UNDERSTANDING COMMUTER PATTERNS AND BEHAVIOR: AN ANALYSIS TO RECOMMEND POLICIES AIMED AT REDUCING VEHICLE USE

Executive Report

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EXECUTIVE SUMMARY

In an effort to decrease greenhouse gas emissions and develop a model for others to follow, the University at Albany has undertaken an extensive examination of transportation use by its employees and students and those of the employees at the nearby Harriman state campus. The goal is to make alternative transportation a more viable option for the commuting population by identifying solutions and collaborations and recommending policies aimed at reducing vehicle miles travelled.

Addressing the use of transportation is a vital part of achieving carbon reductions. However, there exist institutional constraints towards tapping into this potential which manifest themselves in the lack of awareness and availability to feasible solutions. The analyses included in this research comprises of a review of the existing alternative transportation options in the Capital Region, a Geographic Information Systems (GIS) study of where the commuting population lives and their proximity to CDTA bus routes, a GPS on-time performance study of the main student transit lines, and a survey and focus group discussion on commuting behaviors and preferences. The results look to address the reliance on single occupancy vehicles (SOV), a transportation issue that is common at both the state and national level. The techniques developed by this analysis provide a framework that could be reproduced throughout the state to develop transportation policies and impact a significant amount of the population.

The study revealed an array of existing transportation options available throughout the region. CDTA has developed an elaborate bus system that offers several routes with direct access to the SUNY and Harriman Campuses. Other commuter bus lines, either sponsored by a local government entity or an independent transportation company, do exist but only some have stops at the SUNY and Harriman Campuses. The success of these lines to date has been limited since the majority of commuters need greater flexibility than the schedules currently offered. It also appears that the majority of commuters are not aware of the cost savings benefits that are involved with taking public transportation. The CDTC has taken steps to improve the commuter bus system, along with their car and vanpool networks, by establishing a clearinghouse for information on finding bus schedules, car pool partners and park and ride locations with the iPool2 website.

The central theme developed from the GIS analysis is that geographic access to transit is not the reason why the majority of commuters don’t utilize mass transit. The frequency and convenience of the bus routes bear a larger role in commuting decisions. The GIS results can be used to guide marketing efforts by the UAlbany and Harriman Campus in an effort to support car and vanpooling programs and assist transportation authorities by identifying locations that could benefit from rerouting bus lines and/or reconfiguring bus stops. Our results suggest that there are specific areas with a large density of SUNY and Harriman commuters, namely postal codes representing the City of Albany, Clifton Park, and Delmar. These results suggest that the existing CDTA routes should be analyzed to determine if these communities are being serviced efficiently and properly with direct routes to the UAlbany and Harriman Campus.
During the process of developing a methodology for conducting an on-time performance analysis, there were several lessons learned. The most prominent lesson is that the use of handheld GPS units is not efficient and becomes a very expensive and time intensive process. This could be greatly improved if transit agencies made use of an automated vehicle location (AVL) system. For smaller transit providers, such as UAlbany, installing a GPS based tracking technology system, like the iTrak system, could be an inexpensive way to monitor and manage shuttle fleets. GPS based technology can also benefit the transit user as these provide a real-time shuttle tracker application which can be accessed on a smartphone or via the web so that transit users can look up where the bus is located and when it will arrive at the stop. The use of this technology would greatly improve the user friendliness of transit and help to make transit a viable alternative to SOV commuting to campus. The research team strongly recommends that the CDTA use an AVL system and the University at Albany implements the iTrak fleet manager system as a means to improve the effectiveness and reliability of mass transit as well as campus safety. With these established, it would be possible for a regional transit website to be created that displays a map of bus locations in real-time throughout the Capital District.

The transportation survey produced a substantial set of data and findings regarding UAlbany commuter preferences. The study focused on three main topics: the extent to which respondents use a car to regularly commute to school, the main limitations of alternative transportation systems on campus, and supported solutions. The data in the student and employee surveys show that driving is the dominant form of commuting (40% daily-use students; 73% daily-use employees), mainly because of the “convenience” factor along with the need to “travel from other places to and from work/school”. While students used the bus rather frequently, all other modes were far less commonly used. Both groups found major limitations in transit due to frequency, length of trip, and unavailable routes. Carpooling was hindered by the lack of social networks. Bicycling suffered from safety concerns and walking was limited due to the distance of travelling from home. While both groups agreed on many of the same solutions for transit improvements certain solutions, such as telecommuting and monetary rewards or penalties, were likely to work best with only one population.

The focus groups revealed additional reasons for not using alternative transportation not identified in the survey along with clarification on rewards that might entice usage. General alternative transportation concerns such as distrust of bus reliability during high stress periods, (i.e. tests) and potential solutions, such as parking garages, parking lot shuttles, expanded on-campus daycare, graduate housing, and dormitory-led bus-education programs were also reported during the course of the meetings.

The project has generated a list of recommended actions based on findings specific to the University at Albany and Harriman Campus along with the ones that can be generalized to all institutions as highlighted in the TCRP’s 82 case studies. Additionally, a handbook describing the methodology used to gather and analyze data has been created for other institutions to follow.
ALTERNATIVE FORMS OF TRANSPORTATION WITHIN THE CAPITAL REGION

While the majority of Capital Region residents do utilize their SOV for commuting purposes, other options are available throughout the region. CDTA has developed an elaborate bus system that offers timely service throughout the core counties of Albany, Rensselaer, Saratoga and Schenectady. Many of CDTA’s routes offer direct access to the SUNY and Harriman Campuses. The SUNY campus community has had access to some of these routes free of charge in an effort to persuade more people out of their SOVs to alleviate congestion and parking concerns. With the start of the fall 2010 semester, all CDTA routes will be made available free of charge to the campus community. Other commuter bus lines are either sponsored by local government entities or run by an independent transportation company. They offer direct routes into downtown Albany, but only some stop directly at the SUNY and Harriman Campuses. The success of these lines to date has been limited at the SUNY and Harriman Campuses. The majority of commuters need greater flexibility than the schedules currently offered. It also appears that the majority of commuters are not aware of the cost savings benefits that are involved with taking public transportation. Many people will choose to use a SOV as it appears to be the most time efficient and convenient option available.

The region has also taken steps to improve walkability and bike routes. These enhancements are either relatively recent, or may still be in the implementation stage. These improvements have been sponsored by the University, the City of Albany, the CDTC and CDTA along with other government entities, to make the region friendlier to pedestrians. While these improvements are bound to help, the Uptown SUNY campus and the Harriman Campus are located in environments that are extremely SOV-friendly. The highway access surrounding these locations is impeccable. This, in-return, limits any efforts that can be made to better unite the campuses with the urban environment. Due in part to the mass suburbanization around the City of Albany, along with location of the campuses, few efforts to date have been able to develop a transportation mode that is as convenient as the automobile.

Future plans to reduce SOV use at both the SUNY and Harriman campuses will have to include added benefits such as savings in cost, time, or an improvement in quality of life. The available options don’t appear to offer these advantages. Even though the perceived cost per mile to use a SOV is probably lower than what it really is; due to the low cost and easily accessible parking at both locations, very little incentives exist for one to change their mode of transportation. Unless the cost of operating an automobile is to increase significantly, future public transportation efforts will have to offer significant and obvious cost savings without incurring a large increase in travel time to entice people away from their automobiles. Current alternative transportation options have lacked the flexibility needed for the modern day commuter and have failed to offer or market any significant cost savings that could be gained by using alternative transportation.
ALTERNATIVE TRANSPORTATION BULLET POINTS

- CDTA services approximately 2,300 square miles and a population of over 790,000 people
  - 50.6% of this population lives within a 1/4 mile of bus service
  - CDTA will kick off "Universal Access" to the bus service for the UAlbany community in the fall of 2010 (exception of Northway Express).
  - CDTA buses include bike racks to accommodate bikers.

- Commuter Buses are offered in: Saratoga, Montgomery, Schenectady, Rensselaer, Columbia and Schoharie County.
  - While the commuter buses offer a valuable service there are some issues with the service including:
    - Inconvenient schedules
    - Too few routes scheduled
    - Some do not offer direct access to Harriman or the UAlbany Campus
    - The expected travel time by bus is significantly higher than the expected travel time by SOV.

- Carpool and Vanpool networks are being developed on campus.
  - Online resources such as IPool2 exist to connect interested parties.
  - Interest in programs sparks during times when gas prices increase significantly.
  - To date, few have made the change to car/vanpooling.

- The Uptown UAlbany Campus offers limited biking and walking opportunities for local residents.
  - Efforts by the University, including the "Purple Path", have been made to increase accessibility for pedestrians and bikers.
    - Progress in constructing the "Purple Path" has been slow.
    - The City of Albany has acknowledged the need to create a more bike friendly environment with the creation of the 2009 Bicycle Master Plan.

WORKS CITED

GIS ANALYSIS

Providing alternative transportation options alone will fail to address the needs of commuters if the transportation offered does not service the locations where the highest percentages of commuters reside. This section explores whether the existing transit is servicing the commuter population at the UAlbany and Harriman Campus. Using data contributed by the University at Albany’s Parking and Mass Transit Services (PMTS) on the parking permits distributed, along with the data extracted from the Harriman Campus study by the Office of General Services, Geographic Information System (GIS) maps were created to display the home location of the commuter base. The GIS study results, broken down by categories of staff, faculty and students, shed light on the needs of the existing commuting population. This compound study provides a multi-level picture that can be used to enhance current mass-transit offerings, position future projects, and identify commonalities that may exist between the large commuting population at UAlbany and the Harriman Campus.

The results suggest that while the SUNY and Harriman Campuses’ commuting population is coming from many different locations, there are postal codes areas that house a large number of commuters. In 2008, postal codes representing the City of Albany, Clifton Park, and Delmar (town of Bethlehem) appear as areas where there is a high density of commuters. These results suggest that the existing CDTA routes must be analyzed to determine if these communities are being serviced efficiently and properly with direct routes to UAlbany and Harriman Campus.

The results should also be used by SUNY and Harriman campus to highlight focus areas where car and vanpooling options should be marketed. However, caution should be brought before generalizing solutions based on these results. Just because an area has a high density of commuters, that doesn’t mean commuters will be willing to change their transportation habits. Many programs exist that must be considered as independent or joint initiatives if either institution expects to alter transportation decisions to decrease SOV usage.

While many programs exist that can decrease SOV usage, there are limitations that exist due to the built environment and certain areas are more or less dense and walkable than others. For example, the .25 mile walking threshold used for our study does not take into account the walkability of these locations. A .50 mile walk down a paved sidewalk, with marked crosswalks through intersections, may be much more walkable than a .25 mile walk across a highway interchange. The results of these exercises provide information on where potential opportunities exist to offer commuters who rely on the SOV an opportunity to use alternative transportation. Attention must be given to determine if these areas currently provide the infrastructure to support the different transportation options.

While we found that the overwhelming majority of the commuting population (faculty, staff, or students) rely on SOVs to commute to campus, the CDTA bus system is providing a large number of commuters within our “core” counties the choice to use alternative transportation by successfully placing bus stops located near their residence. Approximately 40 to 50% of our commuters do live within a quarter mile of a CDTA bus stop. The results suggest
that the reason that a large majority of commuters within our “core” counties are not using mass transit is beyond having geographic access. Based on what we learned about the schedules of the bus services in our review of the existing alternative transportation, it appears that the frequency and convenience of the bus routes bears a larger role in commuting decisions than access to the bus system. In 2008, a majority of commuters within Albany, Schenectady, and Rensselaer Counties lived within walking distance of a CDTA bus stop. Saratoga County lags behind, offering a much lower percentage of all the commuters a bus stop within walking distance of their homes.

**GIS STUDY BULLET POINTS**

- In 2008, of the four "core" counties, Albany County has the largest commuter base with 56.52% of the permits distributed listing an Albany County address.
- The Harriman Campus results indicate that commuters are relatively spread throughout the Capital Region.
  - 3,072 Harriman Campus commuters live within 162 different postal codes.
    - Seven of those postal codes have over 100 permits registered within the boundaries.
      - Clifton Park (12065) and two Albany communities (12205, 12203) have the highest concentration of commuters.
- UAlbany students live throughout the Capital Region with 262 postal codes represented within the sixty-mile radius of campus.
  - The highest density of students is within two Albany communities (12203, 12208) and Clifton Park (12065).
- UAlbany staff lives in 138 different postal code areas within the sixty-mile radius of campus.
  - Albany (12203, 12205, 12208) include the highest density of staff commuters.
- UAlbany faculty is spread out in 103 different postal codes within the sixty-mile radius.
  - Albany (12203) and Delmar (12504) have the highest density of faculty.
- Combined permit data GIS maps highlight that there are various communities within the Capital Region where mass transit services must be reconsidered or focused.

**WORKS CITED**


GPS ON-TIME PERFORMANCE STUDY

The fact that transit is being promoted as a means to travel to campus warrants an examination of the reliability and effectiveness of transit that serves the main campus of the University. To accomplish this objective the on-time performance of bus routes that serve the campus were evaluated by using GPS technology. This study evaluates the on-time performance of CDTA bus routes 11 and 12 and the UAlbany bus routes that serve Western Avenue and Madison Avenue.

GPS hand held units were used to obtain data for the on time performance of the routes being examined. A total of 19 workers collected GPS on-time performance data. The bus schedules posted by the transit agencies were broken into three shifts of approximately four hours each in such a way that it would be possible to collect twelve hours of on-time performance data per day during the period of time in which the study was deployed. In this way, workers signed up for the shifts that they were able to work and at the end of their shift they handed off the GPS unit to their replacement worker. This allowed the GPS to remain on the bus and collect data for the entire day. The three shifts included a morning, mid-day, and evening shift. In this way, each shift contains a peak travel time as the morning shift collected on-time performance data during the morning rush hour, the mid-day shift collects data during the lunch hour, and the evening shift collects data during the evening rush hour.

CDTA route 11 had a mean on-time performance value of 71.5 percent. In measuring the dispersion of the percentage of on-time departures, route 11 has a standard deviation of 8.9. Overall, based on a fairly low standard deviation value, CDTA route 11 is providing a fairly consistent service. CDTA route 12 was found to have a mean on-time performance of 65.8%. The dispersion of the on-time performance values is such that the standard deviation for route 12 is 17.2. The measures of dispersion for the on-time performance of CDTA route 12 indicate that the routes on-time performance varies considerably based upon a fairly high standard deviation value and a range of over 50. Based on these findings the variability of on-time performance for CDTA route 12 should be addressed to improve the routes effectiveness and reliability.

The two UAlbany transit routes that connect the campus with the surrounding community were evaluated as well. The UAlbany Shuttle that serves the Madison Avenue corridor was found to have a mean on-time performance of 64.8. The dispersion of the on-time performance values was fairly low with a standard deviation of 9.9. Given that the measures of dispersion are fairly low it can be concluded that the UAlbany Shuttle that serves Madison Avenue is providing reliable service. The UAlbany Shuttle that serves Western Avenue, a corridor that contains a high concentration of University students was found to have a mean on-time performance of 60.2. In terms of the dispersion of these values the route has a standard deviation value of 7.9. The fact that the standard deviation value is low indicates that the transit route is providing reliable service.
The use of ArcGIS 9.3.1 was employed in this study to visualize the on-time performance data of each transit route that serves the main Uptown campus of the University at Albany. The visualization of the on-time performance data collected by the GPS units allows for a greater level of analysis of on-time performance for each transit route to conduct spatial analysis of each transit route.

In order to determine schedule adherence, the scheduled departure time for posted time points along the route will be compared with the actual departure time from the posted time points. For each departure at a time point it will be necessary to determine if the bus is early, on-time, or late. The body of current literature on conducting an on-time performance analysis is in agreement on what constitutes an early, on-time, and late bus departure. According to the literature, an early bus is when the actual departure time occurred before the scheduled departure time. An on-time bus is when the actual departure time is 0 – 5 minutes after the scheduled departure time. A late bus is defined as any actual departure time over 5 minutes from the scheduled departure time. It is important to note that the literature reports that an early bus is considered to be worse than a late bus. A bus running ahead of schedule is considered to be worse than a bus running late because a transit rider that arrives at the stop at the scheduled time must wait the duration of an entire headway before another bus will arrive because the bus departed from the stop early.

This analysis shows that the majority of departures for CDTA Route 11 are on-time at 71%. It is import to note that 25% of the departures for CDTA Route 11 are early. This means that one out of four departures leaves the stop early before the scheduled time posted in the bus schedule. Late departures are not a significant problem at only 4%. The majority of departures for CDTA Route 12 are on-time at 65%. However, CDTA Route 12 has a significant problem with early departures with 30% of departures occurring early. This is problematic and means that nearly one out of every three departures is early. In terms of late departures, CDTA Route 12 was found to have 5% of its departures late.

The UAlbany Shuttle that operates on the Madison Avenue Corridor has 62.8% of departures at the timing points along the route on-time. The UAlbany Shuttle does have a considerable amount of early departures along the Madison Avenue Corridor at 36.7%. Late departures are not an issue at a negligible .5% rate. The UAlbany Shuttle that operates on the Western Avenue corridor also has the majority of the departures are on-time at 62%. There are considerable early departures on this route with the shuttle departing the timing points along the route early 36% of the time. The amount of late departures at timing points along the route was found to be minimal at only 2%.

LESSONS LEARNED

In developing a methodology for conducting an on-time performance analysis based on a literature review of the best practices of carrying out a handheld GPS based on-time performance analysis, there were several lessons learned. The most prominent lesson learned in carrying out this study is that conducting an on-time performance
analysis by using handheld GPS units is not efficient as it is a very expensive and time intensive process. The efficiency of conducting an on-time performance analysis in terms of both fiscal and time efficiency could be greatly improved if both transit agencies under review in this study made use of an automated vehicle location (AVL) system. The iTrak Corporation provides various GPS based tracking technologies that can be installed on a bus fleet for a minimal cost. This technology can be used to monitor and manage the fleet and to compile on-time performance reports which can be used to improve the level of service provided by the UAlbany Shuttles. In addition, the iTrak system has the capability of providing a real-time shuttle tracker application which can be accessed on a smart phone or via a website so that transit users can look up where the bus is located and when it will arrive at the stop. The use of this technology would greatly improve the user friendliness of transit and help to make transit a viable alternative to SOV commuting to campus. If both transit agencies adopt the use of an AVL system, it would be possible for a regional transit website to be created that displays a map of bus locations in real-time throughout the Capital District. This technology is both feasible and cost effective and would make transit use a more viable transportation alternative to SOV travel in the Capital Region.

**ON-TIME PERFORMANCE KEY FINDINGS BULLET POINTS**

- The on-time performance of both transit operators was found to be very similar
- Both transit operators were found to have approximately 65 percent of departures on-time
- The percentage of late departures was found to be minimal and not problematic
- Approximately 33 percent of departures for both transit operators were found to be early
- Both transit agencies need to address the high percentage of early departures in order to provide a higher level of service
- Conducting an on-time performance analysis using handheld GPS units is a very time and cost intensive process
- The use of an Automatic Vehicle Location (AVL) system is the recommended method of conducting future on-time performance studies
- It is recommended that both transit agencies implement the use of AVL systems into their transit operations and use the data for the purpose of transit planning and to provide a more reliable and effective service

**WORKS CITED**


SURVEY ANALYSIS

In an attempt to analyze the traditional and rising issues in transportation at the University, a survey was created to develop a comprehensive picture of the travel behaviors and preferences of the commuting population. The survey process was conducted in a similar manner to the 2006-2007 study completed by Nelson/Nygaard Consulting Associates, analyzing the commuting behavior at the neighboring Harriman Campus. The survey highlighted many of the same questions as the Harriman campus survey, while additional questions were added that are specifically tailored to the UAlbany population. The student survey, along with the survey that was distributed to faculty and staff, experienced many drafts before finally receiving approval from the Technical Advisory Council and the Institutional Review Board at the University for final distribution. The Office of Institutional Research at the University administered the online survey during the fall of 2009 to the campus community.

The surveys produced a substantial set of data and findings. Seeking to improve the campus’ general transportation system, and reduce its environmental impact due to commuting, the study focused on three main topics: the extent to which respondents use a car to regularly commute to school, the main limitations of alternative transportation systems on campus, and supported solutions among the two survey groups.

The data in both surveys indicates that driving is the dominant form of commuting for employees (73% daily SOV use) and for a large number of students (40% daily SOV use), mainly because of the “convenience” factor. All other modes are far less commonly used, with the exception of the student use of the CDTA and UAlbany shuttles, which are utilized rather frequently. Both surveys express that using transit would require individual sacrifice due to the frequency, length of trip, and availability of routes. The surveys also indicate that people chose not to carpool because there is a lack of social networks to build carpooling relationships. It appears that bicycling does not factor as an option for alternative transportation due to safety concerns. The length of travel prevents many students and employees from walking to campus. While both groups agree on many of the same solutions for transit improvements; certain solutions such as telecommuting and monetary rewards or penalties, appear likely to work best for only one population.

Student Bullet Points

Significant Facts:

- 36% of students live on campus
- 25% of students live within 2 miles of campus
- 46% of students are in favor of rewards for using alternative transportation
60% of students live within 5 miles of campus; 75% of students live within 10 miles of campus
25% of students use transit to commute daily; over 40% use transit at least a few times a month
The majority of classes begin between 8am -12pm, and end between 4pm – 6pm, Monday through Thursday
89% of students do not know where to find information on carpooling; 76% do not know where to find information on bicycling or walking
29% of students likely do not own a car, as they “never” drive one during the semester
40% of students would seriously consider alternatives to SOV’s if gas reached $4/gallon
34% of students would drive despite any price increase in gas
78% of students do not change their commuting patterns much between semesters

Suggested Measures:
- Rewards for using alternative transportation
- Improvements to bicycle, pedestrian safety, and bicycle lanes
- Increased student housing on, and near uptown campus
- Transit improvements, including: free rides on all routes, faster bus trips, higher frequency of trips, and bus stops closer to students’ housing
- Bicycle, pedestrian, carpooling, and transit education campaigns
- Decrease available parking

Employee Bullet Points

Significant Facts:
- 75% of employees live within 15 miles of campus
- Most employees commute to campus a majority of the year (88% 5 days a week during semester, 70% during summer, 62% over breaks)
- Most employees frequently drive alone (73% on a daily). Do so because “most convenient”.
- Only 20-22% will likely take part in carpooling programs
- Most employees live too far to walk, many live too far to bike
- 6am – 10am, and 4pm – 6pm are most common commuting periods

Suggested Measures:
- Reduce initial need to commute
  - Increase employees’ “ability to work from home”
  - Implement a “compressed work-week” where possible
➢ Make transit faster & more convenient to use
  o Decrease length of bus trip, closer to that of car
  o Decrease waiting time in between buses particularly during peak travel periods
  o Align bus schedules to match schedules of employees
  o Lessen distance between bus stops and employee housing
  o Create taxi “backup” system for employees in case of emergencies
➢ Make cycling safer
  o Improve security for cyclists through bike lanes & other measures
➢ Use incentives
  o Give rewards for using alternative transportation
  o Give incentives for choosing, or building, housing close to campus
➢ Improve information distribution
  o Create education and networking programs for transit, carpooling, bicycling, and walking to campus

Student-Employee Bullet Points

Common Themes:
➢ Both groups on campus a large portion of the year (full time status: 87% students, 89% employees)
➢ Most common departure time is 4pm-6pm (31% of students, 69% of employees)
➢ Driving is overwhelming modal choice for commute (94% employees, 64% students)
➢ Carpooling, commuting by bicycle rarely used (4%-17% of time on regular basis)

Joint Concerns:
➢ Both groups live too far to walk or bike regularly (46%-77%)
➢ Infrequency of buses, length of trip are biggest transit concerns (31%-48%)

Joint Solutions:
➢ Favored transit improvements:
  o Faster trips
  o Higher frequency of buses
  o Closer bus stops to housing
  o More direct service
Employee-Student Differences:

- Employees live further away, on average, than students (under two miles: 25% students vs. 10% employees)
- Students peak commute time later than employees (8am-12pm vs. 6am-10am)
- Students more likely to use CDTA and UAlbany Shuttle (~40% vs. ~10%)

Separate Issues:

- Bike safety and infrastructure much greater problem for employees (ex. “bicycle lanes” 73% employees vs. 47% students)

Individualized Solutions:

- Price more of a deterrent and an incentive for students:
  - Gas price increases
  - Alternative transportation rewards
  - Free transit access to all routes

- Solutions most likely to work for employees overall:
  - Telecommuting
  - Compressed work-week
  - Free taxis in case of emergency

WORKS CITED

FOCUS GROUP ANALYSIS

While the survey covered a wide array of transportation problems and solutions, there are several remaining questions including:

- What kinds of “rewards” would most likely entice employees and faculty into using alternative transportation?
- How exactly can biking be made safer, where are bike lanes most needed, and what kinds of amenities are most desired by respondents?
- Are there other reasons besides “lack of potential carpool partners” that keep students and employees from using carpools?
- What locations do respondents need to “make trips to and from campus”, for which their car is more “convenient”?
- What is this “other” that keeps 27% of faculty from using alternative transportation?
- Are there any other alternative transportation problems or solutions that respondents wish to have expressed but were not able to due to the closed answer-system of quantitative surveys?

Six focus groups were conducted over a two week period in March 2010. Four focus groups consisted of students, one was comprised of faculty and the last made of staff members. The student groups were further divided into on campus, off campus undergraduate male, off campus undergraduate female and off campus graduate students.

In general, the focus group results copied the patterns indicated in the survey. However, a number of transportation improvements were suggested by participants throughout the course of these meetings including implementing: daycare services on-campus, transportation rewards, on-campus graduate housing, dormitory-led bus-education programs, real-time bus tracking, and expanded on-campus entertainment and dining options. Complex issues were also discussed such as the social experience of carpooling and the need for personal/alone time.

FOCUS GROUP BULLET POINTS

- The focus groups addressed questions that still remained after the surveys on topics such as: parking, commuting, SOV reduction, mass transit services, carpooling, biking, and walking.
- Main points taken from the faculty/staff focus groups include:
  - Faculty/staff are generally positive about current parking options at Uptown campus.
- Peak hour parking is a concern at Uptown
- Parking at Downtown campus is a concern after 9am

  - Solutions to parking concerns by faculty/staff included a parking garage, parking shuttle, and student parking restrictions.
    - Valet parking, additional costs for parking, preferred parking for certain vehicles all disliked by faculty/staff.
  - Bus service is unavailable in certain locations, inconvenient, often full, and has security concerns.
    - Northway Express option is considered to be "expensive".
  - Improvement to bus service should include:
    - Higher frequency, free routes (advertise).
    - Internet on buses and hybrid buses didn't test well in terms of lowering SOV use
  - Cost and convenience major disincentives to using alternative transportation.

- Carpooling efforts must include more incentives if it is to outweigh the negatives (loss of "alone time", inconvenient, less dependable)
- Biking is not as important of a concern to faculty/staff as indicated on survey.
- General improvements offered included: telecommuting, improved access to daycare on campus, rewards for transportation behavior, rail.

➢ Main points taken from the student focus groups include:
  - Students have parking concerns at Uptown Campus.
  - Suggestions to improvement parking include: parking garage, better signage, preferential parking.
    - Cost and convenience major disincentives to using alternative transportation.
  - Bus service generally liked.
    - Problems listed: too many stops, frequency, consistency, schedule confusion, bus service doesn't exist where students live, buses are too full.
    - Improvement offered: Updates available by phone, better signage, better service to certain locations (mall, train station, airport, etc), improve safety at bus stops.
    - Internet on bus, rewards, and hybrid buses mixed reception by students.
  - The idea of carpooling is liked by students although flexibility, safety, logistical concerns were expressed.
    - Ideas to improve carpooling include: website, rewards, and standards.
    - Preferred parking, car sharing, and subsidized hybrids didn't test well.
  - Biking improvements offered: additional storage, racks on all CDTA and Ushuttles, better roads for biking including bike lanes, bike maps, and education campaigns.
    - Reasons why students don't bike: weather, lack of amenities (storage, showers), location of campus in relation to home.
  - Additional suggestions: offer more on-campus entertainment, shopping options, graduate housing, improve safety around neighborhoods for walking and biking.
WORKS CITED


Spitze, Glenna. Personal Interview. 05 January 2010
RECOMMENDATIONS

Recognizing that the transportation issues that exist at UAlbany and the Harriman Campus are not unique to the Capital Region, this analysis hopes to spark additional interest throughout the state and country to utilize similar techniques and develop improved policies that can provide better transportation options while advancing environmental sustainability. Throughout our research process, the team encountered some challenges due to the design of the study. The research team was also challenged with issues relating to the data that was available, in particular how that data was being administered. The suggestions are provided by the category in which we encountered the issue. It is hoped that research efforts will seek to remedy these issues.

GIS Suggestions

Specifically the permit data collection system must:

- Provide a baseline of the current population with accurate data
- Allow for continuity of data formatting from year to year
  - Allow updating of data to allow for changes in commuter classification (i.e. faculty to staff, student to staff)
  - Flag households where multiple vehicles are registered to one commuter
- Format should allow:
  - Breakdown by type of commuter
  - Breakdown data by type of vehicle to allow for a fleet mix study
- Student address database must include the primary local address based on residence, not work address

GPS Analysis Suggestions

During the process of developing a methodology for conducting an on-time performance analysis, the literature review of the best practices of carrying out a handheld GPS based on-time performance analysis, revealed several lessons. The most prominent being that on-time performance analyses conducting ride checks with handheld GPS units is not efficient and is a very expensive and time intensive process. The fiscal and time efficiency of on-time performance studies could be greatly improved if transit agencies made use of an automated vehicle location (AVL) system. The research team stresses the importance of AVL systems to local transit providers. By lobbying for these
systems, which can range in price from a costly venture for a large transit provider to an inexpensive option such as the iTrack model for small transit companies, the research can have greater depth while being more efficient.

Survey and Focus Group Analysis Suggestions

After completing the survey procedure, we found that some questions should be asked that were not. It was also discovered that some of our questions could be worded in a more effective manner. The suggested changes in language that should be applied to future survey questions are listed below:

- Change in language used to designate strength of belief (Questions: 13, 17 for students; Questions: 10, 14 for employees)
  - Suggestion includes renaming the categories of "likelihood" such as "definitely would not", "not very likely" etc. We found that the "very likely" and the "definitely would" are too similar in "meaning" in the spectrum of likelihood, while the "as likely as not" seems very far away from the "very likely"

- Add "do not work that day" category to Question 3 and 4 to employee survey
  - This change will allow people to have an answer to the days they don’t commute to campus. Without this option, participants were unable to answer the start and end time of their commute.

- Move “method of commute” and “length of commute” to basic information question section asked on the survey (for future focus group separation)
  - The “basic information” section would have been more useful if we asked for the participant to indicate the method of transportation that they are currently employing to reach campus and the length of their current commute. These questions would have allowed the team to develop focus groups split by the type of mode, or the length of the commute.

The focus group efforts provided additional information that contributed supplementary detail into our understanding of transportation decisions. Again, the research team was able to determine that there could be improvements to the process that might assist future studies. These improvements include:

- Begin the recruitment of focus group participants at least 1 month in advance of the meeting
  - The research team found difficulty in committing certain populations, including; male undergraduates, faculty, and on-campus students, to take part in the focus groups.

- The research team should think creatively to include any member on the campus community rather than just relying on survey respondents.
  - Great difficulty was encountered finding participants because the research team limited the focus groups to only allow for participants of the survey process. The research team would suggest allowing any member of the campus community to participate in the focus group process and would look to stakeholder groups (i.e. classes, sports teams, fraternities/sororities) as potential partners.
Recommendations for Improving UAlbany and Harriman Campus Transportation Options

The results of the extensive examination of commuting behavior confirms the perception that the single occupancy vehicle is the most relied upon form of transportation for the UAlbany and Harriman Campus commuting populations. This study is driven by a desire to explore collaborative opportunities to promote alternative methods of transportation and reduce VMT. The GIS analysis illustrated potential sources of carpooling and vanpooling opportunities. It is recommended that a point person is identified at OGS to work on marketing opportunities for the Harriman Campus with representatives at UAlbany in order to capitalize on the information gathered in this study.

One point highlighted in the survey is the lack of awareness by the UAlbany community about commuting services available. This can be remedied by improved coordination of marketing programs such as:

- Pairing information on alternative transportation with information about parking, send information in the annual email notice to renew parking permits.
- Market IPool2 more aggressively to off-campus student commuters.
- Promote new universal access to CDTA routes by UAlbany community
  - Obtain usage data from CDTA to analyze usage to improve coordination of marketing.

RECOMMENDATIONS FOR FUTURE RESEARCH

While significant steps are already being taken to reduce VMT and increase transportation options at UAlbany, our team has a series of additional recommendations for future research based on the results of our study. Our recommendations include:

- Research the participants that are already using IPool2 to analyze their usage and location.
- Identify potential rewards, both monetary and nonmonetary, that can be administered to provide incentives to use alternative transportation.
- Use automated equipment to record on-time schedule of buses.
- Continue to re-administer the survey on a regular basis to assess changes in commuting patterns.
- Look into partnership opportunities beyond Harriman Campus (i.e. Patroon Creek, NanoTech Complex).
- Explore options to increase the price of parking to act as a deterrent for SOV use.
- Examine ways data is collected on parking permits and develop process for better database collection.
- Consider adding a fuel efficient/hybrid vehicle category as a separate color coded parking permit.
- Explore whether it is feasible to register employees and students up for carpooling and ridesharing programs when applying for parking permits.
- Promote alternative work arrangements.
  - Telecommuting
  - Compressed work-week
Expand on the Guaranteed Ride Home program offered by CDTC.
  - Offer free rides from campus in case of emergency.

CONCLUSION

Our findings conclude that if UAlbany is to alter the commuting behavior of the University’s population, officials must conduct a comprehensive transportation effort that modifies the current surplus of parking, educates the population of the various alternative transportation options that exists, and uses incentives and disincentives to alter the existing commuting behavior. This conclusion is based on our research recommendations along with the findings highlighted in the TCRP’s 82 case studies.

The first and most crucial step in generating a better transportation environment has already been completed with this research effort. UAlbany and Harriman commuters have been analyzed through the survey and focus group efforts to better understand commuting behavior. The GIS study conducted helped to better understand where the population is living. The mass transit options that currently exist were highlighted in the second part of the GIS study, which included the CDTA bus routes within Albany, Rensselaer, Schenectady, and Saratoga County, and the section analyzing the other mass transit services and schedules. The GPS on-time performance study helps to determine the viability of vital bus routes illustrate if the service is producing acceptable results for users. The survey and focus groups helped create a complete picture of our commuting population modal choices, their behaviors and preferences for services.

Any institution can encourage a better transportation environment by focusing its effort to develop options, improve reliability, have easy access to important information and foster transportation partnerships. This can all be achieved through the technology used in this project which is readily available and relatively inexpensive. Forming partnerships between transit authorities and institutions is key in capitalizing on the synergist possibilities. The process will not occur overnight and will involve frequent reflection to determine if the right strategies are being implemented but the rewards can be great in terms of VMT reduction and a decreased environmental footprint.

WORKS CITED


