, and performing arts venues are located on the North Campus.

Downtown Campus

The Downtown Campus is more informal than the other two campuses; the term "Downtown Campus" began to be used after the creation of the UB 2020 strategic plan in 2006 to refer to a group of University-owned buildings in and around Downtown Buffalo. Most of these buildings are located within the footprint of the Buffalo Niagara Medical Campus (BNMC).

BNMC is a consortium of institutions, of which UB is a member. There are two other large member institutions; Roswell Park Cancer Institute and Kaleida Health. Roswell Park Cancer Institute is a comprehensive cancer center and public benefit corporation of New York State. UB has a unique relationship with Roswell Park in that together they offer joint degree programs together through the Roswell Park Graduate Division. Kaleida Health is the operator of Buffalo General Medical Center.

Given the health sciences focus of the Buffalo Niagara Medical Campus, the Downtown Campus is largely composed of institutions related to the UB School of Medicine and Biomedical Sciences, though community engagement and adult education programs occupy space as well.

Strategically, UB is planning to relocate its academic health center from the South Campus to the Downtown Campus; the first planned component is a new building for the School of Medicine and Biomedical Sciences, which is currently under construction and slated to open in 2016 (Rey, 2013). UB is just one of the institutions planning to expand its presence at BNMC. Kaleida Health plans to relocate its Women's and Children's Hospital to the Medical Campus by 2016. Roswell Park is constructing a new building at the corner of Carlton Street and Michigan Avenue to provide space for expanded patient care and research.

With the shifting of UB's health sciences schools downtown, UB is planning to establish a more unified Downtown campus by creating, in addition to classroom and research space, a library, recreation center, and student housing. This will provide students, faculty, and staff the same level of access to University resources at the Downtown Campus as students have at the North and South Campuses (University at Buffalo and Beyer Binder Belle Architects and Planners LLP, 2009).

UB North Campus

A campus in the northern suburb of Amherst, covering over 1,100 acres, making it the largest campus at UB.

College of Arts and Sciences
School of Engineering and Applied Sciences
SUNY Buffalo Law School
School of Social Work
Graduate School of Education
School of Management
University Administration
University Libraries
Athletics
Center for the Arts

12,300
Parking Spaces

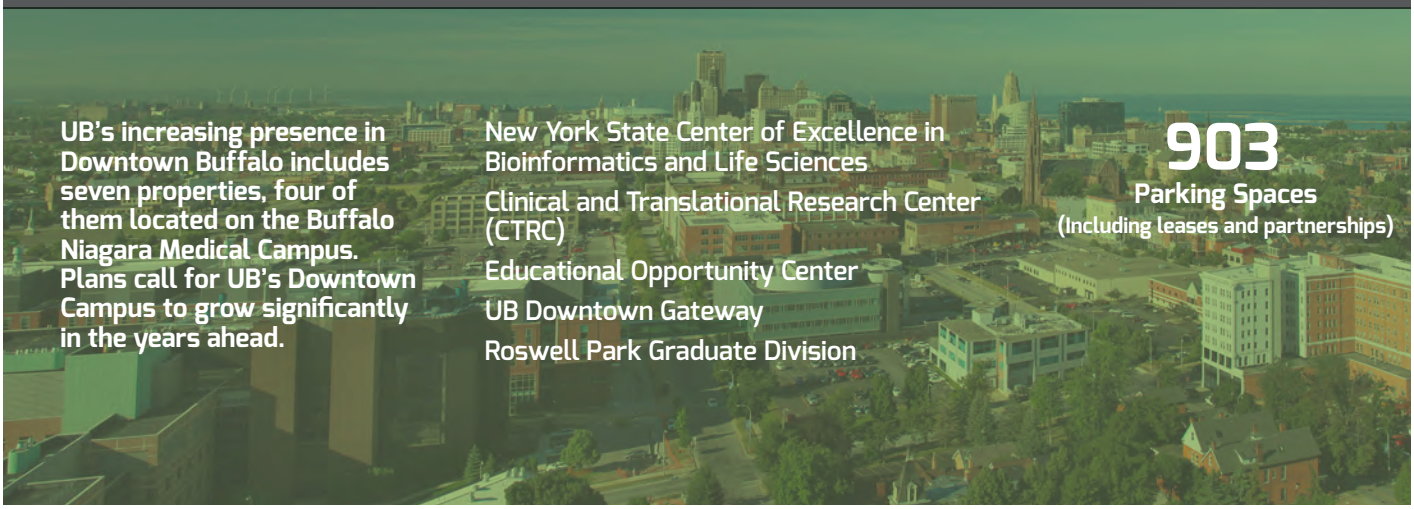
UB South Campus

UB's historic campus located in the northeast corner of the City of Buffalo, on 154 acres surrounded by traditional, established neighborhoods. The northern terminus of NFTA's Metro Rail system is situated on the edge of South Campus.

School of Medicine and Biomedical Sciences
School of Dental Medicine
School of Pharmacy and Pharmaceutical Sciences
School of Nursing
School of Public Health and Health Professions
School of Architecture and Planning

3,845
Parking Spaces

UB Downtown Campus



UB's increasing presence in Downtown Buffalo includes seven properties, four of them located on the Buffalo Niagara Medical Campus. Plans call for UB's Downtown Campus to grow significantly in the years ahead.

New York State Center of Excellence in Bioinformatics and Life Sciences
Clinical and Translational Research Center (CTRC)
Educational Opportunity Center
UB Downtown Gateway
Roswell Park Graduate Division

903
Parking Spaces
(Including leases and partnerships)

Figure 2-6: Transportation Options: UB and NFTA

University at Buffalo
The State University of New York

Transportation Services at UB

The UB Stampede!
Shuttle between North and South Campuses.

Shuttles on campus
Circulate within North Campus and facilitate outer ring parking opportunities.

Shuttles Downtown
The "UB BLUE LINE" is a route connecting the Downtown and South Campuses.

Transportation Service for Study

UB-NFTA Metro Rail Pass Program

Other Transportation Services

Zipcar - Provides cost-effective, self-service cars for students, faculty, and staff.

UB CarFree Carpool Program - UB parking permit holders can obtain a shared carpool permit. Permits are valid in designated spaces.

Buffalo Bikeshare - Provides on-demand self-service bicycles that can be taken anywhere on or off the UB campuses. Bicycles have GPS and integrated locks so they do not need to be left at designated locking stations.

Rideshare - Go Buffalo Niagara provides information on smarter travel options which allow users to find ridesharing opportunities in the region.

Ride the Metro - Pre-tax savings on an NFTA transit pass are available to State employees.

Bicycling at UB - Bike racks support over 600 bicycles on campus with racks on UB Stampede buses.

BNMC Wave - Circulator shuttle on the Buffalo Niagara Medical Campus, where most of the UB Downtown Campus is located.

Three Campuses, One University: Transportation Options

Given that the University now has three distinct campuses, UB has a self-imposed mandate to offer transportation services which link all three of its campuses. These services are provided either directly or by contract through UB Parking and Transportation Services.

North Campus and South Campus, which have the largest populations, are linked by the UB Stampede, a dedicated fleet of buses operated by First Transit, a Cincinnati-based transit contractor which services regional transit agencies, other universities, and state transportation departments (First Transit, 2013). The UB Stampede operates daily and transports students between the two campuses, with service every five minutes during peak hours and less frequent service outside the academic terms and during off-peak hours. UB Parking and Transportation Services estimates that this bus reduces daily vehicle usage by 10,000 personal trips. This service operates with 28 biodiesel-fueled buses which were purchased by First Transit in 2012.

Most students, faculty, and staff spend time on primarily one campus during any given day. Students are the most frequent users of University-provided intercampus transit, with many students living in the University Heights neighborhood who primarily study on North Campus.

UB Parking and Transportation Services operates a number of 20-passenger buses which also transport students around and between campuses. South Campus and the Downtown Campus are linked by the Blue Line Shuttle, which runs half-hourly between South and Downtown campuses during peak hours and hourly during off-peak hours and outside of academic terms. It operates from 6:30 am to 8:30 PM on weekdays. Similar buses also operate as circulator shuttles, transporting students around North and South Campuses, with the Blue Line operating as a circulator around the Downtown Campus (An overview of bus and shuttle operations is available in Appendix 6). UB estimates ridership on the 20-passegner bus shuttles to be 400,000 annually. Downtown students and employees can also ride the BNMC Wave, a circulator bus which takes people around destinations on the Medical Campus. UB also operates special-purpose shuttles which take students to shopping destinations.

The expenses for UB Parking and Transportation Services are almost entirely covered by student fees.

In addition to buses and shuttles, UB has implemented other transportation demand management measures on its campuses. UB provides space to Zipcar, which has 900 student members and six cars available across the North and South Campuses. UB also offers a carpooling program, which allows UB community members to relinquish individual parking permits in exchange for a shared permit that allows them to park in preferred spaces. UB Parking and Transportation Services reports that they had 300 carpool permits issued in 2013. UB also promotes bicycling as a means for students to get around campus. The Stampede bus has bicycle racks, which allows up to three students to store their bicycles on the front of the bus to transport them between campuses. UB is currently a Bicycle Friendly University at the Bronze level, according to the League of American Bicyclists, and has partnered with Buffalo Bike Share, which has begun to operate a bicycle sharing system, dubbed Social Bicycles, in Buffalo. Buffalo Bike Share provides a seasonal campus bikesharing program between April and October with 40 bicycles across the campuses. UB also offers the Express bus home service, which offers students the ability to purchase low cost tickets to various New York cities at the ends of the semesters and during breaks in the academic terms. This is intended to discourage students, if possible, from bringing a car to UB.

Unbundling the mandatory student parking and transportation fee would increase the cost for students who choose to drive and park while reducing the cost for students who choose not to drive.

Paying for Parking and Transportation at UB

All UB students pay a mandatory transportation fee, instituted in 1986 in support of parking and transportation services at UB. These fees cover the majority of operational and maintenance costs associated with UB's parking system, in addition to bus and shuttle services for all students, faculty and staff on intra- and inter-campus routes (University at Buffalo, 2013c). The transportation fee for Fall 2013 is 17.22 percent of a larger comprehensive fee of $1,070 for undergraduate students and 22.58 percent of a larger $816 fee for graduate students. The transportation fee currently amounts to approximately $184.25 for both undergraduate and graduate students each semester. In 2012-2013, approximately 62 percent of student fees were allocated to transportation services, with

the remaining 38 percent being used for parking (University at Buffalo, 2013c). Registered students are required to pay a fee (without the possibility of opting out), which permits them unlimited access to campus shuttle buses and the right to request a parking hangtag, which is a benefit of the transportation fee. Under the current fee structure, students who never use UB parking lots pay a fee dedicated to supporting the parking system.

Faculty and staff at UB purchase a hangtag for $9.65 per car per year for parking privileges on North and South Campuses, which allows free and unlimited access to most University parking lots. This fee has been challenging to increase because it can only be changed as part of a collective bargaining agreement with the various labor unions that represent UB faculty and staff. Not adjusted for inflation, the fee is less than the fee paid for parking in 1954 (University at Buffalo with Ecology and Environment, Inc., 2009). Faculty and staff can purchase a hangtag using a UB website. The fee is paid online, with parking hangtags sent directly to the address of the recipient or made available for pickup at UB.

There is a vast supply of parking, with 12,300 spaces available on North Campus, 3,845 available on South Campus, and 903 spaces available on the Downtown Campus. With 17,048 parking spaces, there are 0.48 parking spaces per capita (for UB faculty, students, and staff).

Though there is strong demand to park in some lots, especially on South Campus, where most parking lots have at least 81 percent utilization rates during weekdays, some of the parking lots on North Campus are sparsely used (University at Buffalo and Beyer Binder Belle Architects and Planners LLP, 2009). Initiatives on both North and South Campuses have encouraged commuters to park in a distant parking lot and ride one of the circulator shuttles to their destination.

According to UB officials, almost 90 percent of the UB Parking and Transportation Services budget is covered by student fees; the rest of the budget is derived from the hangtag fee, parking citations, and paid and metered parking lots across the campuses.

In contrast to the low fee charged on the other campuses, attending class on the Downtown Campus requires paying a higher rate for parking, as parking there is managed by BNMC, where a monthly fee of $90 is charged to park in structured parking and $60 is charged to park in a surface parking lot. Students who travel there for classes or work are not entitled to any benefit, generally relegating them to the Blue Line or Metro Rail if they do not pay for parking. UB faculty and staff working on the campus are currently provided parking as a benefit in lots and garage spaces owned by UB but managed by BNMC.

The equity implication of funding arrangements for UB's transportation system is worth further consideration. Unbundling the mandatory student parking and transportation fee would increase the cost for students who choose to drive and park while reducing the cost for students who choose not to drive. Past research demonstrates that changing the cost of parking to a marginal cost from a fixed cost can encourage mode shifts away from single occupancy vehicles toward carpools, public transit, and non-motorized travel modes (Brown et al., 2001; Brown et al., 2003). Raising parking fees for faculty and staff and using a "cash out" system should ideally also be included in an unbundling of costs (Shoup, 2004, 2011). This would provide employees with cash that could be used to purchase a hangtag to park or allow them to keep the funds for other purposes if they agree to arrive at campus using another mode of transportation.

Other Transportation Options

NFTA Metro Rail generally operates between 5:00 AM and midnight throughout the year, between downtown Buffalo, the Downtown Campus, and the South Campus. NFTA buses also service the campuses, most frequently at South Campus, which is serviced by ten Metro Bus routes. An NFTA Metro Bus departs from University Station every three and a half minutes on average between 8:00 am and 6:00 pm. The North Campus is serviced directly by two NFTA Metro Buses which stop near the Academic Spine, serving the campus with a bus every 19 minutes.

In the neighborhoods around South Campus, many community members walk or bicycle to UB due to the proximity of neighborhoods to the campus; other than on-campus residence halls, North Campus' location within the suburban Town of Amherst and its immense scale make walking and biking to campus from off-campus areas more challenging, though

As a participant in the American College and University President's Climate Commitment, UB committed to create a climate action plan intended to mitigate greenhouse gas emissions created by the campus and its community.

UB can become a leader in the reduction of greenhouse gas emissions.

recent efforts to construct bike lanes and improve bicycle trails have the potential to shift commuter mode share, especially from nearby apartment complexes.

UB Sustainability Aims

Sustainability is best understood as set of strategic plans and actions aimed at preserving the built and natural environment to ensure responsible actions and development policy so that current and future generations have enough resources to meet their needs. Balancing the needs of people, place, and economic activities to conserve resources is critical to achieving this goal (Glavič & Lukman, 2007). Sustainability integrates well with the mission of a large research university such as UB. In discussions with University administrators regarding sustainability, UB seeks to promote literacy in sustainability among all members of its campus community, and to find solutions to environmental problems locally and globally, as it pursues sustainability in five thematic areas: climate, energy, food systems, health, and biodiversity.

In 2007, 14.4 percent of all greenhouse gas emissions at UB were the result of travel, including student, faculty, and staff commuting to its three campuses. This estimate was calculated for UB's Climate Action Plan using parking hang tag observations and measuring the distance between the University campus and home addresses of commuters. Assumptions were made regarding the number of trips students and staff made based on travel survey results. Findings suggest that 26.9 percent of emissions at UB come from transportation, with 53 percent of all transportation emissions a result of vehicle commuting (University at Buffalo and Ecology and Environment, Inc., 2009).

An important first step in addressing negative effects of transportation-related emissions is UB's participation in the American College and University Presidents' Climate Commitment (ACUPCC) (Sinha et al., 2010). The ACUPCC is a network of colleges and universities that seek to educate, provide research and thought leadership on climate change, carbon emissions, and climate neutrality. UB was among the first 100 universities in the United States to sign this pledge of climate neutrality, committing to the ACUPCC goal of curbing institutional growth in greenhouse gas emissions and promoting sustainability. Commitment to this effort requires colleges and universities to provide a specific aspirational date to achieve climate neutrality, with UB's committment lasting until 2030.

As a signer of the ACUPCC, UB committed to create a climate action plan listing actions to mitigate greenhouse gas emissions created by the campus and its community, including those created by campus buildings and energy systems, faculty and staff travel, vehicle transport on campus, and vehicle commuting to campus. UB's agreement targeted potential reductions in three categories: buildings and land use, transportation, and materials used on campus. In meeting the transportation goal, UB proposed a series of new and expanded transportation demand management initiatives to reduce single occupant vehicle commuting to campus. These initiatives were designed to encourage single occupancy vehicle users to switch to carpools, public transportation, bicycling, and walking, while simultaneously introducing flexible work schedules, telecommuting, and offsetting all emissions associated with university air travel (University at Buffalo and Ecology and Environment, Inc., 2009). Building UB, The Comprehensive Physical Plan (2009) also suggests several policies that could be part of a long-term effort to reduce greenhouse gas emissions, including the unbundling of student parking fees, incentivizing faculty and staff to drive less through monetary incentives, and instituting a pre-paid transit pass program (University at Buffalo and Beyer Blinder Belle Architects and Planners, LLC., 2009).

The ACUPCC provides UB an opportunity to become a regional and national leader in the reduction of greenhouse gas emissions, especially in regards to its importance in the Buffalo Niagara region as a driver of economic growth and a major employer. Collaboration between UB and the NFTA would serve as a high profile example of greenhouse gas emissions reduction through a strong cooperative effort between a major employer and the regional transit authority. Despite the fact that Building UB and the Climate Action Plan recommended that the cost of transit passes be paid by UB, we find contradictions between these published documents, advocating for unlimited access transit, and the position of key university administrators interviewed for this research, who argue that UB should reduce carbon footprints of commuters, but not incentivize commutes to do so.

2010

FALL Semester — UB-NFTA transit pass program announced

2011

SPRING Semester — Students eligible for transit passes

SUMMER — Faculty/Staff eligible for transit passes

FALL Semester

2012

SPRING Semester — April 2012 transit pass usage survey of transit pass holders

SUMMER — UB-NFTA transit pass program concludes

NFTA Transit Pass Program

UB entered into an agreement in 2010 with the NFTA to provide transit passes to students. This section details the events that led up to this 2010 agreement, the details of the agreement, and the conclusion of the transit pass program in August 2012.

Background

In 2003, UB and NFTA negotiated to provide prepaid transit passes to all students based on South Campus, either because they live in its residence halls or were enrolled in an academic program primarily based on that campus. This would have provided transit passes to approximately 2,000 students. UB and NFTA officials were unable to reach such an agreement, however. According to a UB official, UB and the NFTA agreed to create an unlimited access pass for students who live or study on the South Campus, but the NFTA then asked UB to purchase the pass for all enrolled students. This was not financially viable at the time for UB, and negotiations fell apart.

UB's 2009 Master Plan, Building UB, recommended that the university provide students, faculty, and staff with pre-paid transit passes for Metro Bus and Rail. The plan's authors made this recommendation because of the high cost of constructing new parking facilities demanded by the University's planned growth. Building UB emphasized that an unlimited access transit program would be advantageous for UB because it would reduce the need for campus parking, and advantageous for the NFTA by both increasing bus and rail ridership while simultaneously creating an expanded base of support for improvements, such as Metro Rail expansion. Similarly, UB's Climate Action Plan also suggested providing pre-paid transit passes to university community members as a means to reduce emissions from travel to and from campus.

With both public and private colleges and universities in the Buffalo area having unlimited access transit passes for enrolled students, and UB and the NFTA unable to reach an agreement on a transit pass for UB students, the idea of pre-paid transit was continually discussed across the UB campus community. For example, one of UB's newspapers, *The Spectrum*, published an opinion piece in 2005 in which a student pointed out that other colleges in the region had Metro passes but UB did not (Almeida, 2005). Similarly, another UB newspaper, *The Generation,* printed an article that questioned why other colleges in the area had an unlimited access pass while UB did not (Christiansen, 2006). Meanwhile, the *UB Reporter*, the official news outlet of UB, published an article in 2010 offering strong support for public transportation (Hsu, 2010).

The UB-NFTA Trasit Pass Program Takes Shape

In 2011, UB began a pilot program of a limited transit pass program, offering eligible campus community members pre-paid transit passes for NFTA Metro Rail. UB agreed to purchase from the NFTA up to 3,000 pre-paid Metro Rail passes for students and up to 300 pre-paid Metro Rail passes for faculty and staff, to be used beginning in January 2011. The passes were distributed on a first-come, first-serve basis following an application and review process. UB was required to reimburse the NFTA for the actual number of passes issued. In addition, as part of the agreement, UB could purchase 100 single-use round-trip transit passes at $4 each and 200 passes for UB's Equal Opportunity Program (EOP). Though UB could purchase up to 3,000 passes for students and 300 for faculty and staff, in the 2010-2011 academic year, during which the pass was available only in the spring semester, UB purchased 1,072 passes for students and 246 passes for faculty and staff. During the 2011-2012 academic year, UB purchased 2,813 student passes over two semesters, and 310 passes for faculty and staff.[5]

UB's pilot program was unique in that it only included Metro Rail and not the more extensive Metro Bus system.

The UB-NFTA transit pass program differed in two important ways from the transit pass agreements that the NFTA has entered into with other colleges and universities. UB's pilot program was unique in that it only included Metro Rail and not the more extensive Metro Bus system. It did, however, extend the program beyond the student population to include

5 According to a UB official, UB was able to purchased an additional 10 passes beyond the agreed upon amount to replace lost passes.

faculty and staff. In order to be eligible for the pass, students, faculty, and staff were required to reside in a location within three-quarters of a mile of a NFTA Metro Rail station, or have responsibilities including an internship, a class, or job duties, that required travel between the South and Downtown Campuses.

The cost paid by UB to the NFTA for the rail-only program was $30 per year for each participating faculty or staff member and $10 per semester for each participating student. Since the program began in the middle of the 2010-2011 academic year, UB paid a uniform $10 per pass per participant to furnish participants with rail passes for the remainder of the 2010-2011 academic year. Faculty and staff passes were paid for using UB operating funds and student passes were paid for with student fees. This potentially would have amounted to a total payment of $33,000 for the program's first semester, and $69,000 for the following year. As all the student passes were not issued each semester, UB paid lesser amounts to the NFTA. For the 2010-2011 academic year, UB paid $13,880 to the NFTA for its riders in the transit pass program. In the 2011-2012 academic year, UB paid $57,810 to the NFTA. Funds from these sources became available after UB Parking and Transportation Services reduced the frequency of its Blue Line Shuttle, which runs parallel to the Metro Rail, from one half-hour to one hour.

Funds for the UB-NFTA Transit Pass Program became available when UB reduced the frequency of its Blue Line Shuttle, which runs parallel to Metro Rail.

Participants received a sticker produced by the NFTA which, when affixed to a valid UB identification card, permitted unlimited pre-paid rides on Metro Rail. The cost of disbursement of the transit pass stickers was absorbed within the administrative budget of the office of UB Parking and Transportation Services. The stickers were made available to students at the Parking and Transportation Services Offices on UB's North and South Campuses.

Based on interviews with key NFTA and UB staff members, implementation and operation of the program went smoothly. There were no major issues associated with the program such as service or capacity issues on the light rail system. The NFTA reports that mid-day ridership on Metro Rail was already approaching ridership highs seen during peak travel periods, but does not attribute capacity strain to the UB-NFTA transit pass program.

The Pilot Program Concludes and is Not Renewed

After failing to reach an agreement to continue the transit pass program past the end date of the pilot agreement, the UB-NFTA transit pass program concluded at the end of the Summer 2012 term.

Unfortunately, after both parties failed to reach an agreement to continue the transit pass program past the end date of the pilot agreement, UB discontinued offering transit passes at the end of the Summer 2012 term. According to UB and NFTA officials, there are two critical issues that prevented the continuation of the transit pass program. The NFTA wanted transit passes to be purchased for all UB students, similar to the College and University Unlimited Access Pass, while UB only wanted to purchase the pass for people likely to use transit, similar to the subset of the population served in the pilot program. Additionally, the NFTA's model for the College and University Pass provides unlimited access on Metro Bus and Rail, and the NFTA wanted to include both modes in the continued transit pass program, as opposed to the rail only pass utilized during the pilot pass program.

After the discontinuation of the transit pass program, UB officials reported that only a small number of students and faculty/staff members contacted the NFTA and UB to voice their concerns and desire to reinstate the program. Nonetheless, the discontinuation of the program greatly affected students for a number of reasons. Among those affected were students who secured housing in downtown Buffalo because of the low cost and convenient access that the pass program provided. It forced them to reconsider where they lived and their mode of travel to UB.

In the meantime, UB and the NFTA have met regularly to discuss common issues and joint programs, including the possibility of re-establishing a prepaid transit pass for faculty, staff, and students. Since the pass program ended, discussions with the NFTA have also revolved around other issues, including reconstructing the Allen-Medical Campus Metro Rail Station, above and around which UB is presently constructing the new building for the School of Medicine and Biomedical Sciences (Rey, 2013). Additionally, South Campus is the site of a public park and ride lot for Metro Rail's University Station. The NFTA reimburses UB for the upkeep and maintenance of the park and ride lot.

3. Methodology

Online surveys and in-person interviews of students, faculty and staff were conducted to gather feedback on the pilot program.

This analysis of the UB-NFTA transit pass program utilizes both data collected by the research group and existing surveys obtained through the department of Parking and Transportation Services at UB.

Existing Data for Baseline Measurement

In Spring 2011, during the UB-NFTA Pilot Transit Pass Program's first semester, UB Parking and Transportation Services conducted surveys to evaluate its effectiveness. This survey was open to both pass users and non-pass users through MyUB. Among student respondents, 58 percent of the population had heard of the pass, and 39 percent had applied for it. Of those who had the pass, 39 percent reported using the Metro Rail daily; prior to the pass, 19 percent of participants used Metro Rail daily.

A similar survey was created and a weblink emailed to faculty and staff pass users. Given that the entire survey population had a pass, 99 percent of the survey population was aware of the pass, and 100 percent had applied for it. Of the respondents, 27 percent reported using Metro Rail daily, compared to 13 percent prior to the institution of the pass.

In comparing the two surveys, students, faculty, and staff used the pass for various purposes. Among faculty and staff, 26 percent used the pass to connect to the UB Stampede to get to North Campus, with 27 percent of students using it for the same purpose. Many more faculty and staff (25 percent) than students (9 percent) used the pass to get to work or class on South Campus. These people, we can assume, were using the pass to commute to a campus without using a vehicle. Others more than likely used South Campus as a park and ride lot, unless they lived in the University Heights neighborhood or linked to South Campus on the Stampede, as 31 percent of faculty and staff and 58 percent of students reported utilizing University Station to start their trip on Metro Rail. Additionally, six percent of faculty and staff and ten percent of students reported using the pass to attend events. The complete survey results, with summaries provided to us by Parking and Transportation Services, are available in Appendix 7 and Appendix 8. In addition to the Spring 2011 survey, UB Parking and Transportation Services conducted a similar survey in Spring 2012 among the pass user population (Appendix 9).

The Spring 2011 survey, which was available to all students, faculty, and staff, collected feedback regarding the pilot free transit pass program regardless if one took advantage of the program or not. The spring semester 2012 survey was administered only to students, faculty, and staff who took part in the free transit pass program and had the requisite pass sticker from UB Parking and Transportation Services affixed to their university identification card. We chose the spring semester 2012 data set to serve as our baseline measurement for the pilot transit pass program because the survey was targeted only to students, faculty, and staff who participated in the program.

To collect more recent data on usage of the pilot transit pass program, including travel behavior during its final months of operation and subsequent to its discontinuation, the project team conducted a new survey of the UB community in April 2013 designed to

determine information about transit pass program usage and perceptions of the transit pass program. The novelty of this survey was that it was provided to all students, faculty, and staff at UB and was not limited to transit pass program participants. This was the first time that non-participants were asked how they perceived the pilot transit pass program.

To provide the most informed context for the program analysis, and to determine what type of survey questions to ask students, faculty, and staff, the research team first conducted interviews with individuals who were party to the discussions that created the UB-NFTA Pilot Transit Pass. In February 2013, four in-depth interviews were conducted with UB officials closely involved in the transit pass program, and four in-depth interviews were conducted with top officials at the NFTA. The interview guide for these interviews can be found in Appendix 10. In March 2012, after the individual interviews were conducted, two workshop-style discussions took place, one for UB officials and one for the NFTA team. Due to institutional ties between the research team and the organizations studied here, all UB and NFTA officials from whom an interview was requested agreed to take part.

Study Design

We developed a self-completion Internet survey to gather the data we sought. We utilized Survey Monkey, a respected web survey instrument, for hosting the survey. We relied on our individual and collaborative expertise about transit use, Unlimited Access transit pass programs, and a review of scholarly literature regarding transit use and pre-paid transit pass programs to aid in the formation of our questions. When our draft survey was completed, it was reviewed by representatives of UB Parking and Transportation Services, the NFTA, and the Greater Buffalo Niagara Regional Transportation Council, the Buffalo-Niagara region's metropolitan planning organization (MPO). The web survey instrument and protocol were approved by the UB Institutional Review Board on March 7, 2013. The survey was designed to facilitate completion within ten minutes or less. Survey questions had discrete choices for responses, and little writing was required, although an optional write-in response was permitted at the end of the survey. The survey provided an opportunity for participants to skip questions if they chose. Participants were informed that they could exit the survey at any time.

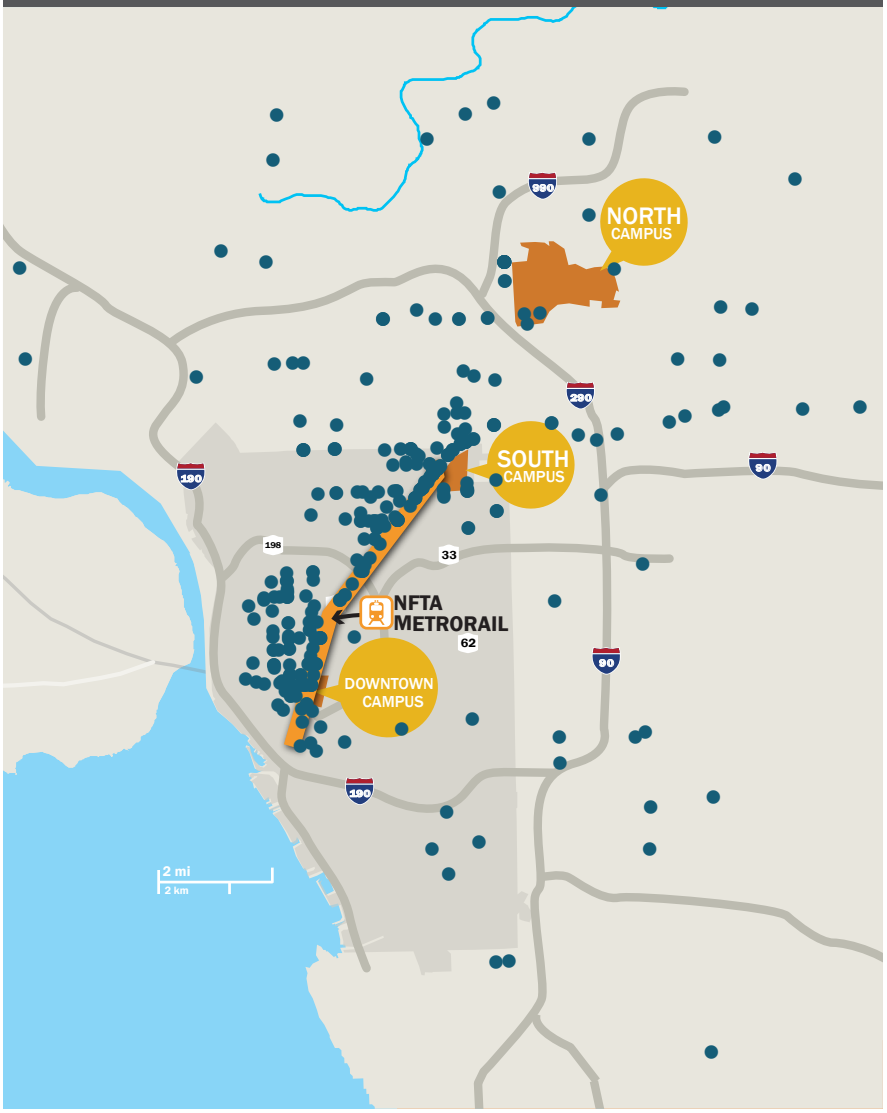
The question set consisted of roughly four sections. The first section collected basic demographic information such as citizenship, gender, and current affiliation with the University. This data was collected from participants who either received a link to access the survey via email or who accessed it directly through a link on MyUB. In the second section, all participants who took the survey via the MyUB link were asked if they had previously been issued a transit pass by UB, while previous pass holders who received an email invitation to take the survey did not receive this question if they used the email link. Previous pass holders were then asked a set of questions pertinent to them, such as the location of Metro Rail stations used most frequently. Participants who never participated in the UB-NFTA Pilot Transit Pass Program were asked yes or no questions regarding their knowledge of the pass program and their reasons for choosing not to participate. The third section contained questions that all participants were asked. These included questions about potential transit use. The fourth section contained questions that all participants were asked. This section asked questions regarding potential support for the return of a transit pass program to UB.

The survey was administered in two ways. First, we individually invited 2,223 students, faculty, and staff who took part in the pilot transit pass program via email to take part in the survey, using email addresses provided to us by UB Parking and Transportation Services based on their available contact information for pass users. We used Constant Contact, a respected marketing tool that has the capability of delivering electronic content to a large population. Though we were provided with 2,223 email addresses, due to the fluidity of the University population, only 1,794 email invitations were successfully received by former pass holders (as suggested by email messages returned undeliverable). These were participants who took part in the pass program through the Summer 2012 term. The email addresses were not connected to individuals' names, address, or any other personal information. We attempted to survey all pass holders; sampling was not used. All study participants who responded to our survey volunteered to take part in it. Each survey subject initially received an email message informing them about the survey and stating

that participation in the survey was voluntary. This introductory email message (available in the Appendix 1) contained a hyperlink that provided access to the first web page of the survey.

Next, a second group of survey subjects were passively recruited from among the entire UB population of students, faculty, and staff during the Spring 2013 semester. To do so, we placed a link to the survey on UB's MyUB homepage. MyUB is a one-stop web portal that all students, faculty, and staff can access using a login and password; the portal page contains announcements and information about activities occurring at UB (new information and activities are updated each day and there are often links to surveys). In addition, UB students must log in to gain access to critical student services such as email, course registration, and finance and billing. We placed a link to the survey in the announcements section of the MyUB main page (see Appendix 2). We did not sample the population; all students, faculty, and staff were eligible to participate using the link on the MyUB web page. At the time the survey was administered during the Spring 2013 semester, we estimate the population who conceivably could have linked to the survey to be 35,649.

Figure 3-1: Spatial Distribution of Survey Respondents



The survey began on April 9, 2013 and concluded on April 21, 2013, operating for thirteen days. To encourage participation, all survey participants—whether they received an email invitation to participate in the survey or clicked on the survey link from the MyUB homepage—were offered the chance to enter a drawing to win one of three prizes. The first prize was an iPad mini, the second prize was an iTunes gift card for $100, and the third prize was a gift card for $50 for Tim Horton's Café and Bake Shop. One week after the survey period concluded, the drawing was held, and prizes were distributed during the week of April 29, 2013, according to the rules published within the survey.

Survey Respondents

Survey response collection concluded in April 2013. From the 1,794 students, faculty, and staff that were actively recruited, 643 (35.8 percent) completed the survey. Since the passively delivered survey draws on a much larger population, the completion rate was substantially lower. From the possible 35,649 students, faculty, and staff at the university, 754 (2.1 percent) completed the survey. Detailed results of the survey response rates can be seen in Table 3-1.

The final dataset used to assess the transit pass program is comprised of responses from both surveys, although the bulk of the responses are from the actively delivered survey. In total, 708 responses are considered from those participating in the transit pass program; 643 are from the active survey and 65 are from the passive survey (see Table 3-2 for details).

The spatial distribution of survey respondents is shown in Figure 3-1. This is created from survey data, as survey respondents were asked what the nearest intersection was to their home.

Respondents are concentrated along the route of Metro Rail, especially near Downtown Buffalo and the UB South Campus.

The sex distribution of student survey respondents is slightly different from that of the university student body as a whole. Undergraduate males are slightly underrepresented in the survey results (0.94 males for every female) when compared to the university's reported ratio (1.18 males for every female). On the other hand, the ratio inverts for graduate students. Graduate males are slightly overrepresented in the survey results (1.12 males for every female) when compared to the university's reported ratio (0.96 males for every female). Table 3-3 shows the distribution of male and female student respondents. Similar comparisons are not available for faculty and staff, but the overall distribution of gender across all survey respondents can be seen in Table 3-4a and Table 3-4b.

In 2013, UB was ranked 18th in the nation in attracting international students (Institute of International Education, 2013), reporting a total of 5,804 for the 2012/13 academic year. This relatively high level of international enrollment is reflected in the survey results. The majority of study respondents are U.S. citizens (74 percent) and more than one out of five (22 percent) is a non-US citizen. Furthermore, most of the non-US citizens identified themselves as international students. A total of 26 percent (150 respondents)

Table 3-1. Survey Response

Action Items	Active Previous Pass Holders	Passive MyUB	Total
Invitation to Complete Survey (A)	1,794	35,499	37,293 [a]
Opened Survey (B)	666	1,213	1,879
Completed Survey (C)	643	754	1,397
Response rate (D) = (C) / (A)	35.8 %	2.1 %	3.7%

[a] Total university population estimate: 28,952 students (2012), 6,622 full-time staff (2011), 1,170 full-time faculty (2012), and 549 part-time faculty (2012).

Table 3-2. Pass Holders within the populations of the April 2013 Surveys

Survey Source	Pass Holders	Survey Respondents	Percent Former Pass Holders
Actively Recruited (email)	643	643	100.0%
Passively Recruited (MyUB)	65	754	8.6%
Total	708	1,397	50.6%

Table 3-3. Sex Distribution of Student Survey Respondents

	Student Affiliation	Male	Female	No Answer	M-F Ratio
Survey	Undergraduate	47.9%	50.8%	1.3%	0.94
	Graduate	52.2%	46.6%	1.2%	1.12
University	Undergraduate	54.2%	45.8%	-	1.18
	Graduate	49.0%	51.0%	-	0.96

Question Source: What is your gender? What is your Affiliation with UB? Other Source: UB Common Data Sheet 2012-2013.

Table 3-4a. Sex Distribution of Passholder Respondents (**Count**)

Affiliation	Male	Female	Blank	Grand Total
Undergraduate	114	121	3	238
Graduate	177	158	4	339
Faculty/Staff	63	48	2	113
I was not a member of the UB community during those semesters	3	2		5
Blank/No Answer	4	2	7	13
All Affiliations	361	331	16	708

Table 3-4b. Sex Distribution of Passholder Respondents (**Percent**)

Affiliation	Male	Female	Blank	Grand Total
Undergraduate	16.1%	17.1%	0.4%	33.6%
Graduate	25.0%	22.3%	0.6%	47.9%
Faculty/Staff	8.9%	6.8%	0.3%	16.0%
I was not a member of the UB community during those semesters	0.4%	0.3%	0.0%	0.7%
Blank/No Answer	0.6%	0.3%	1.0%	1.8%
All Affiliations	51.0%	46.8%	2.3%	100.0%

of all students surveyed are international students, six percentage points higher than the overall student share of 20 percent reported by UB. This disproportionate response from international students is likely due to the implementation of the transit pass program which targeted students, faculty, and staff that travel to and from UB's South and Downtown Campuses. Both campuses are home to a higher proportion of graduate programs, which tend to attract more international students than undergraduate programs. Table 3-5a and Table 3-5b show the distribution of citizenship across of the pass holder population surveyed.

Limitations

We acknowledge that our survey methodology has limitations. These include the challenge of reaching students, faculty, and staff through electronic media via email. Similarly, MyUB presents a deluge of information to those who log on to the site. Though students can use MyUB to access sites with information regarding course material, grades, and email, all of these sites can be accessed without going through the MyUB web page. Additionally, faculty and staff do not have as much need to visit this site as often, possibly limiting their response.

Although the instructions warned people to not complete the survey more than once, there was in fact no way to stop people from completing it more than once. For example, participants in the pilot transit pass program received an email invitation to participate, and they also could have accessed the survey on the MyUB web page. The availability

of prizes may have introduced bias into response. Though the developers of the survey could have restricted students from accessing the survey from a computer registering the same Internet Service Provider (ISP) number, this was not done because it was likely that survey takers could use shared computers provided in University libraries and computing labs. Additionally, the survey team did not have the capability of controlling difficulties that survey-takers may have experienced with software or computer devices.

Given that the pilot transit pass program ended in August 2012, and the new survey occurred in April 2013, students, faculty, and staff who participated in the pilot transit pass program but separated from UB might not have received an invitation to participate. Some UB email addresses continue to operate or are forwarded to other email addresses after an individual separates from UB, and some do not. Though our research team was provided with 2,223 email addresses by University Parking and Transportation Services. 1,794 emails were successfully sent to former pass holders (using Constant Contact) who had the pass at its conclusion in the Summer 2012 term. This lower number is likely the result of attrition in the University community since the conclusion of the pass program.

Table 3-5a. Citizenship Distribution of Passholder Respondents (**Count**)

Affiliation	US Citizen	Permanent Resident	Non-US Citizen/ International	Blank/No Answer	Grand Total
Undergraduate	200	7	30	1	238
Graduate	213	4	120	2	339
Faculty/Staff	103	7	2	1	113
I was not a member of the UB community during those semesters	4	0	1	0	5
Blank/No Answer	5	1	1	6	13
All Affiliations	525	19	154	10	708

Tab; 3-5b. Citizenship Distribution of Passholder Respondents (**Percent**)

Affiliation	US Citizen	Permanent Resident	Non-US Citizen/ International	Blank/No Answer	Grand Total
Undergraduate	28.2%	1.0%	4.2%	0.1%	33.6%
Graduate	30.1%	0.6%	16.9%	0.3%	47.9%
Faculty/Staff	14.5%	1.0%	0.3%	0.1%	16.0%
I was not a member of the UB community during those semesters	0.6%	0.0%	0.1%	0.0%	0.7%
Blank/No Answer	0.7%	0.1%	0.1%	0.8%	1.8%
All Affiliations	74.2%	2.7%	21.8%	1.4%	100.0%

KEY FINDINGS

Transit Riders

3,123 in UB-NFTA Pilot Transit Pass Program
during 2011-2012 Academic Year (708 responded to survey)

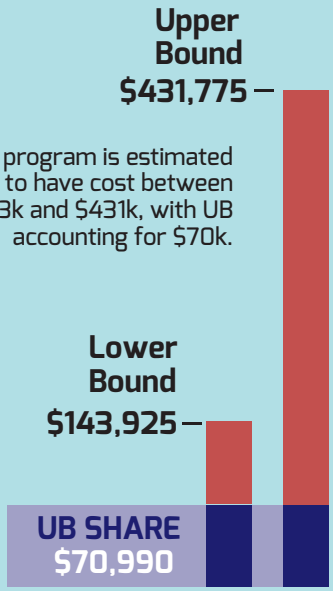
BEFORE the UB-NFTA Pilot Transit Pass Program

- **87%** rode at least occasionally
- **28%** rode on a regular basis
- **13%** purchased monthly NFTA passes
- **42%** did not have access to a personal vehicle

DURING the UB-NFTA Pilot Transit Pass Program

- **60%** rode Metro Rail more often
- **4%** rode Metro Rail less often
- **31%** did not change

Costs



The program is estimated to have cost between $143k and $431k, with UB accounting for $70k.

UB Net Savings

UB net savings over the course of the program = **$62k**

Average Pass Holder Savings Per Semester

$240 UB student pass holder

$223 UB faculty/staff member pass holder

Benefits to Surveyed Pass Holders

1,300 miles traveled per week shifted to Metro Rail...

...emptying **34** parking spaces on campus

10% ceased owning a vehicle, saving an estimated $640k combined over the length of the pilot UB-NFTA Transit Pass Program

25% delayed owning a vehicle because of the pilot UB-NFTA transit pass program

69% used Metro Rail to visit new places

61% reported walking or biking more during the UB-NFTA pilot transit pass program

4. Program Analysis

How the program participants and institutions benefitted from the program

The UB-NFTA pilot pass agreement was a benefit to transit pass users, but also provided substantial benefits to both institutions. This section provides an in-depth analysis of the outcomes from implementing the UB-NFTA transit pass program. The research focuses on the costs and benefits to UB, NFTA and users in terms of real costs, suppression of auto use, increased mobility and physical activity, and users' perception of transit use. The quantitative analysis is based upon survey data from 708 former pass holders (35.8 percent of possible respondents). The qualitative responses also come from the 708 pass holder respondents.

Challenges in Obtaining a Transit Pass

One of the biggest obstacles to participation in the transit pass program was the administrative process required for obtaining a pass. As most of the people who used the program were traveling between the South and Downtown campuses, offering a collection point for transit pass stickers in more convenient locations, such as within department offices on the Downtown Campus, would have made it easier to obtain. Transit pass stickers could only be collected in person after sending a written application by facsimile to Parking and Transportation Services. Unlike applying for a parking permit, an online application system was not available. This process was the result of administrative requirements made by the numerous parties involved in the pass. According to one UB official, ledgering was required by the NFTA, and labor requirements mandated that participants sign an agreement in order to participate in the program.

Overview of Qualitative Comments

We analyzed responses to an open-ended question that appeared near the conclusion of the survey (question 39 on the Email Survey and Question 43 on the MyUB Survey) to enhance the quantitative analysis of survey responses. Among the 708 transit pass holders who responded to the survey, 364 provided a comment. We summarize the major themes present in comments with a frequency of 10 or greater (Table 4-1). As comment length was not limited, most comments contained more than one theme since they discussed more than one subject. We supplement the analysis presented in this report with quotations from the qualitative comments, and the full set of comments is provided in Appendix 5.

Program Awareness

For UB, the primary goal of the transit pass program was to efficiently transport faculty, staff and students—when they were engaged in official university business—between its Downtown and South campuses. This particular objective of the transit pass program was favored above all others in the implementation and advertising of the program. The university's marketing actively targeted those thought to travel to and from the Downtown and South Campuses or those living within three-quarters of a mile of a Metro Rail station.

Table 4-1. Pass holder respondents comments by major themes

Topic	Example Statements	Frequency
Desire to utilize new program	*Bring the program back.* *It was a great program and should become permanent.*	56
Improved access through pass	*I loved having the ability to freely explore the Downtown Buffalo area.* *It was a wonderful program and was critical to my ability to volunteer downtown, away from North Campus.*	49
Desire for bus benefit in a future program	*I wish this program supported unlimited bus rides too.* *It would be great to add bus service onto the pass because having access to the bus as well really makes not having a car not such a problem.*	43
Other colleges' transit passes	*It seems strange that other colleges in the community have complete NFTA passes and UB students get nothing.* *I am confused as to why UB is one of the only schools that doesn't have an NFTA program for the students, especially when the station is on campus.*	33
Program success/ satisfaction	*It was a great program, I loved this program.* *I feel that it's one of the best things UB has done to connect with the Buffalo community and encourage its students to actually live in Buffalo instead of the suburbs.*	32
Negative comments about the Blue Line Shuttle	*The Blue Line is inferior and inconvenient to use.* *I have adjusted to the Blue Line, but the pass was far more convenient. If I miss the Blue Line it's a half-hour wait, while the rail was only usually 10-15* [minutes].	28
Individual cost savings	*I used it to save on gas, parking, traffic frustration.* *...the loss of the pass has increased the mileage on my car and cost me way more money in gas than an increase in students fees would.*	27
Willingness to purchase NFTA pass through UB	*It would be nice to have a semester pass even if it cost up to $100 a semester.* *...anyone willing to participate could make a set contribution toward the program...smaller than buying a monthly pass or day passes.*	24
Cost of NFTA tickets/passes	*I feel the fare is a bit steep for such a limited rail system.* *Buying a monthly pass or buying a $4 round-trip ticket is much more expensive than driving 2 miles to South Campus and parking for free, so I rarely take Metro Rail since the pass program was discontinued.*	23
Negative reaction to possible tuition/ fee increase to support program	*...kindly get it back without an increase in fees.* *Tuition and fees are constantly being raised. UB should use the fees it takes from the so-called "Student Excellence Fee" and use it to fund this free UB-NFTA Transit Pass.*	23
Sustainability (both individual and institutional)	*UB sustainability initiatives embarrassingly lack a transit pass program, which should be the easiest thing to establish.* *If UB wants to be so "green" they should give passes back to students and pay whatever fee necessary. Now I'm causing pollution with my car and wasting gas money.*	21

Perceived lack of demand for all students to pay for transit pass	*I do not think most students need it.* *To increase the student fee so ALL UB students will have free access to the rail sounds ridiculous. Many people probably have no need for it.*	15
Housing choice impact	*I moved to a neighborhood where I would be able to take the subway to school every day and was VERY disappointed when the program was cancelled.* *If it isn't a hassle to commute to the North Campus, then more people would consider living in the city.*	13
Misallocation of University resources	*Our transportation cost is already higher than all of the other schools. It's about time UB swallows some costs considering how much we already give them.* *UB needs to do a better job of spending the fees that they currently receive from students for things that will positively impact the community. This program is one of those things.*	12
Ease of program use	*It was really easy to commute between South and Downtown campus to attend seminars without wasting much time on commuting.* *The program made me want to go out more. I didn't have to worry about train fare. A lot of college students don't carry cash around and it just made life easier. I didn't have to pull out money from an ATM just to use two dollars.*	10
Returned to driving after pass ended	*...since the cancellation of the program I have been forced to purchase a car.* *When I had the pass, I drove only rarely. Suspending the program drastically increased my fuel consumption and commute time.*	10

Question Source: Use this space to tell us any other thoughts you have about the pilot UB-NFTA Transit Pass Program.

This resulted in overall low awareness of the program in the university at large.

Students, faculty, and staff who were members of the university community during the semesters in which the pilot pass program took place were asked if they had heard about the UB-NFTA Program, and 77 percent of respondents had not heard of it (Table 4-2). UB Parking and Transportation Services conducted surveys in 2011 which reported 41.6 percent of students not hearing of the program. Differences in results could come from the way the surveys were administered. UB Parking and Transportation Services reports that nearly 39 percent of students in their survey applied for the transit pass, while in the research team's University-wide survey, only 15 percent had previously held a pass. This difference could have been the result of the simultaneous administration of the pass user and University-wide surveys. For more details on UB Parking and Transportation Services' 2011 survey, see Appendix 8.

Many people in the UB community felt that the program was poorly advertised, which could have led to its slow rollout. Some of this could be attributed to labor issues, in that each union (representing a cohort of university employees) had to ratify a memorandum of understanding about the pass before their members could participate. This meant that faculty and staff were unable to obtain transit passes at the same time as students, who were immediately eligible for a pass at the beginning of the Spring 2011 semester.

NFTA Metro Rail Ridership

Prior to the UB-NFTA Transit Pass program, 620 respondents (87.6 percent) reported riding Metro Rail at least occasionally. Of those, 197 (27.8 percent) were regular riders who reported riding three or more times per week. Additionally, 95 (13.4 percent) of the respondents reported regularly purchasing a monthly pass from NFTA before the transit pass program and it is assumed that these riders did not continue to purchase monthly passes during the transit pass program. Monthly pass riders are important because they are frequent users of Metro Rail who provide a predictable source of revenue for the NFTA. Table 4-3 provides weekly ridership before and during the transit pass program.

Metro Rail ridership for survey respondents after the implementation of the transit pass

What People Said

Institutional Communication about Program

Survey respondents were dissatisfied with the way that UB Parking and Transportation Services communicated with students, faculty, and staff about the pilot program and its discontinuation.

> I put [purchasing a car] off for quite a while because the website did not say that the program was not going to be renewed this year, only that it had not yet been renewed. (graduate student)

UB's communication about the program was poor. It was a good idea but not well implemented. (faculty)

The transit pass program was a great addition to sustainability programming at UB. I was shocked that the pilot program was discontinued without an announcement to the UB community. (faculty)

Not well communicated to students that the service was available. (alumni)

I moved to a neighborhood where i would be able to take the subway to school everyday and was VERY disappointed when the program was cancelled. It was very unfair to the students to not let them know that the program was cancelled until after everyone moved. (graduate student)

I have already contacted people regarding my disappointment in the suspension of this program but nothing was done. (undergraduate student)

Table 4-2. Responses in University-wide (MyUB) survey who were asked if they were aware that there was a free UB-NFTA pass program between Spring 2011 and Summer 2012.

Affiliation	No.	Share	Yes	Share	Total	Total Share
Alumni	0	0%	1	100%	1	100%
Faculty	1	50%	1	50%	2	100%
Staff	4	57%	3	43%	7	100%
Graduate Student	46	65%	25	35%	71	100%
Undergraduate Student	273	80%	67	20%	340	100%
Total	324	77%	97	33%	421	100%

Question Source: Were you aware that there was a free UB-NFTA Transit Pass program at UB during the Spring 2011, Fall 2011, and Fall 2012 semesters?

program is estimated to be higher than before the transit pass program. For respondents who rode Metro Rail at least one day per week—and disregarding answers of occasionally, never, and no answer—the number of round trip rides per week increased by 1,218 (123.9 percent). This is a somewhat conservative estimate considering 113 additional respondents said they rode occasionally after they received the transit pass. Table 4-4 shows the calculation of total round trips before and after the transit pass implementation.

On an individual basis, 424 (59.9 percent) respondents reported an increase in weekly ridership, 28 (3.9 percent) reported a decrease, and 222 (31.4 percent) reported no change (Table 4-5). While the survey sample taken as a whole reported an overall increase in ridership, the data does not provide compelling evidence to suggest that individuals' ridership behavior was changed due to the transit pass program. A paired means statistical test suggests there is no difference in ridership, on an individual basis, before and after the pass program was implemented.[5] The lack of evidence supporting an increase in individual ridership is most likely due the 355 riders who exhibited no change in their weekly ridership or only minimally increased their weekly ridership.[6] It is important to note that although there is no evidence that individual ridership changed due to the transit pass program, there was still a transfer of costs away from riders resulting in real fiscal impacts for UB and NFTA.

UB Blue Line

Although more than 2,000 UB-NFTA Transit pass holders utilized Metro Rail during the transit pass program, the University continued to operate its own shuttle bus, the Blue Line, which, like Metro Rail, connects the South Campus with the Downtown Campus. One of the strongest advantages that Metro Rail has over the Blue Line is the frequency of its service and travel time between UB's Downtown Campus and South Campus. During peak hours, Metro Rail operates at 10-minute intervals, 12 to 15 minute headways at other times, and 20 minute intervals in the evenings. The Blue Line operates at half-hour or hour intervals. In addition, the Blue Line takes more than twice as long to cover the same distance (25 minutes to travel from Allen-Medical Campus Station to University Station), while the Metro

[5] Paired means t test results: t(316)=1.03, p = 0.30. Respondents who reported riding "occasionally" (before or during the pass program) were not included in dataset.

[6] "Minimally increased" is defined as an increase from never to occasionally, occasionally to one or two roundtrip rides per week, or an increase of 1 roundtrip ride per week.

Table 4-3. Ridership Before and After the Transit Pass Implementation

BEFORE	1 day	2 days	3 days	4 days	5 days	6 days	7 days	Occasionally	Never	Blank/ No Answer
Undergraduate	8	12	26	14	33	8	4	115	16	1
Graduate	12	22	28	15	26	6	4	178	42	5
Faculty/Staff	4	5	10	6	15	1	1	67	3	1
I was not a member of the UB community during those semesters	0	0	0	0	0	0	0	0	1	6
Blank/No Answer	0	0	0	0	0	0	0	0	0	13
Grand Total	**24**	**39**	**64**	**35**	**74**	**15**	**9**	**360**	**62**	**26**

AFTER	1 day	2 days	3 days	4 days	5 days	6 days	7 days	Occasionally	Never	Blank/ No Answer
Undergraduate	19	25	37	29	52	21	18	29	3	4
Graduate	16	37	47	46	75	26	20	58	6	7
Faculty/Staff	13	9	16	15	29	0	3	26	0	2
I was not a member of the UB community during those semesters	0	0	0	0	0	0	0	0	0	6
Blank/No Answer	0	0	0	0	0	0	0	0	0	13
Grand Total	**48**	**71**	**100**	**90**	**157**	**47**	**41**	**113**	**9**	**32**

CHANGE	1 day	2 days	3 days	4 days	5 days	6 days	7 days	Occasionally	Never	Blank/ No Answer
Undergraduate	11	13	11	15	19	13	14	-86	-13	3
Graduate	4	15	19	31	49	20	16	-120	-36	2
Faculty/Staff	9	4	6	9	14	-1	2	-41	-3	1
I was not a member of the UB community during those semesters	0	0	0	0	0	0	0	0	-1	0
Blank/No Answer	0	0	0	0	0	0	0	0	0	0
Grand Total	**24**	**32**	**36**	**55**	**83**	**32**	**32**	**-247**	**-53**	**6**

Question Source: Before Receiving the UB-NFTA Transit Pass, how many days per week on average did you use NFTA's Metro Rail? After receiving the UB-NFTA Transit Pass, how many days per week on average did you use NFTA's Metro Rail?

Table 4-4. Change in Round Trip Rides During the Transit Pass Program

		Total Roundtrips		
		Before Pass	After Pass	Change
	Undergraduate	407	797	390
	Graduate	391	1,079	688
	Faculty/Staff	162	302	140
	I was not a member of the UB community during those semesters	11	11	0
	Blank/No Answer	12	12	0
	Grand Total	**983**	**2,201**	**1,218**

Question Source: Before receiving the UB-NFTA Transit Pass, how many days per week on average did you use NFTA's Metro Rail? After receiving the UB-NFTA Transit Pass, how many days per week on average did you use NFTA's Metro Rail?

Table 4-5. Change in Individual Weekly Ridership

		Increase	Decrease	No Change	Blank/No Answer	Grand Total
	Undergraduate	145	8	81	4	238
	Graduate	218	18	93	10	339
	Faculty	27	0	17	1	45
	Staff	34	2	31	1	68
	Blank/No Answer	0	0	0	18	18
	Grand Total	**424**	**28**	**222**	**34**	**708**

Question Source: What was your affiliation at UB during the following semesters: Spring 2011, Fall 2011 or Spring 2012?, Before receiving the UB-NFTA Transit Pass, how many days per week on average did you use NFTA's Metro Rail?, After receiving the UB-NFTA Transit Pass, how many days per week on average did you use NFTA's Metro Rail?

What People Said

Eliminating Inefficiencies in the Transport System

Some commenters suggested that UB eliminate the Blue Line Shuttle on the grounds of efficiency, economy, redundancy, and/or emissions reduction:

"I assume the blue line is costly to own and operate yet it adds no additional transportation options for UB students, faculty and staff. The cost of the Blue Line should be used to provide free transportation on the metro for UB community members. Eliminating the blue line in favor of metro passes should save UB money while eliminate Blue Line bus emissions. (graduate student)

It's a damn shame they discontinued the program. I'm not entirely sure why we need the Blue Line shuttle when it offers nothing the metro rail doesn't. It seems like the university could scrap that and use the money for Metro Rail passes. (graduate student)

It is more convenient than the Blue Line and makes it redundant. Maybe the savings from stopping the Blue Line could be used to fund the transit pass for students? (graduate student)

Please reinstate this program. It is wasteful and redundant to have a train, a Metro bus, AND the UB Blue Line all traveling the SAME route, from South Campus to downtown!!! This is a waste of UB and NYS taxpayers' money! UB people should be subsidized to take the train and/or bus!!! (staff)

If the transportation fee covers the 'Blue Line', can this program be free but substitute the Blue Line? (graduate student)

I'm not abreast of the relationship between UB and NFTA, but the fact that there exists both the Blue Line and the Metro is the worst sort ineffectual spending. I assume the Blue Line is costly to own and operate yet it adds no additional transportation options for UB students, faculty and staff. The cost of the blue line should be used to provide free transportation on the Metro for UB community members. Eliminating the Blue Line in favor of Metro passes should save UB money while eliminate Blue Line bus emissions. (graduate student)

A shuttle runs between South and Downtown Campus but times are limited and when students are on break the shuttle times are even less frequent, which is a problem for UB employees that work regardless of student breaks. I can't imagine the amount that is paid in gasoline/diesel per week for those shuttles buses is worth the amount of people that ride them. Paying for Metro passes would be more efficient and better for the environment. (faculty)

What People Said

More Frequent Service, Same Cost

In eliminating some of the Blue Line Shuttle trips between the South and Downtown Campus and utilizing the money saved to purchase NFTA Metro Rail passes, students, faculty, and staff were provided with more frequent travel opportunities each day between the two campuses. Several students and faculty provided comments in the survey suggesting that the UB-NFTA transit pass met their travel needs better than the UB Blue Line shuttle bus service:

Blue line services are not very reliable, not frequent, and it takes two times longer to get to school with the Blue Line in comparison to the subway. Besides, Blue Line finishes its work too early in the night. (graduate student)

"I would really appreciate it if the program is continued as it was really helpful for me. I have lab on downtown campus and the blue line does not work after 8 pm, and Metro is the only way to get back from lab. (graduate student)

I cannot lay enough stress on how convenient the pilot program was for me. I am working at Roswell Park Cancer Institute and Blue Line services are not sufficiently flexible. The transit pass allowed me to commute at my will as well as on the weekends. (graduate student)

The Stampede is fine, but the shuttles are unpredictable, and I never can get to where I'm going even vaguely on time. (undergraduate student)

I am very disappointed that the pass was not renewed. The metro rail is an asset for UB and its students. The Blue Line is inferior and inconvenient to use. (graduate student)

The metro is more frequent than the Blue and thus more convenient. It was conducive to using public transit rather than my car for frequent excursions from the Med Campus to either the North or So. Campuses. I was very disappointed when the program was not renewed. (faculty)

I often work till very late at night, so I would use the NFTA metro after hours, when the Blue Line shuttle would have stopped working. (graduate student)

You can't really replace a train that runs every 10 minutes with something that runs every half hour. I would love to get my Metro pass back. (undergraduate student)

What People Said

Blue Line: Filling a Niche

Among all of the written comments in the survey that mentioned the Blue Line shuttle, there were two respondents who preferred the UB Blue Line to the transit pass program:

> I prefer the UB Blue Line to commute since I do not feel safe traveling alone in the trains, especially after 5:30. (graduate student)

> I loved UB-NFTA, but the Blue Line bus really has stepped up, and is becoming more popular. (graduate student)

Rail takes only 11 minutes across the same distance.

Survey response suggests evidence that riders prefer Metro Rail service or a mix of Blue Line and Metro Rail over the Blue Line alone, even though the Blue Line is a free service for UB faculty, staff and students. Additionally, more than half of the transit pass holders stated that they never rode the Blue Line before the transit pass program was implemented (Table 4-6). Given that these riders are the target users of the Blue Line suggests that the service is not comparable to that of Metro Rail or is not successfully marketed to the right users. Clearly, survey respondents exhibit strong emotions relative to the UB Blue Line shuttle bus. Given the divisive opinions on this subject, Table 4-7 provides a summary of the themes addressed relative to the Blue Line.

UB officials reported cutting the Blue Line Shuttle service—and expenses—by half during the transit pass program. This is estimated to have saved UB $133,333 over the 20 month pass program.

Cost- Benefit Analysis

Program Costs

The implementation of the UB-NFTA free transit pass program effectively represented a shift in the NFTA's payment mechanism. The responsibility of paying for a ride on Metro Rail was transfered away from transit pass holders to the NFTA and UB. While each institution expected to see benefits from the transfer, there were still financial costs that each had to bear to implement the program. This section explores this transfer of payment and the financial implications for NFTA and UB.

Before the implementation of the transit pass program, there were several ways for students, faculty and staff to purchase a ride on NFTA Metro Rail. For a roundtrip commute to work or school (two one-way trips per day), purchasing a roundtrip ticket or monthly pass would be the most sensible payment option, although other products such as day passes and weekly passes are also available. Given the one-way fare of $2 per ride, the monthly pass—allowing unlimited rides for $75 per month—would only be a sensible option for those traveling to work or school 19 or more days per month. This would likely explain why only 13 percent of the surveyed transit pass program participants reported that they regularly purchased monthly passes before the transit pass program, especially considering that 86.5 percent of the participants were students who do not travel to campus as regularly as faculty and staff. Regardless of their behavior before the transit pass program, all participants were granted unlimited rides on NFTA Metro Rail during all hours of operation. The program outcome was a transfer of all costs from riders to UB and NFTA and there was no mechanism in place at UB to directly recover any portion of the costs back from students, faculty or staff.

Table 4-6. Respondents choice of transportation mode between campuses BEFORE implementation of transit pass program (active and passive respondents)

Choice of Transportation Mode	Respondents	Percent
Blue Line Only	25	2%
Metro Rail Only	325	23%
Both Modes	294	21%
Neither Modes	37	3%
Blank/No Answer	716	51%
Grand Total	**1,397**	**100%**

Question Source: Before receiving the free UB-NFTA Transit Pass, how many days per week on average did you ride the "Blue line" shuttle bus operated by UB between South Campus and the Downtown Campus?

Table 4-7: Survey Responses Related to Blue Line Shuttle

Comment Theme	Respondents
Convenience of Metro Rail relative to Blue Line	7
Limited Service Times (nights/weekends/outside academic year) of Blue Line	7
Frequency of Blue Line Service (negative)	7
Savings from eliminating Blue Line should fund NFTA Pass	4
Redundancy of Blue Line	3
Faster Travel Time on Metro Rail	3
Blue Line's impact on environment	2
Blue Line is safer than Metro Rail	1
Blue Line is becoming popular	1
Positive Reaction to Blue Line operating two busses an hour after UB-NFTA ended	1

Question Source: Use this space to tell us any other thoughts you have about the pilot UB/NFTA Transit Pass Program (39/43)

Beginning in the Fall 2010 semester, UB agreed to purchase up to 300 faculty and staff transit passes and up to 3,000 student passes per semester from the NFTA. Student passes were purchased for $10 dollars each per semester and faculty and staff passes were purchased for $30 per year. During the 2010-2011 academic year, 246 faculty and staff passes were distributed, and 1072 student passes were distributed. During the 2011-2012 academic year, 310 faculty and staff passes were distributed, and 2,813 student passes were distributed.

UB incurred the greatest financial obligation up front in creating the transit pass, in that it had to pay the NFTA for the passes it issued to its students, faculty, and staff. Any administrative costs associated with implementing the program were reported to be absorbed into the overall budget of Parking and Transportation Services. UB's total share of the program cost is reported to be $70,990 over the 20-month program. Table 4-8 uses the number of passes issued each academic year to detail the reported total cost.

While it is known that NFTA received payment from UB in the amount of $70,990 for the transit passes, the resulting foregone revenue to the NFTA from fare collections is less clear. At the time of the transit pass program, NFTA did not have any mechanisms for tracking individual ridership on the Metro Rail line. Therefore, individual ridership is approximated using survey responses from pass holders about their Metro Rail ridership before the pass program.

The method used for estimating foregone revenue[7] to NFTA relies on simple set of assumptions. First, it is assumed that all surveyed riders exhibited the same travel behavior before and during the transit pass program. Most importantly, they are assumed to have rode Metro Rail the same amount, per week, before and during the program and all rides are assumed to be round trip. A summary of previous behavior of surveyed pass holders is shown in Table 4-9. Riders who said they rode occasionally or did not answer are not considered in the estimate. Next, it is assumed that riders would have paid for Metro Rail in the same way—even though they were no longer paying as program participants. Some riders would still have purchased monthly passes, while others would have continued to pay per ride. Lastly, all rides are assumed to occur in the spring and fall semesters during the pass program. Campus activity during summer and winter semesters tends to be substantially lower and more sporadic than spring and fall semesters, and therefore is too difficult to estimate accurately.

[7] Foregone revenue is defined as the estimated revenue that NFTA would have likely collected (from pass holders that were already riding Metro Rail) if it did not enter into the pilot UB-NFTA Transit Pass Program.

Using the collected data about the survey cohort's weekly ridership pattern, an estimate of revenue foregone is calculated by multiplying the estimated number of trips per week by the fare ($2 per ride or $75 per month) across all three semesters of the program. This estimate is considered a "lower bound" because it only considers riders who responded to the survey, does not include any travel during summer semesters or during recesses, and does not include riders who reported using Metro Rail "occasionally" before receiving the transit pass. Table 4-10a shows lower bound foregone revenue estimates by rider affiliation.

Taking this analysis a step further, an "upper bound" foregone revenue estimate is calculated by projecting the same analysis to the total population of transit pass program participants. In performing this projection, we assume that the transit pass holder group, as a whole, exhibited similar ridership patterns during the program as the survey respondent group. For example, a similar proportion of riders purchased monthly passes and the distribution of rides per week was similar across all pass holders. Figure 4-10b shows an upper bound for the estimated foregone revenue by rider affiliation.

Estimated foregone revenue can also be thought of as the total cost of the transit pass program, with UB bearing a known portion of the cost (payments to NFTA) and NFTA bearing the remainder (foregone revenue minus payments from UB). The transit pass program is estimated to have cost between $143,925 to $431,775, with UB bearing between 16 and 41 percent of the cost and NFTA bearing the remainder (59 to 84 percent) of the cost (Figure 4-1, pg. 42).

Next, further analysis is performed to establish consistency with the original tiered pricing structure ($10/semester for all participants in Spring 2011, $10/semester for student passes and $30/year for faculty/staff passes in the 2011-2012 academic year) and the per semester basis of the pass program. This allows for a comparison between the true cost of the program and the cost per rider paid, as well as a benchmark for constructing potential future pricing models. It is also helpful to consider pricing in this manner because the lower and upper bounds have the same unit costs due to the uniformity of rider behavior between them. Ultimately, it is estimated that an average student participating in the transit pass

Table 4-8: Cost to Purchase Transit Passes for UB

	Participant	Number of Participants	Unit Cost/ Semester	Number of Semesters	Total Cost
YEAR 1	Faculty/Staff	246	10	1	$2,460
	Student	1,072	10	1	$10,720
	Total	**1,318**			**$13,180**
	Participant	**Number of Participants**	**Unit Cost/ Semester***	**Number of Semesters**	**Total Cost**
YEAR 2	Faculty/Staff	310	15	2	$9,300
	Student	2,038	10	2	$40,760
	Student	775	10	1	$7,750
	Total	**3,123**			**$57,810**
	Grand Total				**$70,990**

*Faculty/Staff passes were charged as $30/year annual passes. Source: UB Parking and Transportation Services.

Table 4-9. Respondents' Ridership Behavior Before Receiving the Transit Pass

		Metro Use Per week (on average)										
	BEFORE	1 day	2 days	3 days	4 days	5 days	6 days	7 days	Occasionally	Never	Blank/ No Answer	Total
	Students (per trip)	18	30	35	19	28	2	6	251	52	1	442
	Students (monthly pass)	0	1	1	4	11	0	1	0	0	0	18
	Faculty/Staff (per trip)	4	4	8	2	4	1	0	66	3	0	92
	Faculty/Staff (monthly pass)	2	1	11	8	29	10	2	13	0	0	76
	All	**24**	**36**	**55**	**33**	**72**	**13**	**9**	**330**	**55**	**1**	**628**

Question Source: Before receiving the free UB-NFTA Transit Pass, did you regularly buy a monthly NFTA pass for Metro Rail and Metro Bus? Before receiving the UB-NFTA Transit Pass, how many days per week on average did you use NFTA's Metro Rail?

Table 4-10a. Foregone Revenue to NFTA by Rider Affiliation (Lower Bound)

	Number of Riders	Foregone Revenue	Avg. Revenue per Rider (all semesters)	Avg. Revenue per Rider (per semester)
Students (per trip)	63	$64,424	$1,023	$341
Students (monthly pass)	138	$80,272	$582	$194
Faculty/Staff (per trip)	18	$15,036	$835	$278
Faculty/Staff (monthly pass)	23	$12,404	$539	$180
All Riders	**242**	**$172,136**	**$711**	**$237**

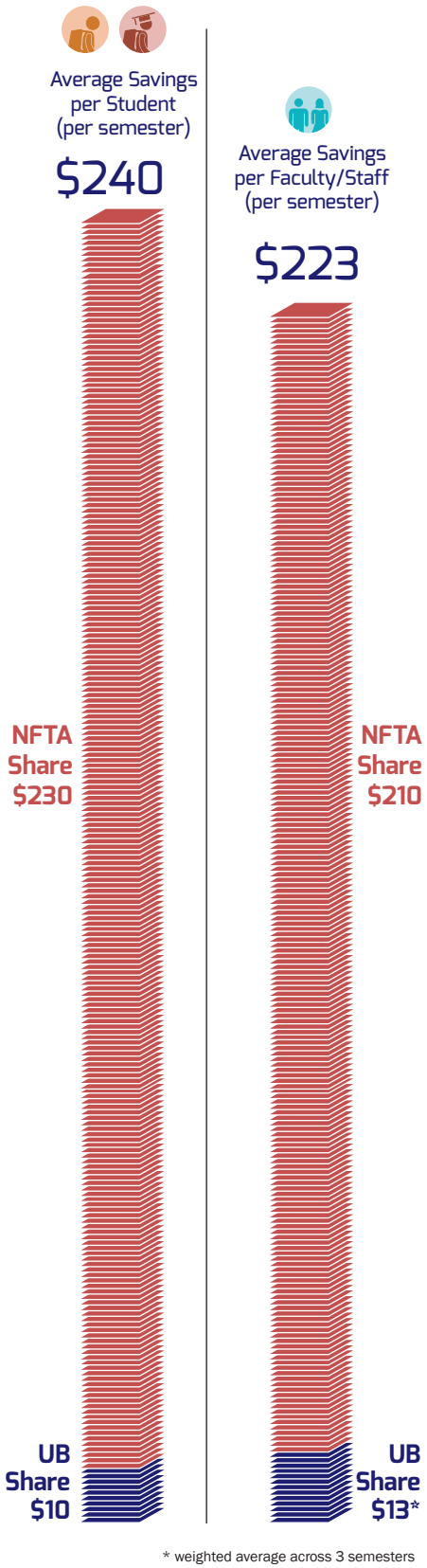
Table 4-10b: Cost Savings by Rider Affiliation (Upper Bound)

	Number of Riders	Revenue	Avg. Revenue per Rider (all semesters)	Avg. Revenue per Rider (per semester)
Students (per trip)	206	$148,307	$720	$240
Students (monthly pass)	502	$225,565	$449	$150
Faculty/Staff (per trip)	59	$30,009	$509	$170
Faculty/Staff (monthly pass)	76	$27,894	$367	$122
All Riders	**843**	**$431,775**	**$512**	**$171**

Note: The analysis does not include 1,380 riders that are assumed to have never ridden Metro Rail or only rode Metro Rail occasionally.

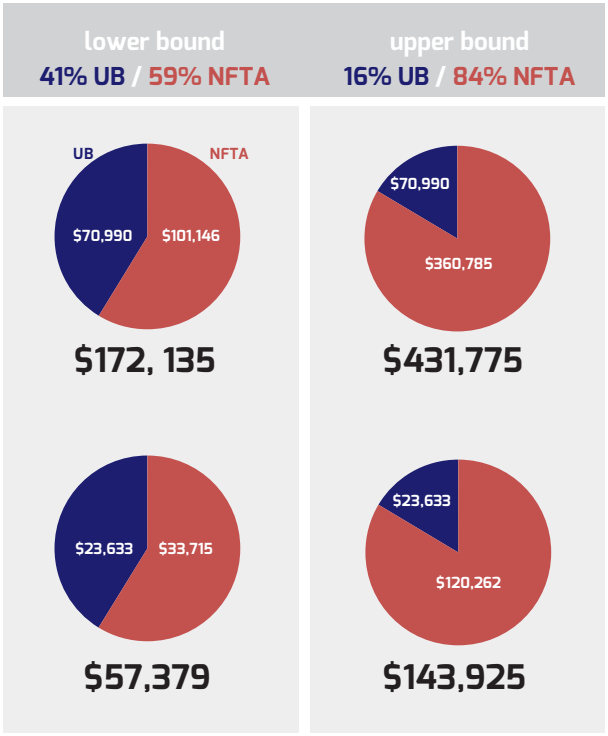
Question Source: Before receiving the free UB-NFTA Transit Pass, did you regularly buy a monthly NFTA pass for Metro Rail and Metro Bus?, Before receiving the UB-NFTA Transit Pass, how many days per week on average did you use NFTA's Metro Rail?
Source: UB Parking and Transportation Services

Figure 4-2 Estimated Transfer Costs Due to Transit Pass Program



* weighted average across 3 semesters

Figure 4-1: Program Costs and Institutional Share



Source: UB-NFTA Pilot Transit Pass Agreement Cost per pass holder by affiliation, Number of pass users reported by UB, and the following questions: Before receiving the free UB-NFTA Transit Pass, did you regularly buy a monthly NFTA pass for Metro Rail and Metro Bus? (12, 14), Before receiving the UB-NFTA Transit Pass, how many days per week on average did you use NFTA's Metro Rail? (11, 13)

program saved $240 per semester with UB supporting $10 of each student's cost and NFTA supporting an estimated $230. Additionally, it is estimated that an average faculty or staff member participating in the transit pass program saved $223 per semester with UB supporting $13 of each member's cost (weighted average cost of faculty/staff across three semesters) and NFTA supporting an estimated $210 (Figure 4-2).

Other Costs

According to the NFTA, there were no additional costs to operate the UB-NFTA transit pass program. Though NFTA officials reported that they increased the number of carriages during the day from two to three on Metro Rail trains, they attribute this to a general increase in ridership and do not assign the costs to the UB-NFTA program. The Metro Rail schedule did not change. As Metro Rail utilizes inspectors who conduct random checks to ensure people have valid proof of payment, no new infrastructure was necessary in order to identify UB identification cards. According to NFTA officials, ticket inspectors were informed how to identify a valid UB-NFTA sticker on a UB identification card and reported few problems with the process.

Program Benefits

Enhanced Access and Mobility for Students, Faculty, and Staff

One of the most important outcomes of the transit pass program was its influence on access and mobility of riders. Considering the transit pass was offered without cost to the rider, mobility was directly increased for those riders who did not have access to a personal vehicle. A total of 299 respondents (42.2 percent) reported not having access to a personal

What People Said

Transit Pass Value

Comments about pilot program suggest the value of pre-paid transit passes for students, faculty, and staff. The comments also highlight price distortions and inequities that members of the campus community could be better addressed in the pricing of the transportation system:

> As a staff member I would not mind paying a small fee to include the pass with the cost of my parking hang tag, since I might use a combination of both services to address transportation to and from the campus. (staff)

It's absurd that we subsidize other students' parking, but they can't pay for pub trans. this is especially relevant to graduate students who are less likely to be living on campus. (alumni)

On-campus parking passes are *extraordinarily* cheap: $7 / year, really? At any other university that would be the monthly or weekly pass rate, not for a year. If you want to subsidize bus passes, force car commuters that contribute to sprawl and pollution to pay more, not students. I drive several days a week when I have early classes but would be happy to pay much, much more for a parking permit if I knew that the proceeds were funding public transportation passes. (faculty)

The school has really placed a financial burden on me this year. I'm disappointed. I pay for parking lots and parking enforcement with my tuition, students with vehicles shouldn't mind paying for a metro pass. (graduate student)

I already pay fees for transportation services, but since I don't own a car I don't get anything out of it .....so if you charged a fee, a metric that took that into account should be applied and not a base increase for all students. (graduate student)

Perhaps existing student fees could be reallocated? (faculty)

vehicle. For these riders, a transit pass offered low cost travel and more opportunities to reach destinations along the Metro Rail line.

A majority of riders surveyed (68.6 percent) reported that they traveled to new destinations after receiving the transit pass, with 16.2 percent saying they frequently traveled to new destinations. Additionally, the survey data suggested that students were more likely to travel to new destinations after receiving the transit pass.[8] Almost three-quarters (74.2 percent) of students said they visited a new destination at least once, and 17.9 percent visited a new destination frequently. The count and percent of students who visited new destinations can be seen in Table 4-11.

In addition to increased access and mobility, several respondents reported that they stopped owning a vehicle completely or delayed purchasing a vehicle after receiving the transit pass. Among the 708 respondents, 72 (10 percent) responded that they stopped

Table 4-11: Travel to New Destinations by Transit Pass Holders*

	Frequently	Occasionally	Once or Twice	No	No Answer	Grand Total
Students	103	222	103	124	25	577
Faculty/ Staff	12	30	16	52	3	113
No Answer	0	0	0	0	18	18
Grand Total	**115**	**252**	**119**	**176**	**46**	**708**

Students	10.6%	26.5%	14.2%	46.0%	2.7%	100%
Faculty/ Staff	17.9%	38.5%	17.9%	21.5%	4.3%	100%
No Answer	0.0%	0.0%	0.0%	0.0%	100%	100%
Grand Total	**16.2%**	**35.6%**	**16.8%**	**24.9%**	**6.5%**	**100%**

Question Source: After receiving the UB-NFTA Transit Pass, did you use Metro Rail for travel to destinations you had not previously traveled to?

Table 4-12: Pass holder respondents who ceased owning a personal vehicle after receiving a UB-issued NFTA Metro Rail Pass

Response	Value	% Share
No	564	79.6%
Yes	72	10.2%
Blank/No Answer	72	10.2%
Total	708	100.0%

Question Source: After receiving the free UB-NFTA Transit Pass, did you stop owning a personal vehicle?

[8] A non-parametric Chi^2 test suggests students are more likely to have traveled to new destinations. $\chi 2(6, n=708)= 297$, $p=0.0001$.

What People Said

Serving the International Student Population

As mentioned in Chapter 3, UB has one of the largest populations of international students among American Colleges and Universities. Certain comments about the UB-NFTA pilot transit pass program focused specifically on the benefit it offered to this significant population:

> "I also think that international students suffered the most from the program's discontinuation; most of them don't own a car and they rely heavily on public transport. We pay an extra fee of 100 dollars a semester because we are international students and it would be nice if we could see something back for that in the form of better/more accessible means of transportation. (graduate student)

> Please bring back the free pass. Greatly helpful for international students like us. Easy and faster transportation especially during holidays when Blue Line does not operate. (alumni)

> While I have a car, I know many international students and others without cars that have trouble getting around easily and would benefit from these passes. Extending the passes to the city buses would also be beneficial, since the Metro is so limited in its range. (graduate student)

owning a personal vehicle entirely after the program was established (Table 4-12). This group more than likely saved themselves a great deal of money by taking advantage of the improved access provided by the transit pass. With student salaries lower than salaries of the adult workforce, the provision of this pass could have provided a greater benefit to these students than UB's entire expenditure on this program, since owning and maintaining a vehicle is a significant expense. According to the Automobile Association of America (AAA), automobile ownership is estimated to cost up to $5,952 for the smallest and newest of cars (AAA, 2013). The 72 respondents (10 percent) who stopped owning vehicles are estimated to have saved a total of $642,816 during the pilot transit pass program. Additionally, pilot program participants who rode even just occasionally and kept their personal vehicles would have spent less on gasoline and extended the life of their vehicles.

In addition to the people who stopped owning a vehicle, 179 respondents (25 percent of all respondents) who did not own a vehicle delayed purchasing a vehicle (Figure 4-13). Similarly, these respondents could have saved money by not purchasing a vehicle, but may have been motivated by cancellation of the transit pass program to purchase a vehicle, given the relative expense of a monthly NFTA Pass and the perceived inconvenience of riding transit in Buffalo.

The UB-NFTA pilot transit pass program permitted UB to achieve progress in addressing its sustainability goals. It is important to understand that despite UB's sustainability goals, which this program helped meet by allowing 10 percent of respondents to cease owning a vehicle (and 25 percent to delay purchasing a vehicle), a significant benefit of this program is access improvements that it provided to the large portion of the University community lacking access to a car, perhaps made evident by the response of non-citizen/international students to this survey. As this is a significant population at UB (27 percent of pass holder respondents), these people contribute more to emissions reductions within the University community than do all of the of the people who ceased owning or delayed purchase of a car; if this population were to purchase cars, they would increase university emissions well beyond current levels.

Reduced Parking Demand and Vehicle Miles Traveled by New Riders

Overall, change in ridership on an individual basis was determined to be not statistically significant (the difference between individuals' rides before and after the UB-NFTA transit pass were no different than zero), but an investigation of the individuals who changed their behavior suggests interesting findings. Riders who changed their behavior on an individual basis were those who said they never rode NFTA Metro Rail before the pass program, but rode one or more times per week after receiving the pass. This cohort is overwhelmingly comprised of students (93 percent) and overwhelmingly US Citizens (93 percent). Additionally, 76 percent of this group reported that they had access to a personal vehicle and it is assumed they were driving to campus before they received a transit pass. When considering only these riders, the transit pass suppressed the use of 34 pass user automobiles on campus, or eight percent of pass user vehicles, and shifted 1,313 vehicle

Table 4-13: Pass holder respondents who delayed owning a vehicle after receiving a UB-issued NFTA Metro Rail Pass

Response	Value	% Share
Yes	179	25%
No	322	46%
Blank/No Answer	207	29%
Total	708	100%

Question Source: If you did not own a vehicle before the pass, did you put off purchasing a vehicle (to a later date) because you received the free UB-NFTA Transit Pass?

What People Said

Employment Options

Some students credited the transit pass program with allowing them to participate in internships and jobs:

> I loved having an NFTA pass! I used it a lot to run errands downtown, explore Buffalo, and it was incredibly helpful during my internship/independent study (and I think it would allow others access to opportunities like internships that they wouldn't have had otherwise). (undergraduate student)

The pass made summer job opportunities much more attractive, which was why I decided to stay in Buffalo for the summer. (undergraduate student)

Table 4-14: Characteristics of Riders New to Metro Rail

Earliest Affiliation	Count	%
Student	42	93%
Faculty Staff	3	7%
Reason for Travel		
Class Alone	7	16%
Meetings Alone	2	4%
Work Alone	7	16%
Multiple Reasons	28	62%
Other	1	2%
Home Location		
On Campus -- North	4	9%
On Campus -- South	0	0%
Off Campus -- 3/4 Mile from a Metro Rail Station	25	56%
Off Campus -- Greater than 3/4 Mile from a Metro Rail Station	14	31%
Multiple	2	4%
Citizenship		
US	42	93%
India	1	2%
Egypt	1	2%
France	1	2%
Multiple	2	4%
Own a Vehicle		
Yes	34	76%
No	11	24%

Question Source: What is your affiliation with UB?, What is your citizenship?, Before receiving the free UB-NFTA Transit Pass, did you have access to a personal vehicle?, Did you regularly travel to UB South or Downtown Campuses during the Spring 2011, Fall 2011, and Spring 2012 Semesters for any of the following reasons?, Where did you live during the following semesters: Spring 2011, Fall 2011, and Spring 2012?

What People Said

New Activities and Experiences

Participants in the pilot transit pass program mentioned that they used their transit passes to partake in many new activities and experiences:

> It also allowed me to explore many attractions Buffalo has to offer, which in turn helped me to develop the research skills needed for many of my courses. I do plan to return to UB in the fall as a grad student. If the UB-NFTA transit pass program returns, many future and currents students would be grateful. (alumni)

> It greatly encouraged me to get downtown into the Buffalo community which I think is the greatest opportunity this area has and needs to take advantage of. I was able to take part in so many school related events like speakers and conferences as well as sporting events, art exhibitions and volunteering at outreach programs. Buffalo needs to get students into the city to foster growth and vitality. (undergraduate student)

> I thought it was a great program and it allowed me to visit and support other areas of Buffalo, where without the pass I don't do that anymore. (graduate student)

> Please afford UB the opportunity to provide free passes again. Downtown Buffalo is becoming very exciting and this is another way to get people out and about and explore our great city! (staff)

> I enjoyed exploring Buffalo since I was part of the pilot program and I hope UB uses its power in the city to promote programs like this. (alumni)

miles traveled per week from the roads to NFTA Metro Rail. The travel route with the most substantial share of the shifted VMT was between the two stations serving UB's Downtown Campus (Allen-Medical Station) and South Campus (University Station), capturing 40 percent (525 miles) of the total shift. Lastly, a majority (62 percent) of these riders used the transit pass for more than one reason, including commuting to work, classes and meetings. Table 4-14 describes the characteristics of these new riders.

Increase in Physical Activity

The survey asked about use of new transportation options during the pilot transit pass program. Many respondents reported using new transportation options that require physical activity (Table 4-15). In total, 413 respondents (58 percent) walked or biked more during their commute. Of those who increased their physical activity by incorporating active transportation modes during their commutes, 125 of them (18 percent) said they spent an extra 11 to 15 minutes walking or biking per day and an additional 137 (19 percent) said they walked or biked an extra 16 to 20 minutes per day.

Nurturing Lifelong Transit Riders

Despite the pilot program ending in August 2012, most respondents stated that they would be more likely to use public transportation in the future, even if it were not free, although a sizable percentage stated that they would be more likely to ride it if it were free (Table 4-16). This is apparent after looking at the many open-ended responses provided in the survey, which state that the cost of purchasing a ticket or a pass is a barrier to riding transit, given that more than half of the survey population had access to a vehicle. Because the marginal cost of driving is less than the cost of a Metro Rail ticket or pass, there is a strong incentive for University community members to drive.

Figure 4-3: Benefits of the Metro Rail Transit Pass Program

6%
of pass holders were new to Metro Rail

Responsible for a shift of **1,313** vehicle miles traveled per week from auto to Metro Rail

Saving approximately **108** parking spaces on campus*

*This is calculated assuming new riders would have the same characteristics as the entire pass population. Among the 45 new riders, 34 had access to a personal vehicle. Among the entire survey population, 409 of 708 participants had access to a vehicle, with these 34 vehicles representing 8.3 percent of pass user vehicles. Assuming similar vehicle ownership statistics for the entire pass user population (57.7 percent) and the average number of pass users per semester (2,263), 108.5 vehicle parking spaces on campus would be unfilled as a result of the UB-NFTA Transit Pass.

What People Said

Sustainability

Many survey respondents expressed disappointment that the pilot transit program was not made permanent because they support sustainable transportation programs and they appreciated a movement by UB to encourage zero-emission travel by students, faculty, and staff. In their written survey comments, many respondents emphasized that the UB-NFTA transit pass program promoted sustainable transportation and helped UB begin to fulfill its sustainability goals::

"I'm not a driver, so it was great to be able to get around the city on my own without begging for rides. I also felt like this would be a great program to peg as a green initiative, since it could get students out of their cars. (alumni)

Although I own a car and a motorcycle, I also own a bike and skateboard and was able to have that many more options when choosing how I wanted to get to my destinations. It was nice to have green(er) options easily available when it was convenient for me. (staff)

The dissolution of the program disgusts me. Instead, you build a parking lot on South Campus? Way to go green, UB... I happily rode the Metro my first year as a graduate student. It cut down on waste of gasoline, plus that brisk walk to the train was great exercise. (graduate student)

Let's save Earth! Keep money in the community by not spending on gas! (graduate student)

Please bring it back. If UB wants to be so "green" they should give passes back to students and pay whatever fee necessary. Now I'm causing pollution with my car and wasting gas money. (undergraduate student)

Furthermore, it directly contradicts the purpose of UB Green, which is to reduce carbon emissions, by costing the public transit user more and the one-man-car much less. UB should strive to reduce carbon by NOT automatically including parking fees in a student's tuition, thereby making students actively choose if driving to campus is worth the cost. (graduate student)

What People Said

Physical Activity

Survey respondents commented on an increase while the pilot program was in operation in exercise and physical activity that goes hand-in-hand with Metro Rail use:

> It makes going to school very convenient. It is good for the environment and also good for us, as we are encouraged to walk to and from the station. (graduate student)

I really enjoyed this program. It really encouraged me to walk more. Now that I don't have the pass I've been driving more and I really miss the walking. (graduate student)

Changed my commute and activity level hugely! (graduate student)

The no-cost availability of the UB-NFTA Transit Pass was a significant factor in getting me to embrace public transportation as a regular part of my daily activities and has had the very positive effect of getting me to fit regular exercise into my busy schedule by walking or biking to and from the station several days a week. As an added benefit, I have found that, despite the longer commute time in comparison to driving a car, I am often able to get work done during my commute so the added commute time is not a major hindrance to my schedule. (graduate student)

I LOVED having a transit pass - I started bicycling 7 miles to a metro station every day (rain or shine!) and learned to keep dry clothes at work for rainy days. 7 miles home at night was no problem, and I lost weight and slept better. (graduate student)

Public transit in the US generally suffers from a poor image. People strongly consider the perception of public transit when choosing a travel mode. Given that college students are young and impressionable, attending a university to learn, it is important to report that three-quarters of pass holder respondents in our survey stated that they have a more favorable view of public transportation after participating in the pass program (Table 4-17). This is important because many student participants never rode public transit before attending UB, as many students grew up in suburban communities where transit access is limited and perceptions of its reliability and safety are poor.

Table 4-15: Pass holders' reported increases in physical activity through new travel modes after receiving a UB-NFTA Transit Pass

Affiliation	Walk	Bike	Both	Walked or Biked More	Did not Walk or Bike More
Alumni	32	12	8	36	20
Faculty	27	6	6	27	20
Staff	43	17	13	47	32
Graduate Student	168	61	47	182	138
Undergraduate Student	102	46	31	117	67
No Answer/Other	3	2	1	4	18
All Affiliations	**375**	**144**	**106**	**413**	**295**

Question Source: After receiving the free UB-NFTA Transit Pass, did you begin to use any new transportation options?, What is your current Affiliation?

What People Said

Transit Programs Create Lifelong Transit Riders

Given that many universities, both across the Buffalo-Niagara Region and nationally provide transit passes to their students, some UB students who previously attended other institutions commented about their inability to utilize a transit program at UB. Additionally, students who moved away from UB to places without transit service fondly recall their ability to ride the Metro Rail.

"I had access to a free transit pass during undergrad at Canisius, so it was important to me to have continued access to public transportation when I came to UB as a graduate student. Fortunately I was able to join the pilot program my first year here. I've had to make due without a pass over the last two semesters, and it's been an inconvenience to say the least. (graduate student)

I was so disappointed before I came to Buffalo, looking at the NFTA website, and realizing that I was coming to the only school that didn't have a deal with the NFTA. I've attended several schools in other parts of the country; this is the only one I have been to that doesn't provide free or subsidized transit. (graduate student)

It was an amazing program. It was greener, easier, and cheaper than driving downtown. I have since graduated and moved to a town without public transportation and I very much miss the Metro Rail. (graduate student)

Table 4-16: Pass holder respondents' likelihood of riding public transit in the future after receiving a UB-issued NFTA Metro Rail Pass

Response	Value	% Share
Less likely	7	1%
More likely	353	50%
More, but only if it is free	222	31%
No change, I will ride the same	83	12%
Blank/No Answer	43	6%
Total	708	100%

Question Source: After your experience using the free UB-NFTA Transit Pass, will you be more, or less, likely to ride public transportation in the future (where ever you may be living)?

Table 4-17: Pass holder respondents' perception of public transportation after receiving a UB-issued NFTA Metro Rail Pass

Effect on Perception	Value	% Share
Positive	483	68.2%
Negative	11	1.6%
No Effect	157	22.2%
Blank/No Response	57	8.0%
Total	708	100.0%

Question Source: How has your experience using the UB-NFTA Transit Pass affected your perception of public transportation?

5. Conclusions and Recommendations

UB Faculty and Students benefitted from increased ***affordability***, ***mobility*** *and* ***housing options***

Who visited new places using their transit passes?

2/3 **of all** transit pass holders

3/4 **of student** transit pass holders

This chapter discusses major findings and conclusions from the analysis and offers recommendations for drafting a possible permanent transit pass agreement between UB and the NFTA. Many of the recommendations will also be helpful for other colleges, universities, or large employers who have considered creating transit pass programs in partnership with their local transit agencies.

The UB-NFTA Transit Pass Program provided several benefits to the parties involved. It also revealed pitfalls to implementing a transit pass agreement. By purchasing pre-paid NFTA transit passes, UB increased transportation options and affordability for its students, faculty, and staff without a significant increase in cost to the institution. However, the subsidy provided by the NFTA exceeded the benefits it accrued.

Outcomes for Students, Faculty, and Staff

UB students, faculty, and staff benefited the most from the UB-NFTA pilot transit pass program. Pass holders did not have to pay any out of pocket costs to participate in the program and some regular Metro Rail riders actually saved money after participating in the program. For the 58 percent of survey respondents who said they owned or had access to a personal vehicle, the transit pass program provided a powerful incentive for choosing public transit by making a trip on Metro Rail a better value than driving. Although auto ownership usually includes large up-front fixed costs, transit providers have to compete with the relatively low marginal cost of auto ownership—namely fuel, parking, and maintenance costs. This is especially challenging in a metropolitan area such as Buffalo that has short commute times, low traffic congestion, and abundant parking. The pre-paid transit pass inverts conventional transportation cost structures and gives public transit a competitive edge by eliminating the marginal cost of ridership. This was a direct benefit for the 86 percent of surveyed pass holders who said they previously rode Metro Rail at least occasionally. This was especially true for the 42 percent of surveyed pass holders who said they did not have access to a vehicle before the transit pass program. The transit pass program allowed pass holders to access—free of charge—trips on Metro Rail (and the destinations they served) for which they otherwise would have had to pay. On average, each faculty or staff member participating in the pass program saved $223 per semester ($669 over three semesters), while each student participating in the pass program saved $240 per semester ($720 over three semesters).

UB Students seemed to gain the most financial benefit from the program as well as an increase in mobility and housing options. Among all the riders that were new to Metro Rail, 93 percent were students. The transit pass program provided all student pass holders a low-cost transportation option that, for the first time at UB, provided a transportation subsidy in a form other than a free parking space. Findings also show that mobility for UB student pass holders was greatly enhanced through the pilot UB-NFTA Transit Pass Program. The program had a remarkable influence on access to new destinations; 74 percent of student pass holders visited new places using their transit passes. Additionally,

What People Said

Linking UB with its Community

Some survey respondents felt that the pilot program was good for UB, the NFTA, and the region, and it helped to foster stronger town-gown relations:

> Overall, I believe the pass increases UB's influence and reach into our city. It breaks the incredibly insular tendencies of the two main campuses and allows students to feel connected to the city and not just the school. (undergraduate student)

> I feel this program is a great way to help positively integrate UB's staff and students into the greater community of Western New York. (staff)

> I loved this program. I feel that it's one of the best thing UB has done to connect with the Buffalo community and encourage its students to actually live in Buffalo instead of the suburbs. (alumni)

> I really hope UB brings this Transit pass program back into action. I think it will help a lot of students learn more (and love) the Buffalo area, and will help a lot of students (especially nursing) get downtown to Allen Street for their clinicals at the hospital. I think it will enrich UB students as a whole if they had this type of program to explore and learn to love the area surrounding them, and to not just feel restricted by UB's campus. (undergraduate student)

49 survey respondents provided responses to an open-ended question with comments that explicitly mentioned their ability to access new places using UB-provided transit passes. Finally, of students who said they changed their residence after they were issued a UB-NFTA pilot transit pass, more than half of undergraduate students and more than two-thirds of graduate students surveyed took the pass into account when choosing a new residential location. Unfortunately, when the transit pass program was discontinued, those who moved to a new location anticipating free rides on Metro Rail had to switch back to driving to campus, purchase a monthly NFTA pass, or pay the transit fare for each individual trip.

Outcomes for the University at Buffalo

The pilot transit pass program was unique among transportation programs at UB in that it treated students, faculty, and staff equally. Everyone in the UB community who was issued a UB-NFTA transit pass had access to the same subsidized program. This contrasts with the mechanism for funding UB's parking system, where all students—even those without vehicles—pay for most of the cost of parking on campus, and faculty and staff pay only a nominal amount. Even though students fund most of the parking budget, faculty and staff are provided access to premium parking lots closer to campus activity centers.

The pass program had the potential to lower overall transportation costs at UB had it been continued beyond a pilot program. It is estimated that UB realized a new savings of $62,343[9] over the length of the three semester program and six percent of riders who had never used Metro Rail utilized the transit pass program, reducing overall parking demand on campus. The pass also sustained the mode choice of those who previously rode Metro Rail, providing an incentive to continue using transit. Over time, reduction in parking demand due to free public transit would provide savings on infrastructure and maintenance. Assuming UB expands its enrollment as expected, it would also slow the demand for new parking facilities.

Enhanced transportation access is important for UB at large. The UB-NFTA pilot transit pass offered increased access for community members at campuses considered to be austere and isolated (especially UB North Campus), characteristics long thought to have been barriers to student and faculty recruitment and retention. Similarly, the pass helped foster community engagement in the City of Buffalo, something the University has been accused of neglecting in favor of isolating its students on North Campus. Many students reported using transit passes to travel to internships and volunteer work. The fact that the transit pass program covered the cost of transportation to such activities was important to respondents; one graduate student commented, "If I couldn't have rode public transportation for free, I could not have afforded to volunteer." Another graduate student similarly commented, "it made it possible for me to afford volunteer internships downtown."

Finally, the UB-NFTA Pilot Transit Pass program permitted UB to deepen its commitment to reduce and offset transportation emissions produced by its community members. UB's previous transportation demand management initiatives did not address the low marginal cost of driving in Buffalo. For example, a UB staff member who took part in UB's annual commuter challenge (a four-week program where students, faculty, and staff compete to travel to UB's campuses in the most environmentally friendly ways) rode Metro Rail for the four weeks during the program; however, for her, "riding the metro cost $1.75 each way—more than she spends on gas when she brings her car to campus," leading her to return to driving after the commuter challenge (Hsu, 2010). Despite the success of the commuter challenge, such a program lacked the ability to impact long-term change for this rider because of the lower cost of driving and virtually free parking on campus, compared to transit fares. The UB-NFTA Pilot Transit Pass addressed this weakness by making the cost of riding the Metro Rail *less than* driving (zero) and provided students, faculty, and staff a low-emission mode of transit for both commuting to work and for visits between campuses.

9 This value is computed as follows: $133,333 (savings from reduced Blue Line Shuttle operation) - $70,990 (payments to NFTA for transit passes = $62,343

Outcomes for NFTA

Although it is estimated that the NFTA paid a greater share of the costs of the pilot transit pass program, there were some encouraging findings uncovered. The program encouraged six percent of the pass user population, who otherwise would not have used Metro Rail to regularly use Metro Rail service. This was particularly beneficial to the NFTA since 93 percent of new riders were students. Our findings suggest that students' schedules are more flexible than faculty and staff schedules, making them more likely to fill seats during off-peak travel times. A greater proportion of new student riders may be able to easily adapt to the transit pass program or new fare structures due to their flexible schedules.

In addition to new riders, findings suggest that the pilot transit pass program positively affected riders' perception of public transportation. When considering responses from all program participants, 68 percent of respondents said the program positively affected their perception of public transportation, while only 2 percent said it negatively affected their perception. There was also a strong show of support for the return of the program. In total, 82 percent of pass holders reported that they would participate in the transit pass program if it were to return. Similarly, 15 percent of those who wrote open-ended comments mentioned that they would like to see the program return.

Challenges in the creation of a permanent program

Despite the benefits discussed above, UB and the NFTA have not come to an agreement to establish a permanent transit pass program. UB administrators cite a lack of rallying by students as one reason for not actively pursuing a permanent program agreement. The fact that students, faculty, and staff have not rallied around this program may be due to low awareness among UB students, faculty, and staff. In the last semester of the its pilot phase, the program served less than 10 percent of the student population spread across the three campuses. Survey results suggest that 65 percent of graduate and 80 percent of undergraduate students were unaware of the program. Furthermore, a lack of reaction may be related to a lack of something to react to. UB Parking and Transportation Services never announced that the transit pass program was canceled, discontinued or suspended. Instead, the UB community was left in a state of limbo. According to a UB official, when pass users signed the agreement to take part in the program, there was a box they checked which stated that they understood the pass would expire at the conclusion of the pilot program. Whether pass holders thought they would be issued a new pass after the current one expired is unclear.

Although both UB and NFTA provide service between UB's South Campus and Downtown Campus—with Metro Rail providing light rail rapid transit underground and the UB Blue Line Shuttle providing at-grade bus service on the street—UB administrators cite the limited overlap of the two providers' missions. UB transportation officials have focused on inter-campus travel only, while NFTA is focused on providing travel for all purposes. This seems to poorly support the transportation demand management and emissions reduction goals set forth in UB's Climate Action Plan (University at Buffalo and Ecology and Environment, Inc., 2009).

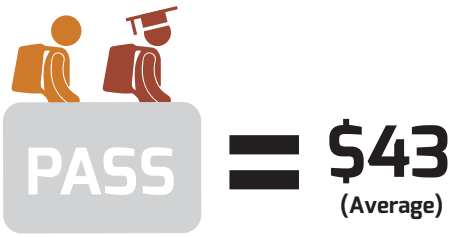
Perhaps the greatest hurdle to a permanent agreement is the financial imbalance between stakeholders. Faculty, staff and students did not pay any out of pocket costs to receive the transit pass, and the program saved money for UB since the savings associated with reducing the Blue Line shuttle service outweighed its payments to the NFTA. On the other hand, the NFTA is estimated to have lost between $101,146 and $360,385 in revenue potential from regular paying riders that switched to the transit pass. It would be difficult to justify a permanent program without a more even distribution of cost across all three parties.

Opportunities and Recommendations

This research has uncovered findings about the pilot pass program that can help to inform the implementation of a permanent agreement between UB and NFTA. In the next section, we present key recommendations to guide the development of such a program.

How students answered this survey question:

> "what value increase in student fees per semester would you support?



UB and the NFTA will be collaborating on two major endeavors in the near future. After nearly three decades of operating the 6.2-mile Metro Rail line, the NFTA is conducting an alternatives analysis which will explore high capacity transit possibilities extending from UB's South Campus into the Town of Amherst, through or near UB's North Campus. The Alternatives Analysis, and future capital funding for new high-capacity transit, could benefit from increased ridership on Metro Rail that a transit pass agreement could provide. A new high-capacity transit corridor that connects the North and South Campuses has the potential to replace the current UB Stampede system with a faster, more efficient, and environmentally sustainable system. Funds from the transportation fee used to underwrite the Stampede (approximately $3.6 million) could be used to underwrite operating costs of such a system when it becomes operational.

UB is also working with the NFTA on the construction of its new School of Medicine and Biomedical Sciences building that will sit directly above the Allen-Medical Campus Metro Rail Station, and will include reconstructed Metro Rail facilities incorporated into the base of the structure. This structure would be the most substantial transit-oriented development yet constructed around Metro Rail in Buffalo, with a potential for luring many new riders onto the system as learning and employment opportunities expand on the UB Downtown Campus. Because of these shared interests, cooperation between UB and the NFTA is vital. It is imperative that UB and NFTA creatively seek a solution to the issues which the pilot transit pass program revealed.

Offering a prepaid transit pass, along with shifting some of the costs of driving away from non-drivers, could lead to many collaborative opportunities for UB and NFTA. The NFTA system has never met its initial ridership estimates (Hess and Lombardi, 2004); therefore implementing common-sense programs to increase transit ridership and decrease vehicle commuting could help increase service demand and fill empty seats. Students using pre-paid transit passes today will become commuting professionals in the future, paying a full cash fare. Given UB's investment in a new Downtown Campus for the Academic Health Center and reinvestment in South Campus that will create a campus of professional schools, students will demand transportation connections both between campuses and from these campuses to other parts of the community. The key inter-campus link is already in place via Metro Rail, and UB's support of the NFTA could give the underutilized Metro Rail a new life and purpose.

Strike a Balance between Stakeholders

The UB-NFTA Pilot Transit Pass Program did not affect all stakeholders equally. This is the most critical obstacle to overcome if a permanent program is desired. It is estimated that NFTA shouldered the greatest share of the costs of the transit pass program, while UB and its students, faculty, and staff actually saved money. For a successful and sustainable program to be achieved, each stakeholder must be better off in the program than they would otherwise be without the program, especially since the program can no longer be sustained by goodwill and the strong desire to collaborate. There are a few large measures that can be taken to deliver a more equitable program model.

First, existing redundancies should be eliminated. The cancellation of UB's Blue Line service could bring approximately $160,000 in annual savings to the table. This may not be as difficult a move as UB officials have previously thought given the negative reaction to the Blue Line service uncovered by this research and its slower travel times between UB's South and Downtown Campuses.

Next, students, faculty, and staff should have a greater stake in the program. Our research suggests that each faculty and staff member saved approximately $223 per semester and each student saved approximately $240, on average. A portion of this savings could be directed toward funding the program, with students, faculty, and staff still being better off, on average, than they would be purchasing tickets and passes directly from the NFTA. There are two steps required to implement a partial transfer payment from riders to partially fund the pass program—determining a transfer mechanism and setting a price.

Institutional Sustainability

Many pass holders commented about UB's sustainabity program. Generally well promoted and effective in many ways, some pass holders commented that the end of the pass program seemed counterintuitive to these already established efforts:

> It is shameful that UB operates the Blue Line shuttle that duplicates a light rail route. It is also shameful that UB publicizes many sustainability initiatives (UB Green, UB Breathe, etc) but does not have a transit pass program. The transit pass program brings enormous benefits to students, faculty, and staff, all of UB, and greater Buffalo. (faculty)

> Just look at the overflowing parking lots on both North and South Campus and ask yourselves how successful UB has been in their campaign to reduce single-vehicle transport. The free NFTA pass was an excellent step in the right direction. Eliminating it was moronic and shows a deep lack of vision on the parts of both UB and NFTA. (graduate student)

> Disregarding the fact that the Blue Line is acting counterproductive to the whole UBGreen initiative (because the subway covers the majority of the route), and the fact that UB spent $350,000 on 28 new buses totalling $9.8 Million. (undergraduate student)

> So the campus that is hardest to reach is also the only one that doesn't provide a bus pass, especially with all the lip service it pretends to pay with "UB Car free". (graduate student)

Setting a price may be the most difficult step in the process and the process of finding an optimal price may be iterative. Fortunately, survey responses indicate a good starting point for pricing, at least for students. When asked what value increase in student fees (per semester) they would support to receive a Metro Rail transit pass, the average response was $43 per semester. This value is remarkably similar to the $47 per student per semester fee that NFTA charges other colleges and universities for their College/University Unlimited Access Program, and could be a fair starting point for negotiations that would still save riders a considerable amount of money.

In order to achieve a truly equitable agreement, several scenarios would have to be explored. Each scenario should consider options from the standpoint of each stakeholder and include opportunity costs, possible externalities, and long term savings potential, along with immediate expenditures.

The stakeholder most negatively affected by the transit pass program was the NFTA. If only pass user respondents regularly purchased tickets and passes for the Metro Rail, the NFTA still effectively contributed $30,156 more to the pilot program than UB did with the $70,990 it contributed to the NFTA. If all people issued passes exhibited the same ridership behavior as respondents to the pass user survey, then the NFTA effectively contributed $289,795 to this program. Any future agreement between UB and the NFTA must take this lost revenue into account, while considering the positive externalities that transit ridership brings to UB through reduced parking demand.

Currently, the $47 per semester per full-time enrolled student cost of NFTA's College/University Unlimited Access program is well below the approximately $70 of UB's transportation fee that is dedicated to parking. Unlike other components of the mandatory comprehensive fee assessed to each UB student, (such as the Health Fee, which pays for operation of the health clinic, a service which only benefits students and is not open to faculty and staff) the campus parking system is available to students, faculty, staff, and visitors, although it is almost entirely funded by student fees. This occurs despite the fact that faculty and staff disproportionately drive to and park on campus relative to students and generally have more resources to pay for parking. Creating an incentive for faculty and staff to travel via other modes to campus can help induce mode shifts from automobiles to public transit, similar to the 73 percent increase in transit share among faculty and staff at UCLA after that institution began paying for unlimited access rides on buses (Brown et al. 2003). In contrast, qualitative survey comments suggest that some UB students reported being unable to afford to maintain a car on top of tuition costs, with many students mentioning the challenges of UB's many car-less international students.

Realizing that there are agreements with labor unions representing UB faculty and staff to overcome, we nonetheless suggest that funds from the comprehensive fee, which are currently being used to subsidize faculty and staff parking, be augmented by increased faculty and staff hang tag fees. This would make the true cost for faculty and staff parking more transparent, inducing some commuters to seek alternatives (Shoup, 2007), such as commuting by public transit (with or without a transit pass program). Such a policy change could be achieved by raising the parking hang tag fee for faculty and staff to the level which students currently pay for parking ($140 annually for a traditional full-time student); these funds could then be dedicated to Parking and Transportation Services for creating a new UB-NFTA Transit Pass program.

Additionally, we recommend that as part of a transportation demand measure, UB offer a rebate to students based on the amount paid for a parking pass each semester from the comprehensive fee (approximately $70 per semester for undergraduates) for those who do not request a parking hang tag, effectively permitting an opt-out decision and "unbundling" the cost of a parking permit from the mandatory parking and transportation fee. This would operate like a parking "cash out" program (Shoup, 2005). Further analysis in this area is required, as the true cost of parking at UB could be revealed to be far greater than $140 annually if students without cars who previously subsidized parking are removed from the equation, requiring a higher permit fee from students, faculty, and staff who drive. This could ensure that those parking on campus are paying for their use of its parking infrastructure; such a policy might provide an immediate incentive for some students to choose to live in housing which is accessible to campus without the use of a car. If a cash-out of the transportation fee is implemented for students, the amount of money offered to

Housing Choice

College students generally have high housing mobility, since they are flexible, price sensitive, and often move to new housing every year. Students responding to the survey reported that the UB-NFTA transit pass program played a role in their residential choice decisions:

> It will also allow students who are now restricted to staying near South Campus to move to safer and better neighborhoods. (graduate student)

It worked well while it lasted, encouraged environmentally friendly options. Now I drive much more. Wish it didn't stop since there are two people in my household who had moved specifically based on access to free Metro, now there is just more driving and carbon emmisions instead. (staff)

I changed the place that I live and the transit pass program affected my decision a lot. I used to live near North Campus but now I live on Summer Street, Buffalo. (graduate student)

I miss having this program. Part of the reason I moved to where I did was that I was one block from the metro and could get to school (North) in the same time as driving without having to pay for gas. When it was removed, three of the people in my house switched from metro to each driving there own car. (staff)

I did move to my location on Amherst Street thinking I would use the metro to get to South Campus and Children's Hospital - not having the free pass this year, I drive every day. (graduate student)

those who choose to cash out should be carefully calculated so that the initiative is revenue neutral, with lost revenue being replaced by new student hangtag fees.

Remove Barriers to Membership

It was a more challenging process to obtain a transit pass during the pilot UB-NFTA Transit Pass Program than it was to obtain a parking permit. Students, faculty, and staff should be able to conveniently collect transit pass stickers on all three campuses, and the application process should occur online instead of by fax. Ideally, transit pass stickers could also be mailed to pass holders in the way that parking passes are mailed to drivers. Many of the reasons that these challenges existed was due to the short implementation timeframe and the limited agreement that UB and the NFTA had. In the creation of a permanent pass, these issues should be considered in order to promote additional pass issuance.

If the transit pass program were to be expanded to the whole university community, the ideal solution would be to allow all UB community members access to Metro Rail simply by presenting their UB identification card to the fare inspector or at the swipe card machines that will soon be implemented by the NFTA at all stations, with UB and the NFTA negotiating payments based on ridership estimates collected by the inspectors or swipe card machines. In this way, UB students, faculty, and staff are not required to apply for a transit pass and automatically have barrier-free enrollment in the transit pass program. Another solution could be to offer an opt-out membership to riders. This would boost membership by requiring members to voluntarily opt out of the program to receive a rebate.

The UB-NFTA Pilot Transit Pass could be an effective recruitment and retention tool for UB. It would offer students a stronger incentive to travel throughout Buffalo and to commit to activities like internships and volunteer work. We suggest that the transit pass program be actively promoted during admissions recruitment and new student orientation, allowing students to make informed decisions on housing and transportation options. Similarly, the transit pass should be actively marketed in faculty and staff recruitment, allowing them to make informed decisions related to housing choice that could lead to long-term reductions in vehicle commuting to campus.

Consider Potential for Additional Funding

The NFTA gained some new riders as a result of the transit pass, although many UB-NFTA pass holders were existing riders who previously paid their own fare. Though the NFTA lost some revenue that it would have brought in through fares from its existing riders, it could have gained up to $23,930[10] in increased state operating funds through an increase in ridership. For this to successfully happen in the future, however, the New York State Department of Transportation must return to utilizing its operating assistance program which subsidizes the state's transit agencies based on a formula that accounts for passenger miles. According to NFTA officials, the operating assistance funding mechanism for transit agencies has been frozen, with all agencies receiving arbitrary across-the-board increases or decreases in operating funds each year despite actual increases or decreases in ridership during the previous year. UB should support the NFTA in its requests to legislators that state aid be based on passenger miles served, as increased state aid based on filling empty seats can help to underwrite the costs of a permanent transit pass program.

[10] This is computed as follows: 1,313 (vehicle miles shifted to Metro Rail) x 15 (weeks in a semester) x 3 (semesters in pass transit program) x $0.41 (reimbursement rate per passenger mile) = $23,930.

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Connections Beyond Campus

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University at Buffalo
The State University of New York

School of Architecture and Planning
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