



East Carolina University Comprehensive Master Plan

Transportation Plan

Final Report

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Transportation Element – Executive Summary

Introduction

East Carolina University, located in Greenville, North Carolina, is expected to see a significant amount of growth on both Main Campus and the Health Sciences Campus in the next 15 years. This growth will put pressure on the limited land resources and the transportation infrastructure serving the campuses.

The anticipated growth will increase the demand for parking as new students, faculty, and staff are added to the limited physical space. In addition to this increased demand for parking spaces many building projects planned for the next 15 years will reduce the available parking supply. This increasing demand for parking coupled with the decreasing supply of parking will require changes to the University's parking infrastructure. While the existing system works well for the current conditions it is not adequate for a growing University.

This Campus Transportation Plan provides a strategy to meet the University's current and future transportation needs. It focuses on plans and policies that meet the needs of the University that also help to enhance the campus environment and provide sustainable solutions. The Campus Transportation Plan presents recommendations for Pedestrians, Bicycles, Transit, Parking, and Travel Demand Management (TDM) programs.

Plan Creation

Stakeholder involvement was critical to developing the Transportation Master Plan. Numerous task force meetings were held to develop awareness and to exchange information and ideas with the University community. The campus community was also engaged on a direct level at open house events. Additionally, an online survey was conducted early in the process to help identify commuting trends and gauge attitudes about transportation options.

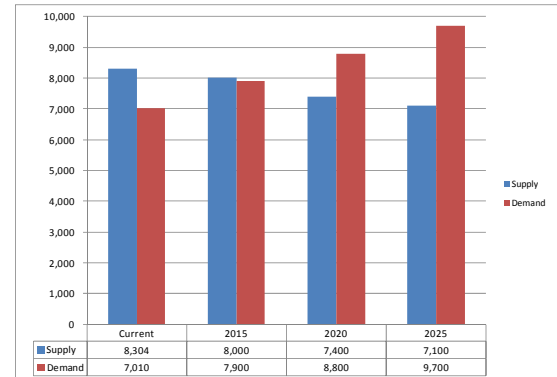
Extensive analysis also lies behind the Plan. Parking supply and demand were forecast into the future. Commuter addresses were mapped ('geocoded') to show which of the potential improvements would benefit the most people. The consultant team walked and rode buses around each campus and between campuses. A final round of events was held in Spring/Summer 2011 to present the draft Plan and confirm a broad level of support.

Parking and Growth

Today East Carolina University has more parking spaces than demand requires. Many of the spaces are not located where the drivers would prefer, however. Specifically, there is a strong desire for more parking spaces in the center of Main Campus.

As of the start of the 2010-2011 academic year there were approximately 1,300 surplus spaces during the peak period. The bulk of these surplus spaces are located ½ to 1 mile south of main campus at the Minges park and ride lot and the lots near the Health and Human Performance (HHP) section of campus.

If no new parking were constructed between now and 2025 that 1,300 space surplus will turn in to a 2,600 space deficit.



Plan Goals

The Transportation Master Plan has the following goals:

- Support the Physical Master Plan.
- Identify cost-effective solutions to existing and future problems.
- Identify and advance sustainable practices where possible and practical.

The Transportation Plan includes a comprehensive set of strategies, as well as particular strategies for walking, cycling, transit, and parking. There are also strategies for managing travel demand. Each strategy contributes to the overall goals, and most importantly, all the strategies complement each other. Highlights from the specific recommendations for each strategy are listed below. Many of the recommendations contribute to several strategies.

Pedestrian Improvements

Perhaps no mode of transportation is more important to the operations of a college campus than walking. Efficient and open paths between buildings are necessary so schedules can be maintained and buildings can be utilized effectively.

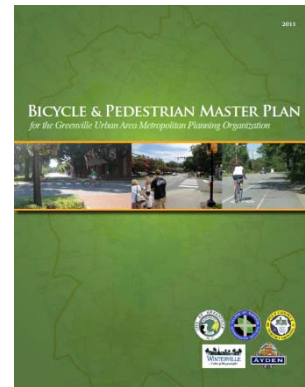
The Physical Master Plan has much in the way of design standards for paths on campus so the recommendations in this section focus mainly on what connections need to be made.

Recommendations and Supporting Policies:

- Develop a better connection to the Reade Street Corridor including upgrading the intersection of Reade Street and 5th Street or possibly providing a grade-separated option.
- Close Founder's Drive to through traffic in order to create a pedestrian-friendly central campus.
- Improve paths along the periphery of campus. Many paths along the periphery of campus, 10th Street, Reade Circle, and Contanche Street, have undersized sidewalks and obstructions within the sidewalk.
- Work with the City to improve the 10th Street corridor by creating a consistent cross-section and reducing the width of (or eliminating) some drive ways.
- Work with the city to improve sidewalks in the neighborhoods surrounding the University to improve the journey to campus.
- Develop a wayfinding plan.

Bicycle Improvements

Cycling is by far the mode of transportation with the most potential to grow. The climate is fairly temperate and the general terrain of the City is flat. These factors allow for an easier commute. There is good infrastructure on the campus to support cycling, and the recommendations in this section provide a path for improving that infrastructure significantly. The greatest improvement to cycling in the area will come in partnering with the City of Greenville to implement the projects outlined in the Greenville Urban Area MPO (GUAMPO) Bicycle and Pedestrian Master Plan.



Recommendations and Supporting Policies:

- Add new paths around campus and new bicycle parking locations.
- Work with the MPO to implement the Greenville Bike Plan.
- Continue to evaluate the need for bike racks on buses. This applies to both ECUSTA and GREAT.
- Add a bicycle repair station on or near campus.
- Work towards achieving Bicycle Friendly University status from League of American Bicyclists.
- Provide cyclists access to showers, ideally located in multiple campus buildings.
- Provide bicycle parking near all buildings where feasible.
- Provide covered bicycle parking where possible including under eaves/overhangs of buildings, in parking decks, and in covered bike lockers.

- Maintain and expand Pirate Ride.
- Adopt a Complete Streets policy.
- Discuss bicycle options with incoming students during orientation.
- Work with Bicycle Advisory Committee to continue to refine this plan.
- Promote bicycle options as an alternative to driving.

Transit Improvements

The East Carolina University Student Transit Authority (ECUSTA) runs a very robust, high quality and cost efficient transit service that aims to meet the varying needs of the student body. Throughout this project ECUSTA in coordination with the project team has made a number of improvements to the transit service to reduce redundancy and cost while maintaining the high level of service. Many of the low hanging fruits, such as reducing the number of stops or consolidating routes, have already been picked.

Near Term Recommendations and Supporting Policies:

- Consolidate afternoon service to apartments to more accurately reflect demand (planned for fall 2011).
- Develop a true main campus circulator route. This route could also serve downtown destinations that are adjacent to campus, but cannot serve downtown destinations that are not adjacent to campus.
- Continued route consolidation as ridership data warrants.

Long Term Recommendations and Supporting Policies:

- Shift transit hub to the new Student Union.
- Develop new service and maintenance facility.
- Expand focus from student-centric service to the entire campus community.
- Shift the Red Route from 5th Street to 10th Street when the 10th Street Connector project is finished.
- Create shuttle and/or circulator service for Health Science Campus.
- Maintain and deepen relationship with Parking and Transportation Services.
- Continue to develop a web-based transit portal that shows the location of all buses.
- Add automated passenger counters to all buses and train drivers in techniques to improve accuracy of data.

Parking Improvements

As noted above there is currently a surplus of parking campus wide. That surplus is not expected to last long, potentially being completely eliminated within 5 years. Given the desired growth it will no longer be possible to continue to provide all faculty and staff, as well as some students, parking on or near the center of main campus. This means there will be a change in how parking is located and distributed which will require a new approach to meet the changing needs of the University and the campus population.

Main Campus Recommendations and Supporting Policies:

- Construct a five story deck in concert with the new Student Union on the location of the existing WC-8 lot (near Mendenhall). This deck will need to be approximately 5 stories in height and have a capacity of near 1,000 spaces. Some spaces will be reserved for short term parking and some for permit parking. Any short term parking should be controlled via pay on foot stations. This deck will need to be constructed in the 4-7 year time frame, depending on the pace of campus population growth and building construction. This deck could be constructed earlier to provide a cushion of spaces to offset any temporary losses due to construction.
- Construct a new 1,300 space surface park and ride lot near the Health and Human Performance (HHP) section of campus. This lot can be constructed in phases in as needed.
- Construct one additional deck that provides a net increase of approximately 500 spaces. This deck is likely needed in the 10 to 15 year time horizon. Specific location is to be determined but initial thoughts are to construct this deck on the site of the existing surface lot on College Hill Drive south of 10th Street. An off-campus storage lot could be constructed in the place of this deck.
- Consolidate parking permits and revise prices to reflect new parking options.
- House freshmen resident students in residence halls on main campus. Maintain residence halls on College Hill Drive for upperclassmen where possible.
- Adopt a “Park Once” philosophy to cut down on intra-campus vehicle trips during the day.

Health Sciences Campus Recommendations and Supporting Policies:

- Construct a 700 space deck north of the proposed Family Medicine site with access to MacGreggor Downs Road.
- Construct 200 sub-grade parking spaces as part of the Medical Education Building.
- Construct a lot of roughly 600 spaces to accompany the New Cancer Center.

- Consolidate existing permit types, such as the A3, A5, and A7. The existing A, B, and C designation can be retained. Those permit types should each be divided in to two sub-categories; one for the south side of the HSC and one for the north side of the HSC.
- Begin charging visitors for parking to develop a fund to pay for/off set parking deck construction. Such fees should be limited at this time to a maximum of what Pitt County Memorial Hospital charges.

Travel Demand Reduction Strategies

In addition to the parking strategies recommended above, the University should continue to promote and incentivize the use of alternative modes. Such policies can have a significant cost benefit for the University, potentially reducing the size of, or need for, the second deck on main campus. Travel demand reduction strategies also help to promote sustainable development and maintain land for buildings or open space.

Recommendations and Supporting Policies:

- Construct a 400 space student storage lot, located in Warehouse District near Campus Police Station. Lot must be fenced and gated and served by transit once or twice a day. This lot could reduce parking demand on main campus by 400 spaces.
- Examine the viability of park and ride lots for employees. Possible locations include (a) along US-264 near the North Recreational Complex, (b) on Stantonsburg Road near us-264, and (c) along S. Memorial Drive near Pitt Community College.
- Consider parking restrictions for students, particularly underclassmen and those living near campus or in apartment communities served by ECUSTA. Student parking bans have the largest potential to reduce parking demand.
- Provide incentives to those persons who pledge to not buy a parking permit. Package could include passes for parking on campus 5 to 10 days a year, access to shower and locker facilities for cyclists, and free or reduced cost GREAT transit passes.
- Promote and refine ride matching service for those persons who want to carpool.
- Reserve premium access parking spaces for carpool/vanpool riders.
- Develop a process to monitor parking demand and update future parking demand annually or biennially.
- Work to adjust class scheduling to minimize peaking.
- Hire a full time TDM Co-ordinator with a dedicated marketing budget as warranted.

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1 Introduction

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The anticipated growth will increase the demand for parking as new students, faculty, and staff are added to the limited physical space. In addition to this increased demand for parking spaces many building projects planned for the next 15 years will reduce the available parking supply. This increasing demand for parking coupled with the decreasing supply of parking will require changes to the University's parking infrastructure. While the existing system works well for the current conditions it is not adequate for a growing University.

This Campus Transportation Plan provides a strategy to meet the University's current and future transportation needs. It focuses on plans and policies that meet the needs of the University that also help to enhance the campus environment and provide sustainable solutions. The Campus Transportation Plan presents recommendations for Pedestrians, Bicycles, Transit, Parking, and Travel Demand Management (TDM) programs.

1.1 Plan Creation

The findings in this plan are based on data collected and findings made earlier in the process and detailed in the "Existing Conditions Report" and the "Needs Assessment". Those documents, included in this plan as appendices, detail much of the basic data utilized to make predictions about the future of the campus and to make recommendations to solve the current and future problems. A third document, "Campus Survey Analysis", details the results from the campus transportation survey and is also included as an appendix.

Stakeholder involvement was critical to developing the Transportation Master Plan. Numerous task force meetings were held to develop awareness and to exchange information and ideas with the University community. The campus community was also engaged on a direct level at open house events. Additionally, an online survey was conducted early in the process to help identify commuting trends and gauge attitudes about transportation options.

Extensive analysis also lies behind the Plan. Parking supply and demand were forecast into the future. Commuter addresses were mapped ('geocoded') to show which of the potential improvements would benefit the most people. The consultant team walked and rode buses around each campus and between campuses. A final round of events was held in Spring/Summer 2011 to present the draft Plan and confirm a broad level of support.

1.2 Other Studies and Plans

A number of relevant studies were consulted for this report. Of those two were of the highest importance. The first is the *Bicycle and Pedestrian Master Plan for the Greenville Urban Area Metropolitan Planning Organization*. This document was prepared concurrently with that master plan

and coordination between the two plans was maximized to the extent possible. The second study was the *Greenville Urban Area Metropolitan Planning Organization Comprehensive Transportation Plan*. Of particular interest to this study was the “Highway Map” adopted in 2009. This map represents a wish list of transportation projects in the area and was useful for forecasting long term travel patterns and potential improvements.

1.3 Definitions

Alternative Modes – Modes of commuting to campus other than driving alone. Modes examined in this report include transit, cycling, walking, park-and-ride, and ridesharing.

Collector – A street of local significance that typically connects residential/local streets to thoroughfares or other collectors.

Effective Capacity – The point at which a parking lot functions as if no spaces were available. For this study, the effective capacity is assumed to be 95% of the supply.

Excess Capacity – The number of spaces by which effective capacity is greater than parking demand. Excess capacity often leads to an increased number of people driving and parking on campus and a reduced use of alternative modes.

Main Campus – This refers to the portion of campus east of downtown and includes the existing student housing, academic, Health and Human Research, and athletic sections of campus as well as the proposed extension along Reade Street. This area is sometimes referred to as “East Campus” in other sections of the Master Plan.

Master Plan – Refers to the larger document created by Smith Group/JJR

Oversell Ratio – The ratio of the number of parking permits sold to the number of parking spaces.

Parking Deficit – The number of spaces by which parking demand is greater than effective supply.

Parking Demand – The number of parking spaces necessary to meet the desires of all people who drive.

Parking Demand Reduction – The amount of the population that can be converted from driving and parking on campus to the use of alternative modes. Typically measured in the number of spaces parking demand can be reduced.

Parking Supply – Total number of parking spaces available for people who drive to the campus.

Ridesharing – the practice of multiple people commuting in the same vehicle. In the Triad ridesharing is in the form of carpooling or vanpooling.

Thoroughfare – Identified in local planning documents called “Comprehensive Transportation Plans”, a thoroughfare is a road of regional significance that typically connects one part of a city with another or connects two cities. For planning purposes, cities in North Carolina separate thoroughfares in to two classes: major and minor.

Travel Demand Management – Utilizing tools and techniques to maximize the usefulness of the existing parking supply. Techniques include park-and-ride, ridesharing, and complimentary measures that further incentivize alternative modes.

Transportation Plan – Refers to this document only.

Survey – Refers to the online survey conducted as part of this study. The results are contained in the “Campus Survey Analysis” appendix

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2 Future Projections

To date, there has been adequate parking for the typical needs of the campus. There is currently more parking supply than demand, although the supply of parking is not always in the most desirable locations. That said, due to a combination of population growth and supply losses, demand is anticipated to outstrip supply in the future. For the purposes of developing the transportation plan parking projections will be made based on current utilization rates. As a starting point for addressing the future parking needs the parking demand will be compared to a projected supply that adds no additional parking beyond what currently exists. This will help frame the issue and determine the amount of new parking needed to meet the projected demand.

2.1 Transportation Challenges

University growth will result in an increased campus population and, potentially, an associated need for more parking. Furthermore existing surface parking will be displaced for new buildings and other projects. The University is bordered by established residential neighborhoods on three sides and downtown Greenville on the west side. Being landlocked will make it difficult for the University to continue to provide parking near the academic core at a rate that is on par with current levels.

2.2 Projected Parking Supply and Demand

2.2.1 Existing Parking Demand

Parking demand projections for main campus are based on calculating the ratio of persons per parking space utilized and applying that ratio to growth projections. For this analysis all persons who commuted to campus, including resident students, were included in the campus population as all persons are able to buy parking permits. The most recent data available indicated that there were 27,677 total enrolled students, of which 31% were distance education students who did not commute to campus and 9% commuted only to the Health Sciences Campus. Those students who did not commute to campus were removed leaving 17,405 students who attended classes on main campus. In addition to these students the University employed 3,649 faculty and staff on main campus. Combining these two groups yielded a total population of 21,054 persons.

In total there were 8,304 parking spaces included in the main campus inventory. This included all spaces in the Health and Human Research and Athletic areas of campus. Many of these spaces remained unused at peak period. To determine the demand parking occupancy data provided by the University was analyzed. Data from the week of October 11th thru October 15th of 2010 was utilized for determining demand. This week was selected as it was the earliest week for which data from all lots was available. Analysis of this data yielded an estimate of peak demand at 7,010 spaces.

Certain decisions, such as from which day or from which time a count was to be taken, required a considerable amount of professional judgment. In some cases the count data included special event demand. These could rather easily be identified due to the large increase in parking demand for only one day out of the entire month. In the case of a special event the parking occupancy data from these days were disregarded and data from other similar days were used.

After anomalous data was identified and disregarded care was taken to utilize accurate demand counts erring slightly towards utilizing higher data if all other factors were equal. For example, if the same lot was counted on Tuesday, Wednesday, and Thursday, at roughly the same time each day with roughly the same count for each, the highest value was taken. This was done to provide some cushion to the projections. Numerous changes are likely to occur on Main Campus, which could result in people parking in smaller, less efficient lots as compared to the present day where people tend to park in larger more efficient lots. Choosing slightly higher demand counts allows the forecast to account for changing conditions. This approach balances the need to provide accurate projections with the fact that currently there is a surplus of spaces which will allow the University to act prior to parking demand eclipsing supply.

Utilizing peak parking demand of 7,010 spaces and a total population of 21,054 the ratio of parking spaces per person utilized for parking projections is 0.333 parking spaces per person, or roughly 1 space for every 3 people.

Parking projections for the Health Science Campus were created by Smith Group/JJR and were based on development and changes to building uses. The demand was determined to be 4,900 spaces. No ratio of parking spaces to persons was needed for the Health Science Campus.

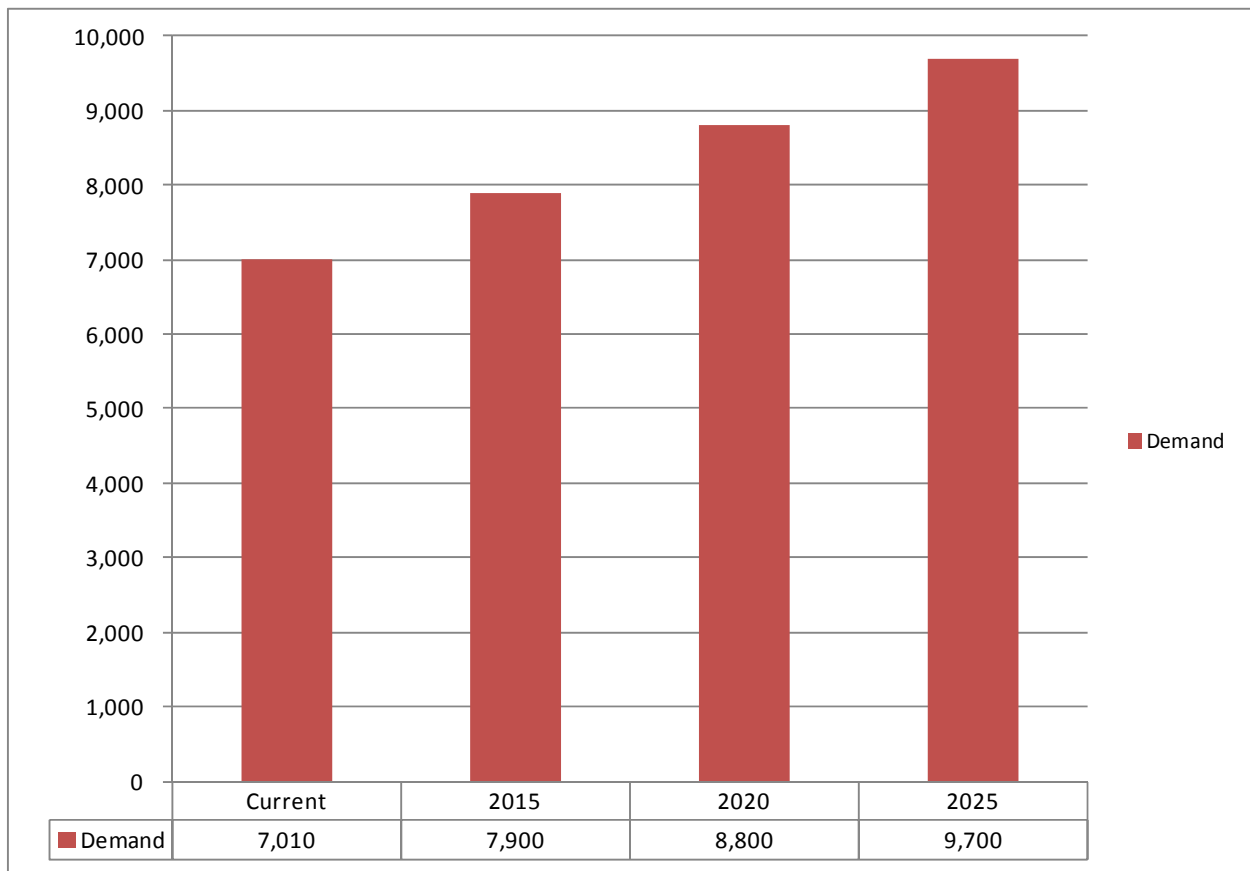
2.2.2 Future Parking Demand

Enrollment projections were undertaken by Eva Kline Associates as part of the master planning process. The projections forecast a 2025 student enrollment of 38,717 students. Only total enrollment was forecast, not on-campus or main campus enrollment. Furthermore, no forecast was made of faculty and staff positions. For that reason the current conditions were assumed to continue in to the future for the purposes of forecasting future demand. A total of 24,350 students are anticipated to commute to Main Campus every day and total faculty and staff employment is anticipated to be 4,700 persons. This yields a projected campus population of 29,050 persons in 2025.

Utilizing the existing ratio of 0.333 parking spaces per person this means the demand for parking on Main Campus in 2025 will be approximately 9,670 spaces. This is almost 1,400 spaces above the current parking supply of 8,300 spaces. The Main Campus parking demand is show in Figure 2.1.

As noted above, the future parking demand for the Health Sciences campus will be approximately 4,900 spaces. This is approximately 1,800 spaces greater than the existing supply of 3,134 as identified in the “Existing Conditions” report. Growth on the Health Sciences Campus is more closely tied to building construction and, as such, demand for parking is expected to increase in a more step wise fashion.

Figure 2.1 – Projected Main Campus Parking Demand

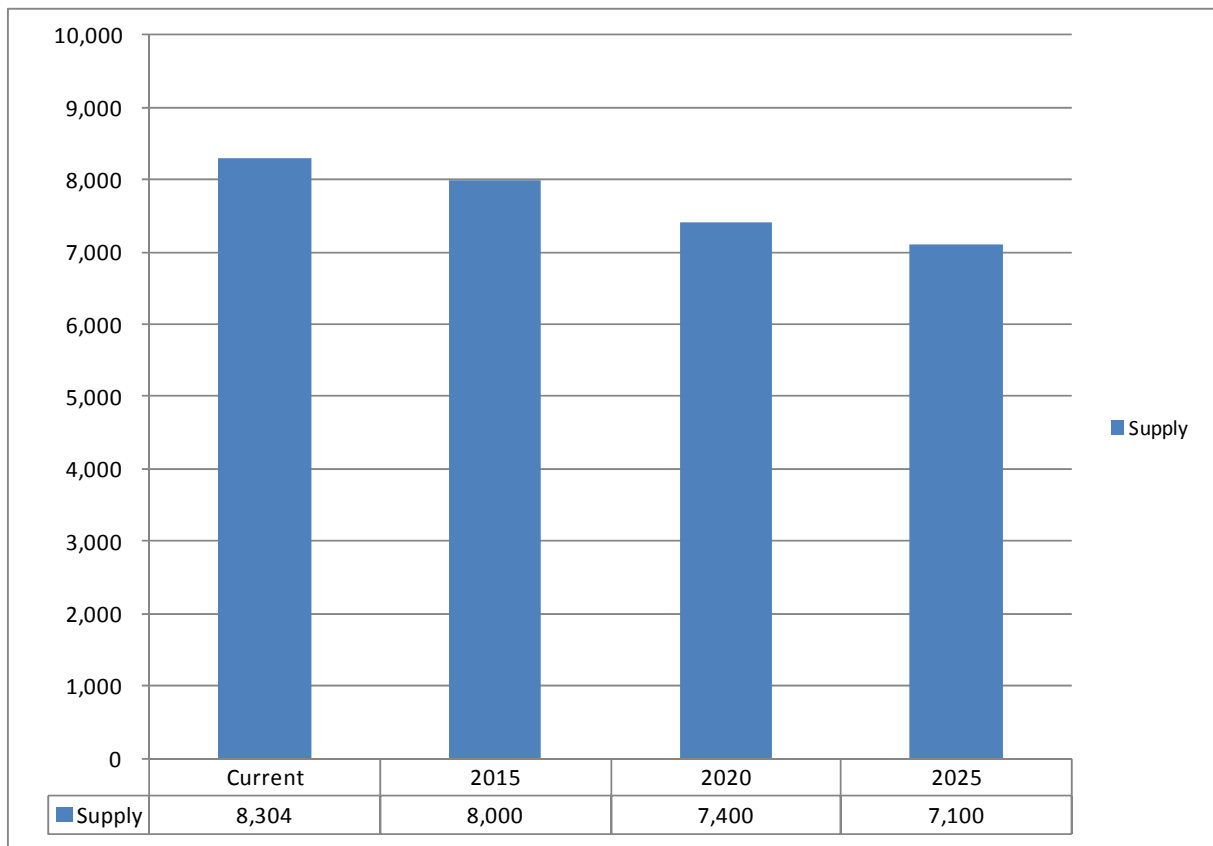


2.2.3 Parking Supply Changes

As construction occurs on the projects identified in the Master Plan there will be losses to the parking supply. The amount of supply lost to construction is identified in the “Vehicular Road and Parking Removals” section of the Master Plan. According to the corresponding tables as many as of 488 spaces will be lost on the Health Sciences Campus (V1 thru V4), while as many as 2,479 spaces will be lost on main campus (V5 thru V29). Assuming all spaces are lost, the parking plan would need to add roughly 2,300 space on the Health Sciences Campus and almost 4,200 spaces on main campus to meet the projected parking demand. While it is possible to provide this level of parking this Plan will also examine the use of alternative modes to reduce the parking demand in the future.

For the purposes of forecasting the base line parking supply parking losses associated with parking decks were not considered. For example, project V24 from the “Vehicular Road and Parking Removals” section of the Master Plan calls for the College Hill lot to be eliminated causing a loss of 394 spaces. This loss is associated with the construction of a new parking deck and as such is not considered a loss for the purposes of determining the baseline parking supply projections. Based on this assumption it is anticipated that Main Campus parking supply will decrease by approximately 1,200 spaces between now and the 2015 academic year. The projected parking supply by year is show in Figure 2.2.

Figure 2.2 – Projected Main Campus Parking Supply Assuming No New Parking

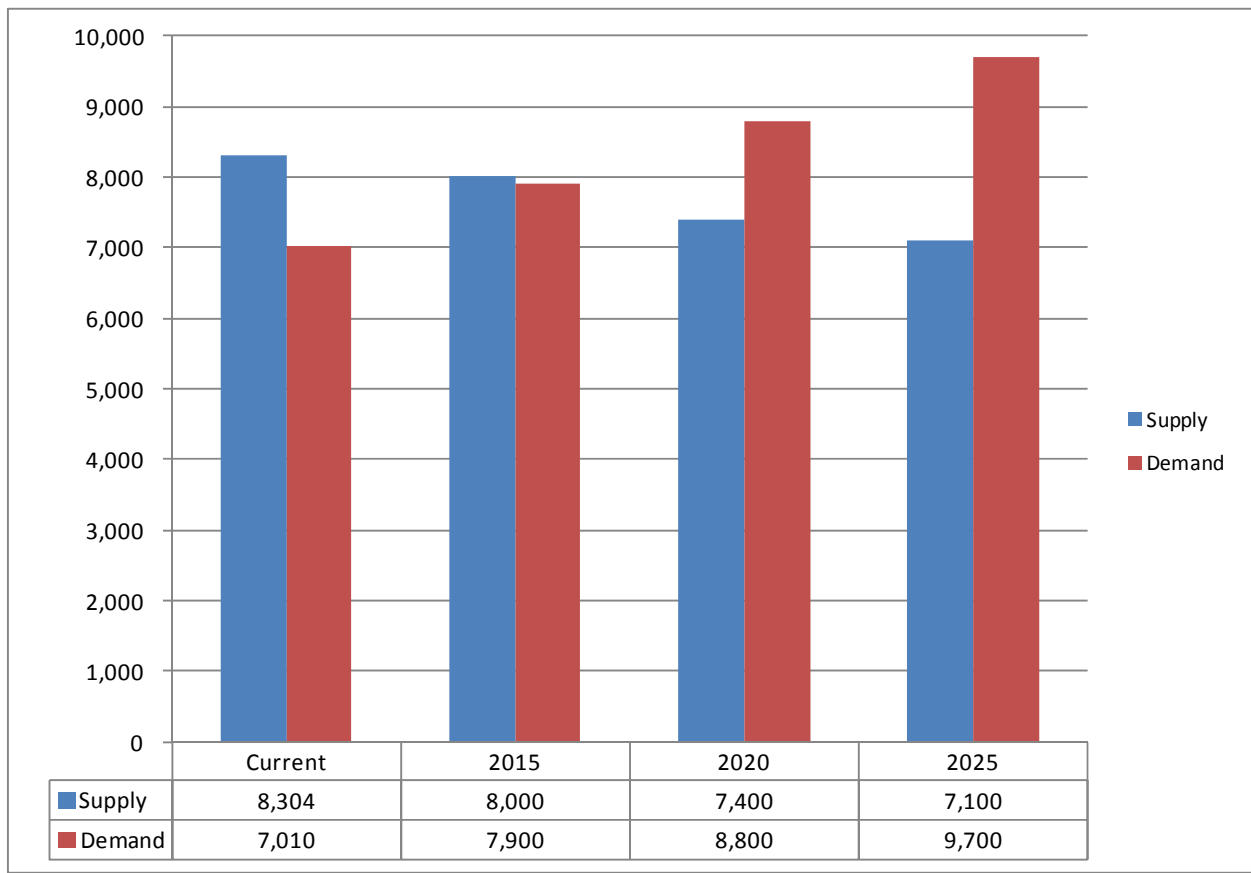


It must be noted here that the phasing of the projects is based on a number of assumptions related to the ability to obtain funds to finance construction. The current economic climate increases the uncertainty of these assumptions. Great care was taken in developing these projections so that they were neither too optimistic nor too pessimistic. That said it will be important to monitor the situation. Any number of factors could lead to an accelerated or decelerated construction schedule and that different schedule will have an impact on the parking supply.

2.2.4 Parking Supply Changes

Figure 2.3 below details how parking supply and demand will change assuming no new parking is added. Based on the current phasing plan and the growth projections it is possible that the parking demand could be just below the parking supply in 2015. This has the potential to delay the time when parking demand outpaces supply, but not prevent it. Without adding new parking or providing alternative choices the parking space deficit on campus could be as high as 2,600 spaces.

Figure 2.3 – Projected Parking Supply vs. Demand Assuming No New Parking



As can be seen in figure 2.3 the parking supply in 2015 is just above the parking demand. This is why it will be critical to continue to monitor the parking supply going forward regardless of how many parking spaces are actually added. The potential exists for parking supply to be less than parking demand in a very short period of time. This would represent a distinct difference from current conditions on Main Campus, and could require a more aggressive approach to adding additional parking or promoting alternative modes of transportation.

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3 Pedestrian Plan

According to the survey 17% of all respondents walk to campus as their primary means of commuting. Students are more likely to walk to campus than faculty or staff, with nearly 25% of students, but only about 2% of faculty and staff, commuting to campus on foot. It is likely that a large percent of the students who selected walking as their primary mode of transportation also live on campus as also roughly 25% of students identified themselves as resident students. As noted in the “Existing Conditions” report in section 4.5.1 it is expected that additional development near campus will increase the number of persons who walk to campus.

3.1 Traveling to Campus

Working with the City to implement both the “Greenway Master Plan” and the “Bicycle and Pedestrian Master Plan” will have the greatest positive impact on the pedestrian trip to campus. The recommendations laid out in those documents identify new paths to the campus area, sidewalk infill projects near the campus area, and improved conditions for the pedestrian paths throughout the City. Working with the City to implement the recommendations would not only improve the pedestrian trip to campus, but it could also improve the attractiveness of walking in general possibly helping to reduce future parking demand. The projects most critical to the University in these documents are:

- Green Mill Run Greenway
- South Tar River Greenway
- Crossing improvements on 10th Street, 5th Street, Stantonsburg Road, and Charles Boulevard
- Sidewalk infill projects, particularly those located in the University Neighborhood north of 5th Street.

In addition to working with the City to implement the recommendations in the two plans, it is also recommended that the University pursue the construction of additional sidewalks near main campus, and particularly north of main campus. There are numerous blocks where sidewalk exists on one side of the street and not the other or intersections where curb ramps are substandard or non-existent. This area has the potential to be a large generator of walking trips given the proximity to main campus. Filling in the gaps in this area could prove highly beneficial.

It is also recommended that the University work with the City and NCDOT to implement a timing plan at the signal at 10th Street and College Hill Drive that includes a pedestrian scramble phase. Under this timing plan there would be a phase where vehicles on all approaches would see a red light and pedestrians would have complete control of the intersection, including the ability to walk through the intersection. Pedestrians would be prohibited from walking during all other phases of the timing plan. Ideally this will eliminate conflicts between vehicles and pedestrians and allow for more free movement of pedestrians through the intersection while mitigating impacts to traffic flow.

Lastly, it is recommended that the University work with the City and NCDOT to improve the 10th Street corridor near main campus. This corridor, in many ways, acts as a barrier preventing more walk trips from occurring. The cross-section shown in the “Neighborhoods – Campus Core District” section of the

Master Plan should serve as the basis for any project. In addition, the project should look to reduce the number, and/or, width of driveways and develop consistent and unique crossing treatments that help to differentiate the campus area. This should help to make the environment on 10th Street more pedestrian friendly.

Figure 3.1 – Intersection Treatment



3.2 Traveling Around Campus

The positive impact of the closure of Founder's Drive to vehicular traffic to pedestrian travel around campus cannot be understated. Founder's Drive currently bisects the core campus and creates conflict as pedestrians travel back and forth between the academic section on the east and the residential section on the west. Closing Founder's Drive will allow for the unimpeded flow of pedestrians between the two sections of campus. Conflicts between vehicles and pedestrians will be completely eliminated improving safety and the level of service for pedestrians.

Less critical is the need to improve the walkways on the periphery of campus. As noted in the "Needs Analysis" document there are numerous locations where sidewalks on the periphery of both the Main Campus and the Health Sciences Campus could be improved. Insufficient setbacks, or impediments within the paths, and paths too narrow to accommodate flows all hinder safe movements. Of particular note are the sidewalks along Cotanche Street and Reade Circle near Main Campus and those along Heart Drive near the Health Sciences Campus. The lack of sidewalk on MacGreggor Downs Road also needs to be addressed.

A more direct connection between the College Hill Neighborhood and the Minges Stadium needs to be identified. The Master Plan currently calls for the creation of a grade separated crossing over the existing railroad tracks. This crossing would meet the needs of the University. Approval for the rail owner has not yet been granted. If the rail owner was unwilling to grant approval for a grade separated crossing or costs of the path were so high as to make construction impossible the University must

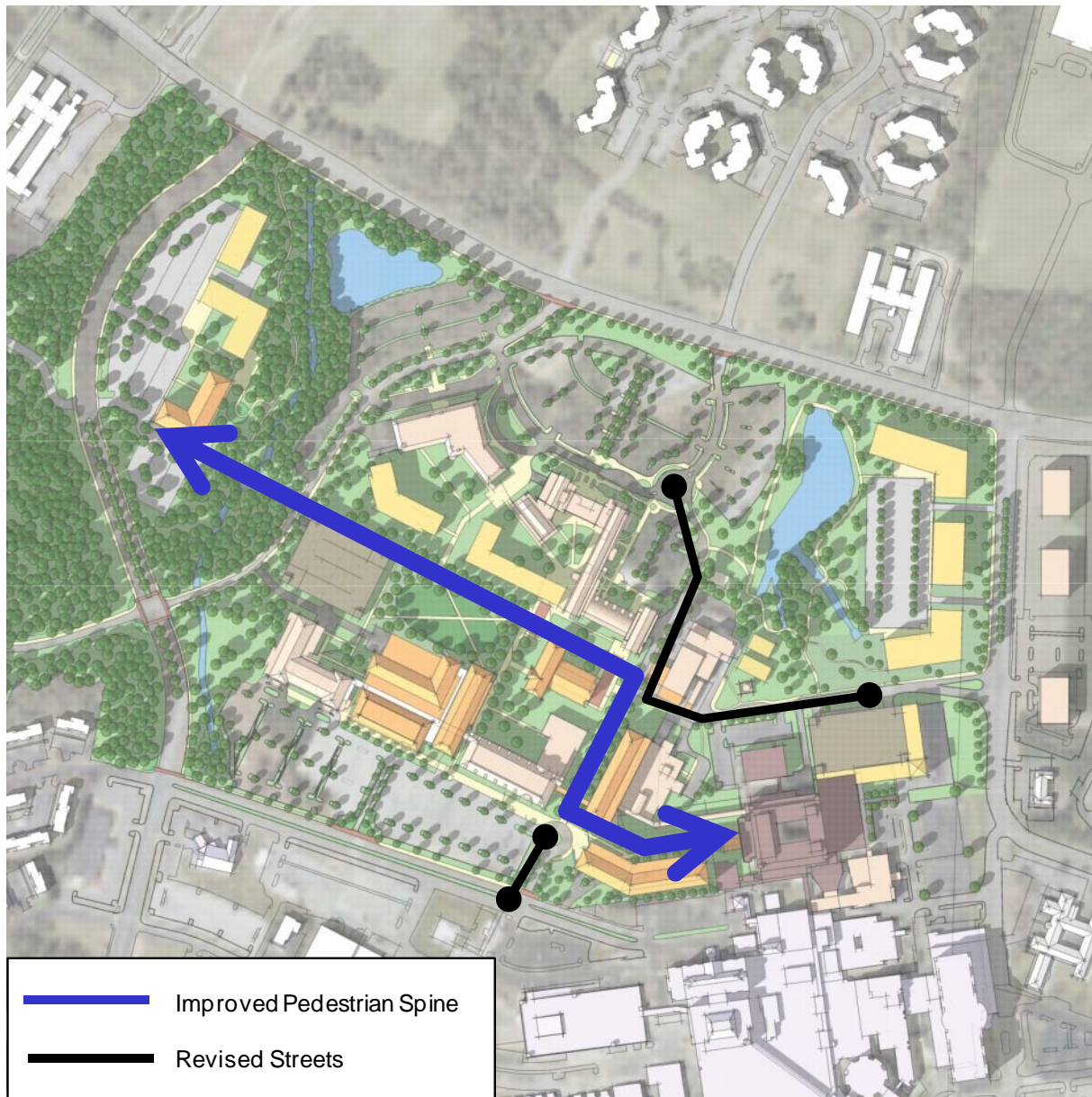
continue to look for alternatives. This connection will assist not just on game days but on weekdays as well as it will provide a more direct connection between the Minges Park and Ride lot and College Hill and Core Campus. Ideally any connection would be desirable to both pedestrians and cyclists.

The University also needs to explore options to improve the pedestrian connections at the Reade Street and 5th Street intersection. As the Reade Street Corridor is improved in the future there will be a significant growth in the amount of pedestrian traffic through this intersection. The Master Plan calls for the construction of an elevated walkway across 5th Street. This will meet the needs of the University, but, as with the connection between the College Hill Neighborhood and Minges Stadium, it is critical that the University explore further options if the elevated walkway is not practical. One option would be to close the existing slip lane between northbound Reade Street and eastbound 5th Street. This would reduce the travel speed for vehicles making this maneuver and reduce pedestrian exposure to vehicles. Similar treatments to those used on 10th Street could also be used at this intersection to reinforce the campus atmosphere and help to keep vehicle speeds low. Furthermore, a timing plan that included a pedestrian scramble phase could be used.

Figure 3.2 – Improved Main Campus Pedestrian Connections

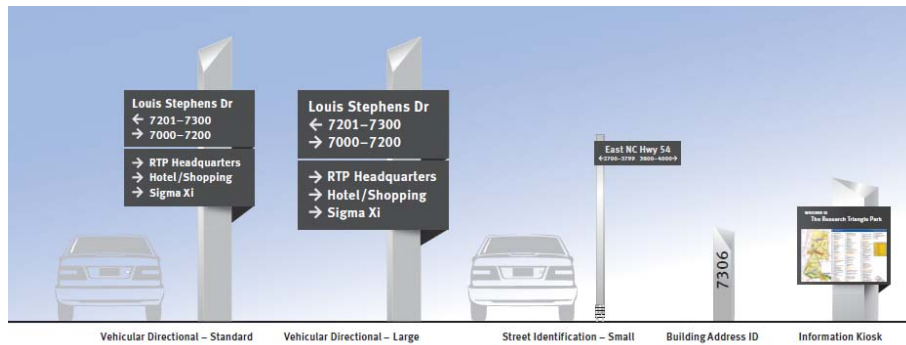


Figure 3.3 – Improved Health Sciences Campus Pedestrian Connections



The University should also pursue a campus wayfinding plan. This would be done to help people move more knowledgeably around both campuses. This plan should include signage to direct pedestrians to various destinations and should mesh with the existing building signage. A wayfinding plan would be particularly useful on the Health Science Campus to help address the fact that many of the buildings are oriented to nearby parking and not towards one another. This plan could also include a vehicular element that would help drivers move between campus and get to specific destinations like the athletics complex, a visitors center, or a parking deck.

Figure 3.4 – Wayfinding Signage Example



3.3 Summary of Pedestrian Recommendations

- Develop a better connection to the Reade Street Corridor including upgrading the intersection of Reade Street and 5th Street or possibly providing a grade-separated option.
- Close Founder’s Drive to through traffic in order to create a pedestrian-friendly central campus.
- Improve paths along the periphery of campus; 10th Street, Reade Circle, and Contanche Street have undersized sidewalks and obstructions within the sidewalk.
- Work with the City to improve the 10th Street corridor by creating a consistent cross-section and reducing the width of (or eliminating) some drive ways.
- Work with the City to implement the recommendations in the “Greenway Master Plan” and the “Bicycle and Pedestrian Master Plan”.
- Work with the city to improve sidewalks in the neighborhoods surrounding the University that are not included in the “Bicycle and Pedestrian Master Plan”.
- Develop a wayfinding plan.

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4 Bicycle Plan

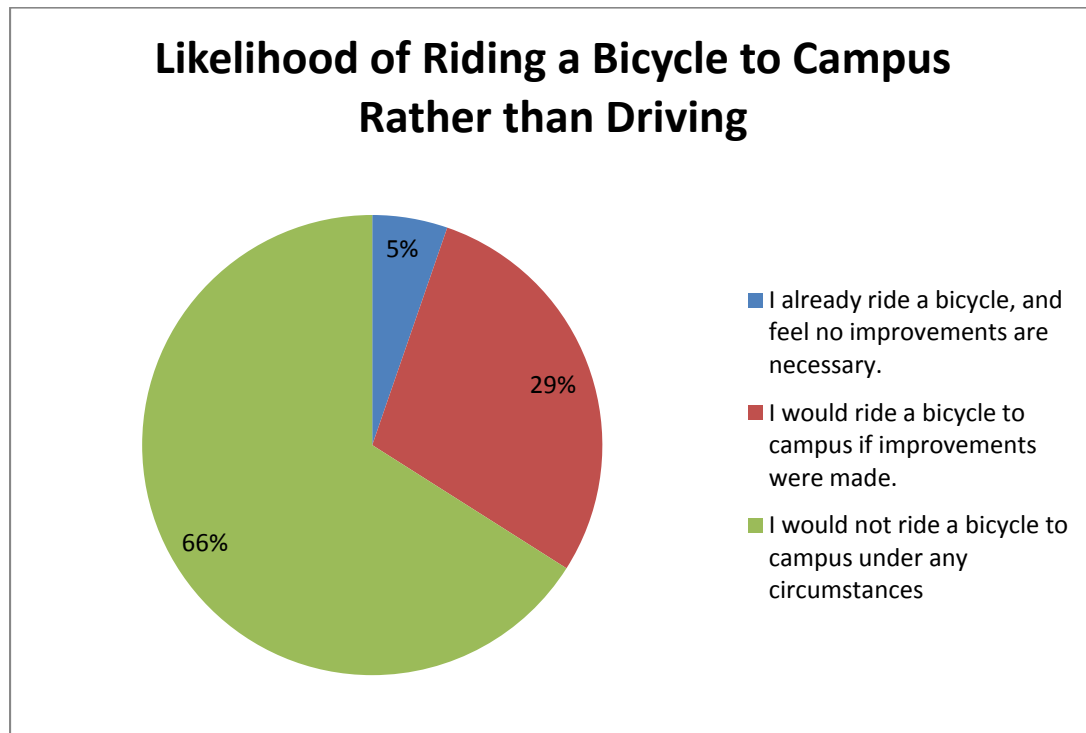
Bicycles are a primary transportation mode for college communities throughout the country, especially for students. They are a cheap, easy-to-use way to get to and around campus, avoiding traffic congestion and the hunt for on-campus parking. Cycling represents the mode of transportation likely to see the largest increase over existing use given the relatively flat terrain and mild climate of the Greenville area and the low current use. Furthermore, involving the City of Greenville in the process would engage a willing partner with the ability to implement recommended improvements in the community.

4.1 Existing Bicycling Ridership and Attitudes

Bicycle ridership to campus is relatively low. According to the travel survey, approximately 1.5% of all people traveling to campus chose to cycle to campus on a daily basis. According to the Travel Survey, Students are about twice as likely as faculty and staff to chose to cycle to campus.

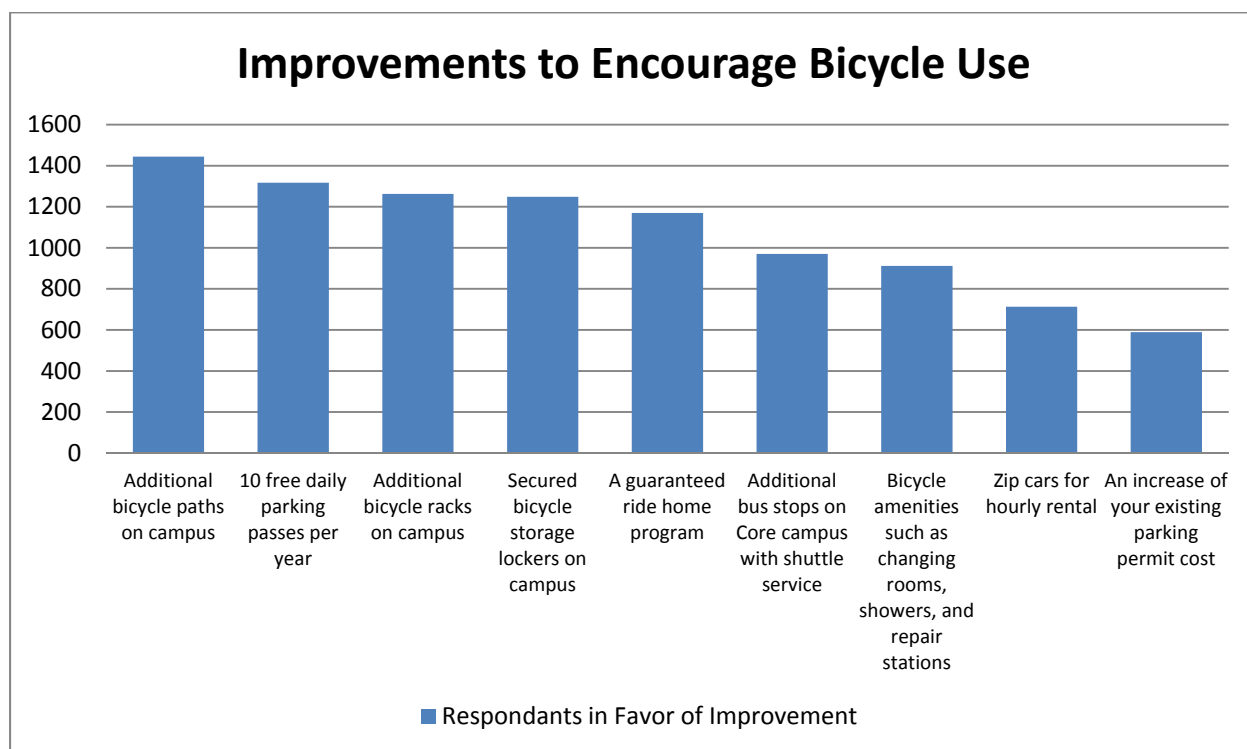
The travel survey gave some indications of how many people may choose to cycle to campus and how that choice might be encouraged. Respondents were asked their likelihood of cycling to campus as rather than driving to campus. The responses to this question are summarized below in Figure X.1. A large portion, nearly two-thirds, responded that they would not ride a bicycle to campus under any circumstance. This is not shocking given how far from campus many commuters live. However, nearly 30% of respondents noted that under certain circumstances they would chose to cycle to campus. This represents tremendous potential for growth.

Figure 4.1 – Likelihood of Riding a Bicycle to Campus Rather than Driving



Respondents were further asked what improvements would be needed for them to cycle to campus, even two or three days a month. The responses to this question are summarized below in Figure X.2. Many improvements were highly supported by respondents. Additional bicycle paths on campus, free daily parking passes, and additional bicycle racks on campus were the three most popular responses, but by no means the only improvements that had large scale support.

Figure 4.2 – Improvements to Encourage Bicycle Use



4.2 Traveling to Campus

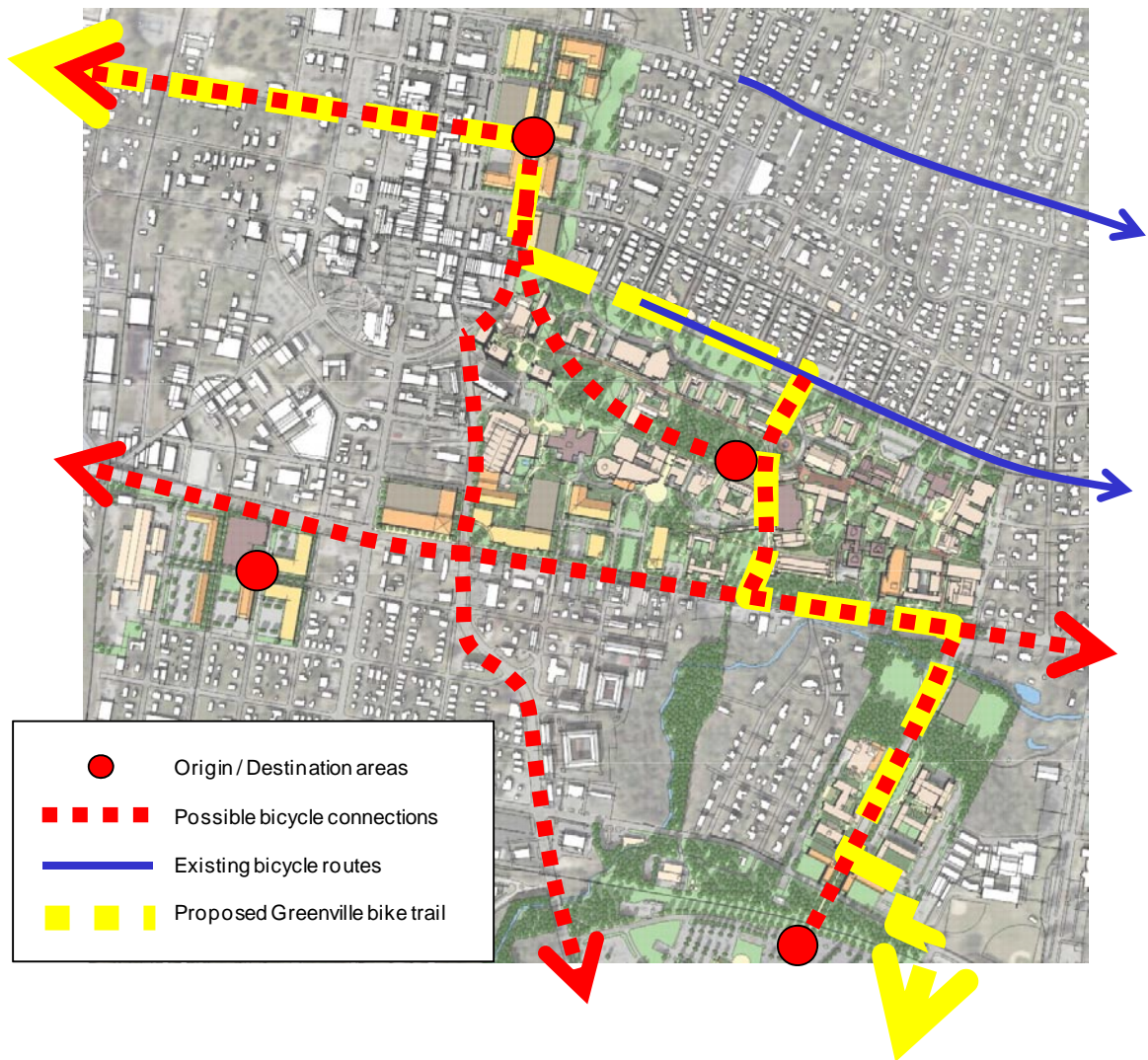
The city streets around the campuses lack an extensive system of on-street or off-street bicycle facilities. The major approaches to campus do not have bike lanes with the exception of the existing bicycle lane on 5th Street near main campus. Despite the lack of bike lanes, most streets near campus are relatively safe for bicycle use.

The key to improving cycling to campus will be to partner with the City of Greenville as they look to expand the existing bike and greenway network. In the spring of 2011 the City of Greenville made public for review the draft Bicycle and Pedestrian Master Plan. That plan called for a number of new bicycle facilities on or near the Campuses. The projects most important to the University are listed below by campus. Those projects with an asterisk (*) are the most highly recommended of the project either because of the benefit the project will provide or the expected low cost to implement the project.

Bicycle Projects for Main Campus

- New connection along 10th Street* (Ideally Connecting to the Health Sciences Campus)
- New connection along Charles Boulevard*
- Complete the Green River Greenway*
- New connection between College Hill and Minges
- New Connection to Downtown and points East

Figure 4.3 – New Bicycle Connections for Main Campus



Bicycle Projects for the Health Science Campus

- New connection along 10th Street/Stantonsburg Road* (Ideally Connecting to the Main Campus)
- New connection along 5th Street (Ideally Connecting to the Main Campus)
- New connection along Memorial Drive
- New connection along Arlington Boulevard

4.3 Traveling Around Campus

It is equally important to improve cycling conditions on campus as it is to improve the conditions off campus. The proposed closure of Founder's Drive on Main Campus and of Service Drive on the Health Sciences Campus will create car free zones in the heart of campus that will eliminate bicycle-vehicle conflicts. The addition of designated bicycle paths on campus would also help to improve cycling conditions. In the Travel Survey respondents noted that frequently they had to dismount in areas with high pedestrian traffic. Separating these two travel streams where possible would help to improve the cycling experience on campus.

The academic core and the College Hill areas of Main Campus need more bike parking. As of spring 2011, there were 1,474 spaces provided in bicycle racks throughout campus. Bicycle rack occupancy counts taken in the spring of 2011 found that a total of 602 bicycles were parked at the racks during peak times. While on a macro level there were a number of available bicycle parking spaces, on a micro level there are a number of bicycle racks in the academic core and the College Hill area of Main Campus that were completely full. Figures 4.4, 4.5, and 4.6 detail the bicycle parking supply and occupancy. It is recommended that additional bike racks be added on campus, especially near building entrances, and that covered bicycle parking be provided in new buildings. Some existing buildings can be retrofitted to accommodate covered bicycle parking. Covered bicycle parking should be added to existing buildings under overhangs, projections and breezeways, as well as in all planned parking decks.

The specific locations in need of additional bicycle parking today are:

- Along 10th Street near Speight Hall and McGinnis Theatre
- Along the southern side of the Student Union
- Near the entrance to the Student Recreational Center
- On the east side of Belk Residence Hall
- On Emergency Drive near the front entrance to the Cardiovascular Institute
- Near Warren Life Sciences Center
- Near the new School of Dentistry
- Near the proposed Student Services Building (Health Sciences Campus)

Figure 4.4 – Bicycle Parking Supply and Use on Main Campus (Core Campus)

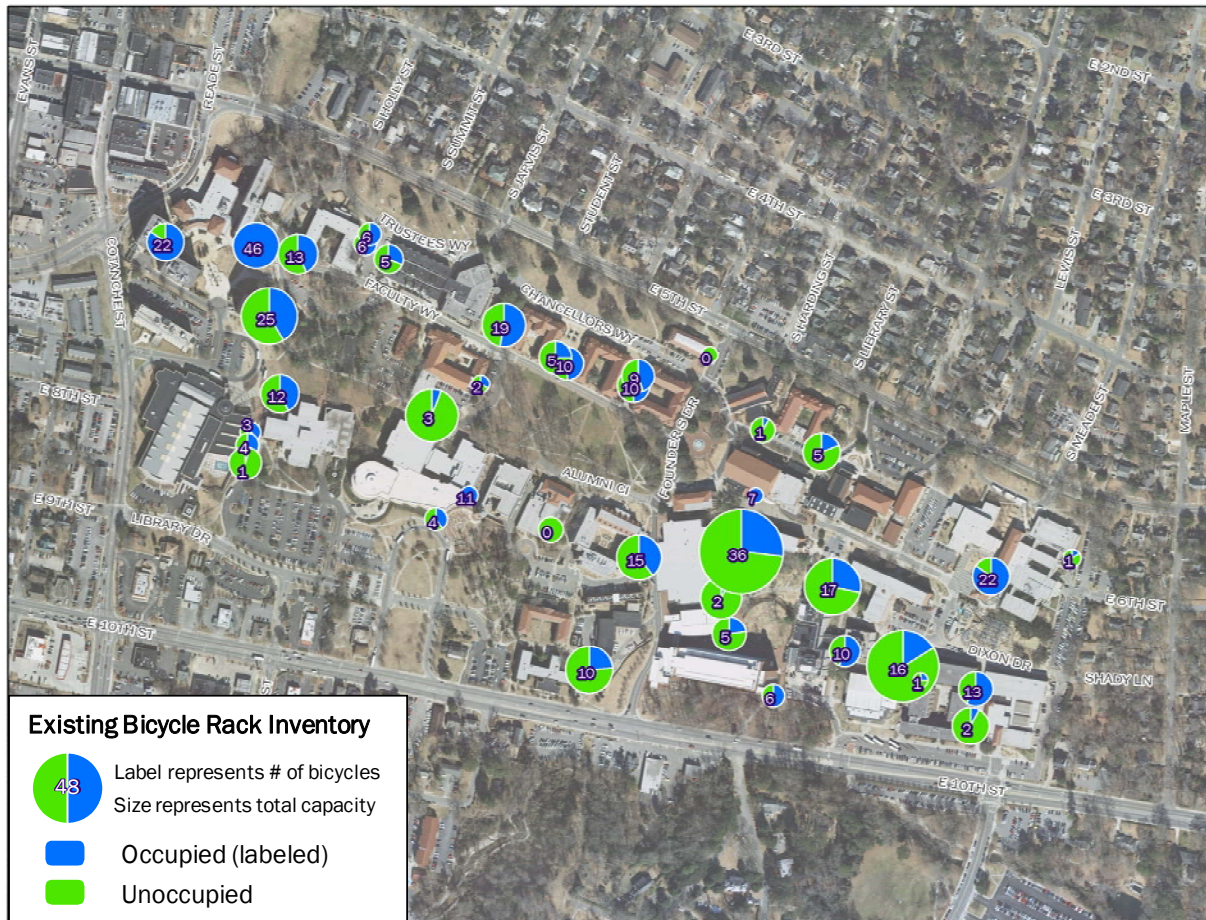


Figure 4.5 – Bicycle Parking Supply and Use on Main Campus (College Hill Area)

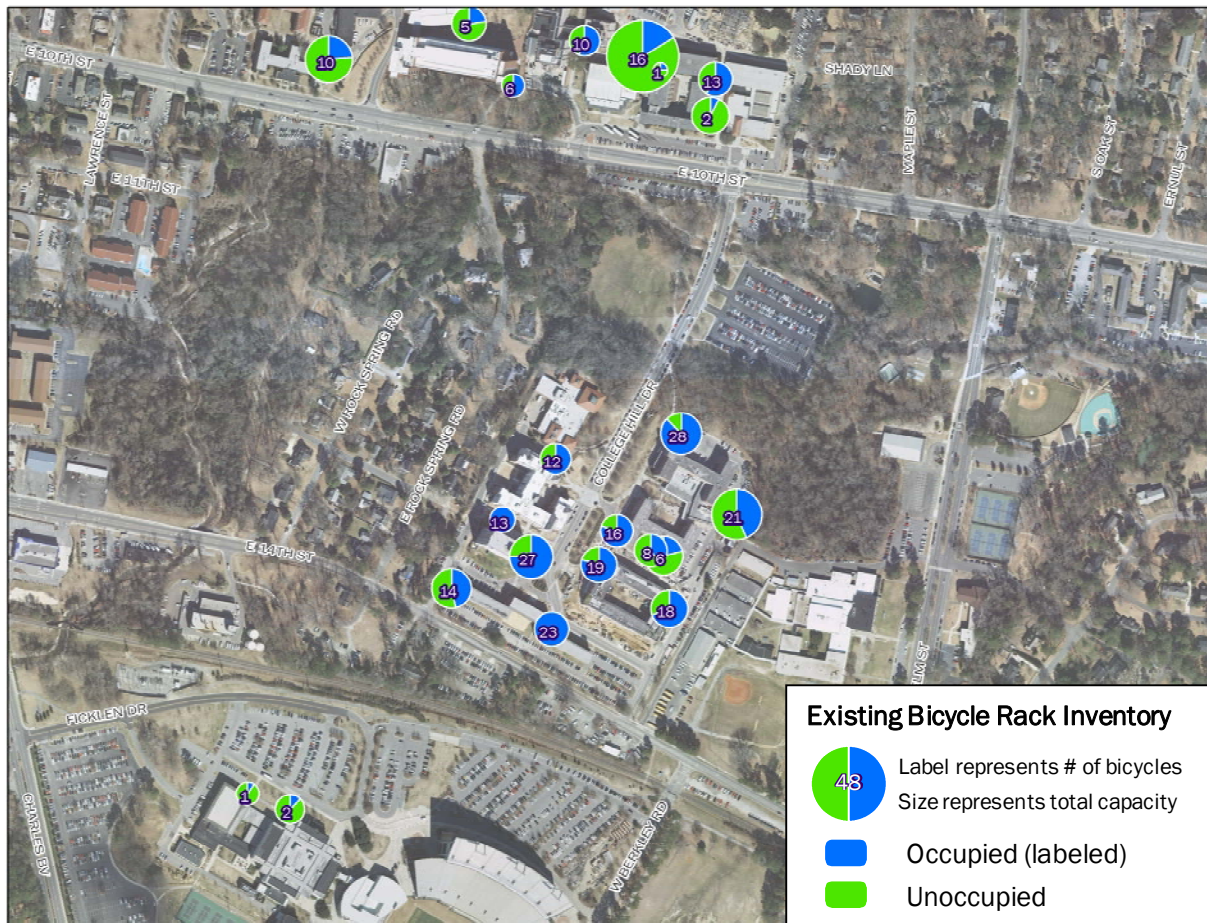


Figure 4.6 – Bicycle Parking Supply and Use on Health Science Campus



In addition to adding bicycle parking at these locations it is recommended that the University also adopt a single bicycle rack standard. This will be helpful from an operational and design stand point as the University will need only have one style of bicycle rack in stock. It will also be helpful to cyclists to see a uniform rack style. This reduces confusion for cyclists and allows them security knowing that one lock type will work on all racks.

4.4 Supporting Policies and Programs

In addition to the infrastructure projects listed above the University should also undertake a number of policy and program changes to support cycling on and to campus. These changes help to reduce to costs, both monetary and non-monetary, increase the benefits, and improve the attractiveness of cycling. While these policies can be adopted in part or in whole, it must be noted that generally the more support there is for cycling the more commuters are likely to choose to cycle.

4.4.1 Apply for Bicycle Friendly University Designation

It is recommended that the University seek recognition from the League of American Bicyclists (League) as a “Bicycle Friendly University”. According to the League the designation, awarded at bronze, silver, and gold levels, “recognizes institutions of higher education for promoting and providing a more bicycle-friendly campus for students, staff and visitors”. Achieving designation, even at the bronze level, would reflect the University’s commitment to cycling to the public. It would also provide access to the assistance provided by the League to help create great campuses for cycling. This assistance will be useful as the University continues to improve cycling conditions in the future.

4.4.2 Expand Pirate Bikeshare

Pirate Bikeshare is a new program that provides bicycles to students for personal use. Begun on April 1, 2011, the program requires students to fill out an application and pay a small fee. For that students receive a key that unlocks bicycles at five Bikeshare locations around campus.

It is recommended that the University actively work to increase the size and scope of the Pirate Bike program. Initial efforts should focus on adding additional bicycles to the system and adding additional locations for storage around main campus. Secondary efforts should focus on expanding the program to faculty and staff as well as to the Health Sciences Campus.

4.4.3 Adopt a Complete Street Policy

It is recommended that the University adopt a complete street policy. A complete street policy states that all users must be considered during roadway projects, not just drivers. The desire is to provide a more comprehensive transportation network that moves not just vehicles, but cyclists, pedestrians, and other travelers as well. While the University should adopt this policy for their internal streets it is recommended that the University work with the City of Greenville and NCDOT to make certain that projects near the University also adhere to a complete streets policy. NCDOT is in the final stages of developing and adopting a complete street policy for the state. The University could simply adopt the

NCDOT policy, which would help ensure consistency between the campus and the surrounding roadway network.

Of particular importance is the planned project on 10th Street. This is a critical link for the University in that not only is it a perimeter street for Main Campus, but it will also serve as a direct connection between Main Campus and the Health Science Campus. It is critical that the University work with the City of Greenville and NCDOT to ensure that the 10th Street Project is designed and constructed in a way that is consistent with a complete street policy.

4.4.4 End of Trip Facilities

It is recommended that the University examine ways to provide bicycle commuters with end of trip facilities. Such facilities include, but are not necessarily limited to, showers, personal lockers, and secure bicycle parking. An initial step may be to provide those persons who register as bicycle commuters and agree to forego obtaining a parking permit free or reduced access to the University gym. The gym has showers and lockers that could be utilized by cyclists. Longer term efforts would include the construction of bicycle lockers on campus and additional shower and locker locations in more buildings around campus. Bicycle lockers could be located in or near parking decks for faculty and staff and in residence halls for resident students.

4.4.5 Accommodation for Cyclists During Construction

It is recommended that the University adopt a policy to accommodate cyclists during construction projects. This policy is considered particularly critical given the level of construction put forth in the Master Plan. Such a policy would ensure that bicycle parking is not unduly impacted during construction and that bicycle paths remain open to the maximum extent possible and that detour routes be identified when paths are closed. This will ensure that cyclists are able to move easily during construction, and that the University does not have to choose between adding new buildings and providing a friendly environment to cyclists.

4.4.6 Add Bicycle Racks on Buses

It is recommended that the University continue to add bicycle racks to buses. The highest priority is to add bicycle racks to the red route that connects the Main Campus to the Health Science Campus. This will help to reduce the need and desire to drive between campuses. It will also support cycling on the Health Science Campus. (Note: As of the writing of this report ECU Transit was examining the placement of bike racks on this route and others).

The University should also continue to monitor the desire for bicycle racks on additional busses. Specifically any new routes that will serve primarily as circulator routes around either campus should be evaluated for bicycle racks. The desire for bicycle racks will need to be weighed against the impact it has on maintaining schedule.

It is not recommended at this time that the existing routes serving off-campus apartments add bike racks. There is limited desire for such a feature from the riders and the impacts to scheduling would likely outweigh the benefits. That said, it is recommended that the University continue to monitor this

situation. As the academic core of campus expands it may be more desirable for persons who commute to campus via transit to have a cycle on campus. Ideally, Pirate Bikeshare will fill this need, but it is important to monitor the situation to ensure needs are met.

4.4.7 Continue to Support On-Campus Bicycle Repair Stations

It is recommended that the University continue to support on-campus bicycle repair stations. In the fall of 2011 the University began to offer an on-campus location for bicycle repairs. This will help reduce the cost of bicycle ownership by providing free or low-cost maintenance service. These stations also provide a visual reminder to those who do not cycle that the University supports cycling, thus acting as free advertising for alternative transportation modes.

4.4.8 Identify a System for Reporting Bicycle Facility Problems

It is recommended that the University develop a process for the public at large to report problems with bicycle facilities around campus. Such a system should provide for a way for the campus community to alert appropriate personnel to issues with the cycling infrastructure, and ideally would include a system to respond to the input and a follow up when the problem is fixed. Such a system could be as simple as a dedicated e-mail address for the campus community to use to more intricate systems such as “SeeClickFix”. Regardless of the system selected it must be responsive to those who identify problems and follow up with appropriate actions.

4.4.9 Develop a Wayfinding Plan

It is recommended that the University develop and implement a wayfinding signage plan. Analysis of the Commuter Survey revealed that many people had troubles traveling around campus due to the lack of signage. A wayfinding plan would direct users to their final destination and to parking locations near their final destination. Any wayfinding plan should also be directed at pedestrians as well as cyclists.

4.4.10 Continue to Provide Information to New Students at Orientation

It is recommended that the University continue to provide information to new students at orientation. As the programs and policies on campus change it is critical that the University continue to update the information that is provided to new students at orientation. Providing information at orientation also allows the University to provide information prior to students adopting habits and finalizing living arrangements. This allows the University to be proactive in the effort to shift students to cycling and other alternative modes as opposed to reactive. The University could also partner with the City of Greenville to offer a Traffic Skills 101 class or a Cycling Skills class to new students. The University could also disseminate tips for bicycle riding. The League of American Bicyclists provide this information free of charge via their “Ride Better Tips” section on their website.

4.4.11 Encouragement of Bicycle Riding

The University should undertake a number of measures to encourage bicycle riding on and around campus. A proclamation from the Board of Trustees to promote National Bike Month would be helpful. Rides led by a notable member of the University community and trail maintenance and construction

days are also good ways to encourage bicycle riding. Coordinating these efforts with the City of Greenville will help to not only make the University more bicycle friendly but will also make the community at large more bicycle friendly.

4.4.12 Develop a System to Refine Plan

It is recommended that the University develop a system to periodically revise and update this Bicycle Plan. Everything from changes to the Master Plan to new incoming students will impact how the University community wants to interact with the bicycle infrastructure. It is important that the University remain abreast of these desires and continue to provide the best options possible. For the reason it will be critical that the University continues to monitor and update this plan.

4.5 Summary of Bicycle Recommendations

- Add new paths around campus and new bicycle parking locations.
- Work with the MPO to implement the Greenville Bike Plan.
- Continue to evaluate the need for bike racks on buses. This applies to both ECU Transit and GREAT.
- Maintain bicycle repair station on or near campus.
- Work towards achieving Bicycle Friendly University status from League of American Bicyclists.
- Provide cyclists access to showers, ideally located in multiple campus buildings.
- Provide bicycle parking near all buildings where feasible.
- Provide covered bicycle parking where possible including under eaves/overhangs of buildings, in parking decks, and in covered bike lockers.
- Maintain and expand Pirate Bikeshare.
- Adopt a Complete Streets policy, particularly the policy that NCDOT is developing.
- Discuss bicycle options with incoming students during orientation.
- Work with Bicycle Advisory Committee to continue to refine this plan.
- Promote bicycle options as an alternative to driving.
- Develop a wayfinding plan.
- Identify a system for reporting bicycle facility problems

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5 Transit Plan

Transit is an integral part of the campus. Without transit the University simply could not operate in the manner it does. On an average day at least 6,000 people use East Carolina University Transit (ECU Transit) busses to access campus, of which 2,000 are on campus at peak times. Even assuming a 20% oversell ratio this represents 1,600 parking spaces. It is critical that ECU Transit continue to operate in the current manner and grow with the University.

Today ECU Transit is a student focused transit provider whose primary mission is to bring students to and from main campus. The dominant stops are student housing locations and the Minges Park and Ride lot which caters to students. Given the current parking supply and the ability of most students to buy permits ECU Transit must compete directly with parking for choice transit riders. Even while in competition with parking on campus ECU Transit is able to attract a large number of students which helps to reduce the demand for parking and is able to do that at a relatively low operating cost.

In the future, ECU Transit must grow beyond the current form. First and foremost the focus must shift from a student-centric approach to one that can serve the needs of faculty and staff as well. EUCTA will also need to further strengthen the ties with parking so that a comprehensive set of initiatives are put forward. Instead of competing for the same riders the two groups must work together to ensure that the needs of the entire University are best met. In many ways this means that ECU Transit must shift from a system that is based on attracting choice riders to one that is more like a utility company and provides a similar level of service to all users.

5.1 Improvements to date

Since the Master Plan process began a number of operational improvements have been proposed for ECU Transit. Many of these are contained in the “Existing Conditions Report” and the “Needs Assessment”. ECU Transit was able to act on these early recommendations and make a number of the proposed changes already. The operational improvements completed to date include:

- Silver Route eliminated in fall 2009
- 303 Blue service was eliminated on Monday and Tuesday fall 2011
- Pirate Express is not offered during the summer months beginning in summer 2010
- Apartment communities pay \$50 per service hour for Pirate Express service beginning fall 2011
- 501, 504, 507, and 508 “B” routes that were closing at 3:00pm on Monday/Wednesday, 4:00pm Tuesday/Thursday are now closing at 2:00pm Monday through Thursday
- 402 Brown and 503 Sunchase now combine rather than 503 and 505 North Campus Crossing. These routes combine at 3:00pm on Monday and Wednesday and at 2:00 on Friday for the remainder of each day. It combines at 4:00pm on Tuesday and Thursday until 5:00pm when it splits for one round only and recombines for the remainder of the day.

- 505 North Campus Crossing now runs until 6:30pm every day. It begins 30 minute rounds at 3:00pm on Monday/Wednesday, 4:00pm on Tuesday/Thursday, and 2:30pm on Friday. When it begins the 30 minute rounds the second bus shuts down. (“A” or “B” bus depending on the day)
- 501 Pirates Cove and 502 University Manor combine earlier in the day now. On Monday/Wednesday from 3:00pm to 5:00pm and Tuesday/Thursday from 4:00pm to 5:00pm. At 5:00pm each day they split for one round and then recombine. When they recombine they do so with the addition of 507 Copper Beech. The bus previously on 507 shuts down. On Friday the three routes combine at 2:30pm for the remainder of the day.

In addition to these routing changes ECU Transit has recently received approval for a transit fee increase that will support expanded night time service. This expanded night time service will be able to take students to and from campus as opposed to the current service which only takes students home from campus. This service will address many of the safety concerns that were raised in the Transportation Survey. This service will also support the continued spreading of class times by offering an alternative mode of transportation to students who have to access campus during late afternoons and evenings.

In addition to the routing and service changes above ECU Transit has also taken the first step in the rebranding process suggested in the “Needs Assessment. When this project began ECU Transit went by the name ECU Student Transit Authority (ECUSTA). This was a reflection of the student centric nature of the service. As a way to begin the process of serving more of the entire University community, the Transit Authority dropped the “Student” portion of the name to reflect the changing times and priorities. This is by no means an end to the process; there is still significant work to be done. That said, the name change and rebranding is an excellent first step and paves the way for future changes.

5.2 Traveling To Campus

As noted above, ECU Transit has already enacted many of the operational improvements necessary to operate most efficiently. One near term improvement that could still be made would be to service the First Street Place apartments by the 506 route and turn the 304 route in to a true campus circulator. With one bus, the 506 route could provide service to both University Suites and First Street Place at 30 minute intervals. Removing the First Street Place stop from the 304 would allow the 304 route to switch from a 30-minute headway to a 20 minute headway, thus providing more frequent circulator service, something that will be very important as development occurs along Reade Street and west of Cotanche Street.

Long term, ECU Transit needs to evaluate how best to spend limited resources on getting people to and from campus. It is recommended for the long term that a top priority going forward should be to focus on routes that serve residential areas closer to campus. These routes can be run at the lowest cost and highest frequency and are also focused on the core need of moving students to and from campus. For example, if given the choice between maintaining either the blue route, which serves commercial areas at a distance from campus, or the brown route, which serves residential areas near campus, ECU Transit should opt for maintaining the brown route.

ECU Transit should also re-evaluate how service is provided to large apartment complexes. Currently ECU Transit charges apartment complexes a large portion, 90% or more, of the cost to operate the dedicated services. The percentage of the cost passed along to the apartment complex is the same regardless of distance to campus or level of service. It is recommended that ECU Transit re-examine these pricing policies going forward.

One option would be to charge the apartment complexes the full cost, including acquisition and maintenance costs, for the dedicated service. ECU Transit already operates charter services on a contract basis. The apartment complexes could be treated in a similar manner. This is not a radical change given the current service is essentially a door to door charter service nor is it radical in terms of increased cost to the apartment complexes.

A second option would be to provide non-dedicated services to apartment complexes. This would mean apartment complexes would be served as part of larger routes. Stop location could be moved on to nearby streets or remain within the complex if the bus needed the area to turn around. Only complexes close to campus would be served under this option, and only those near other stops. Service was provided in a manner similar to this in the past. Routes that served complexes were often times completely filled by students going to one location. This option would drastically alter how students accessed campus via transit and carries with it some pitfalls. Costs to operate transit would be kept down but potentially at too big a detriment to the benefits transit service provides.

A third option could be to completely eliminate dedicated service to the apartment complexes and allow the communities to provide their own service. To do this the University would need to identify at least one location, and potentially more, where private busses could stop to drop off and pick up students. Possible locations could include 10th Street near College Hill Drive, the Speight Driveway on 5th Street, and 7th Street near the Student Rec Center. In all cases, ECU Transit would need to ensure that the private buses did not negatively impact scheduling of ECU Transit routes. This option allows ECU Transit to focus more on routes closer to campus while allowing the apartment complexes to develop a solution that is unique to their needs. This option will likely require some parking policy changes to ensure that the students currently using ECU Transit don't flood campus trying to find a parking space. This would drastically alter the parking demand projections and accelerate the time when parking demand is greater than supply.

Lastly the University should look at placing stop amenities at stops off campus. Amenities could include shelters, benches, route maps, schedule information, and trash cans. Stops on the Purple and Brown routes should be prioritized for amenities in the near term. In the long term stops on routes that are close to campus should be prioritized over stops further from campus. In no case should the University place amenities at stops at major apartment complexes. The placement of amenities at these locations should be left to the individual apartment complexes.

It must be noted here that these amenities will need to be placed on private property and/or within the public right of way. This will bring with it a set of challenges that may be difficult if not impossible for ECU Transit to overcome. It is possible that ECU Transit will not have the ability to place and maintain

amenities unless ECU Transit were to merge with Greenville Area Transit (GREAT). At present the placing of amenities on locations off campus should not be one of the highest priorities given the possible conflicts. If ECU Transit were to ever merge with GREAT then the placement of amenities on campus routes should become a high priority. See section 5.6 for more information on the possible merger of ECU Transit and GREAT.

5.3 Traveling Around Campus

In addition to changes in getting people to campus ECU Transit needs to make a number of changes in how it moves people around campus. Moving people around campus is not something that ECU Transit currently does to a significant extent, especially if one excludes the Minges Park and Ride. A combination of policy and infrastructure changes are likely to occur in the future which will make it very important that ECU Transit begin to efficiently move people around campus.

5.3.1 Traveling Around Main Campus

The first step to improve moving people around Main Campus is creating a new transit hub in conjunction with the new Student Union. Co-locating a transit hub with the Student Union has a number of positive aspects. First, and foremost, it provides a place to wait for buses where there are a number of amenities such as bathrooms, food vendors, and computer access. This helps to improve the overall experience of using transit while taking advantage of existing facilities. Co-locating a transit hub with a student union also help the student union to be used to the maximum extent as it becomes the point where many students first access campus. Ideally the Student Union project would include a large waiting area for students that had benches and computer consoles, a smaller waiting area for drivers, and an office for ECU Transit use.

While the main transit hub on Main Campus will shift to the new Student Union it is still recommended that the existing stop on 10th Street at College Hill be retained. This location is near the academic core and will always be a desirable destination for transit users, and particularly faculty and staff that will need to access campus via transit and park and ride in the future. With the main hub shifting to the Student Union this allows for some changes to take place at this stop. It is recommended that the current lot utilized for bus stops be eliminated and that the bus stops shift on to 10th Street. This will help to reduce the number of movements at the 10th Street and College Hill Drive intersection, hopefully improving operations and safety. It is further recommended that a new bus pull out be constructed between the signals at College Hill Drive and Ormond Drive on the north side of 10th Street. Given the existing intersection spacing it is likely that a bus pull out could be constructed that could accommodate at least four and potentially six buses. It is further recommended that the existing intersection of 10th Street and College Hill Drive be re-designed to allow for a bus to make a U-turn at the intersection. This will be helpful from an operational standpoint and will help to further reduce the locations where bus and pedestrian paths cross.

It is also recommended that ECU Transit develop a campus circulator that will service the main academic areas of campus, the proposed Academic A building on Cotanche Street, and the Reade Street corridor. Most of this service is currently provided by Route 304, however it may be necessary to increase the

frequency of this service as classroom space is opened. Given the need to move a large number of students in a short period of time to maintain class schedules it is possible that multiple buses will be needed to provide this service. It will be important to monitor this situation. It is recommended that initial service be at a very high level and dialed back if ridership data does not support that level of service. This is recommended because it will be critical that things work as smoothly as possible from the first day for riders to utilize the service. Flaws early on could easily prove more costly than providing excess service for two months.

5.3.2 Traveling Around the Health Sciences Campus

For the Health Sciences Campus it is recommended that the main transit hub be co-located with the proposed Student Services Building. As with the Student Union on Main Campus, locating the main transit hub with the Student Services Building allows transit to take advantage of existing facilities. Furthermore, the location of the Student Services Building is central to the Health Sciences Campus which will make the stop convenient to both students and faculty and staff. A transit stop at this location will need much less space than the proposed hub at the Student Union. A smaller waiting room, or potentially some bus shelters, would suffice

It is also recommended that the University continue to monitor the need for a transit circulator on the Health Sciences Campus. While no service is provided today and no service is likely necessary in the near future it is possible that such a service could be needed on the Health Science Campus. Such a service would not be needed until the construction of the proposed parking deck and more likely not until park and ride lots on Moye Boulevard are being utilized by employees.

5.3.3 General Recommendation

It is recommended that the University install bus shelters at the major transit stops. These locations should include but not be limited to:

- Minges park and ride lot;
- 10th Street near College Hill Drive;
- Near the proposed Student Union;
- Near the Student Rec Center;
- Near the Medical Pavilion stop on the Health Sciences Campus; and
- Near the Student Services Building on the Health Sciences Campus when it is constructed.

In addition to shelters the University should also provide route maps, schedule information, and trash cans to the extent possible.

5.4 Traveling Between Campuses

As noted above, ECU Transit will play a larger role in helping people commute between the Main Campus and the Health Sciences Campus. For this reason it is recommended that ECU Transit examine shifting service between the two campuses from 5th Street to 10th Street when the 10th Street project is complete. 10th Street is a more direct route and avoids the downtown area. Theoretically it should be

quicker, but only tests after the project is complete can verify this. In the meantime service should remain as is.

If desired the existing stop at the Little Willie Center can be eliminated. Given that the stop is along the current route and that the bus does not stop unless a passenger requests it there is no reason to eliminate the stop at this time. If in the future stopping at the Little Willie Center becomes detrimental to maintaining the schedule then it should be eliminated.

In the long term it may be necessary to operate the red line at a higher frequency. Currently the bus operates on a 30-minute headway with one bus operating on the route. In the future it may be necessary to increase the frequency of service and have two buses simultaneously operating on the route. This will be dependent on how academic programs are split between the two campuses. This expanded service should not be implemented until ridership levels on the red route require it or class schedule concerns necessitate the additional service.

Ideally these changes would be supported by the adoption of a “Park Once” policy. Currently members of the University community are allowed to park on both the Health Sciences Campus and Main Campus with the same permit. This leads to increased vehicle trips between the campuses. A “Park Once” policy would remove the ability for most, if not all persons, to park on both campuses with one permit. This would result in a more efficient use of existing transit and of the parking supply.

5.5 Additional Operational Improvements

First, and foremost, it is recommended that ECU Transit develop a stronger and closer relationship with the parking department. As noted above the two groups are competing over the same pool of users. In the future the two departments need to work cooperatively to meet the needs of the University population. Budgets and services need to be decided with input from the other group. The specifics of this new relationship need to be worked out but it could include the merging of the two departments or the shifting of one department so that they answer to the same vice-chancellor. At the very least, greater cooperation is a must as is the need for parking to financially support transit in some manner.

It is also recommended that ECU Transit implement a system to continuously monitor ridership and adjust routes accordingly. ECU Transit is currently finalizing the process to collect ridership data utilizing an automated process. It is recommended that this data be utilized to monitor the system going forward. At a minimum the following data should be analyzed:

- Annual ridership by route;
- Annual ridership by stop;
- Average ridership by route during school days reported on a monthly basis; and
- Average ridership by hour during school days.

This data should provide ECU Transit the information needed to update and amend the system going forward. It should also be noted that it may be necessary for the University to analyze additional data in the future as conditions change. For example, ridership per gallon of gas may be a better metric in the future if fuel prices continue to rise.

It is recommended that ECU Transit continue to work to keep operational costs low. At present, ECU Transit has a low operational cost per service hour. This is in many ways due to the use of part time drivers. It is anticipated that in the future ECU Transit will have to rely on more permanent drivers, especially as the service begins to cater to the faculty and staff. Buses to employee park and ride locations, and around the Health Sciences Campus will need to be in operation on most days of the year which may make the use of student drivers on these routes difficult if not impossible. Given a limited amount of funds an increase in operational costs could result in a decrease to the total service provided. Maintaining low operational costs is the key to maintaining the current amount of service.

It is recommended that ECU Transit continue to examine the ability to use smaller buses on some of their routes or during off peak times. Smaller buses require less fuel, and as such, have a lower cost to operate. The decision to utilize smaller buses should be held off until the monitoring program is in place. This will provide a good data source to make informed decisions.

It is also recommended that ECU Transit study the possibility of developing a maintenance facility closer to the two campuses. A new facility could help to keep maintenance costs low, thus ensuring a lower operating cost. A location closer to campus would help reduce the amount of down time for buses also helping to maintain a lower operating cost. The cost savings will need to be weighed against the building construction costs, but it is likely that the benefits will outweigh the costs.

One potential site that could be used for a maintenance facility is the existing Dickinson Avenue Lot. Utilizing a site already owned by the University would keep the costs of the center to a minimum. There is sufficient space at the site to accommodate a maintenance center. The location is roughly equidistant between the two campuses. Furthermore, the existing lot is sufficiently large enough that it could house both the proposed maintenance facility as well as a storage lot that could be used by students. This co-location of two services could prove very beneficial for the University.

Long Term the ECU Transit may wish to add Next Bus technology to the bus fleet. Next Bus technology tracks bus locations using GPS and GIS and estimates the arrival of a bus at the next stop. This benefits users in that upon arrival at a stop they know with relative certainty how long until a bus arrives. This leads to greater acceptance of transit service and ultimately higher ridership. Next Bus technology does require a shelter for the signs as well as a power supply for the signs. Some thought should be given to this possibility as new shelters are placed around campus so as to minimize installation costs in the future.

5.6 Merger with Greenville Transit Authority

There exists the potential for the ECU Transit to merge with the Greenville Area Transit (GREAT). Such arrangements are not uncommon in towns and cities with major universities. Such a merger could have many benefits. The existing ridership of ECU Transit would be added to that of GREAT potentially leading to the ability for GREAT to qualify for additional federal and state funds. Maintenance and service installations could be combined helping to reduce maintenance and operation costs. ECU Transit could qualify for federal funds for purchasing new vehicles leading to lower acquisition costs. Staffing

and overhead could potentially be reduced, although this would be difficult given the low staffing levels for ECU Transit and to a certain extent GREAT.

Unfortunately, there are costs associated with this potential merger. First, and foremost, is the perceived safety of GREAT by the ECU student body. As noted in the commuter survey the student body had significant concerns about the safety of GREAT busses and greatly preferred the current closed-door ridership policy that limits ECU Transit busses to only ECU students. If ECU Transit were to merge with GREAT they would have to adopt an open-door policy to receive federal funds. This could reduce the attractiveness of ECU Transit which could lead to a spike in persons driving to campus.

In addition to the perceived safety issues a merger could also lead to reduced revenues. The existing ECU Transit routes to the various apartment communities are subsidized by those communities. This policy would not be open to a combined service as public transit agencies are not allowed to take funds for direct service. This loss of revenue would be a significant blow to the revenue stream that ECU Transit could bring to the combined system.

Given these costs and the unknown benefits such a merger cannot be supported at this time. Too many questions remain unanswered to move forward. One such question still unanswered is who would be the lead transit agency. In Chapel Hill, North Carolina the Town operates the transit agency and the University of North Carolina at Chapel Hill is a participant. In Fayetteville, Arkansas the University of Arkansas is the lead transit agency and the Town is a participant. Both options have merits but the specific structure would need to be agreed to before ECU should agree to a merger.

5.7 Summary of Transit Recommendations

Near Term Recommendations and Supporting Policies:

- Consolidate afternoon service to apartments to more accurately reflect demand (planned for fall 2011).
- Develop a true main campus circulator route. This route could also serve downtown destinations that are adjacent to campus, but cannot serve downtown destinations that are not adjacent to campus.
- Continued route consolidation if ridership and data supports.

Long Term Recommendations and Supporting Policies:

- Shift transit hub to the new Student Union.
- Develop new service and maintenance facility.
- Continue to expand focus from student-centric service to the entire campus community.
- Shift the Red Route from 5th Street to 10th Street when the 10th Street Connector project is finished.
- Create shuttle and/or circulator service for Health Science Campus.

- Maintain and deepen relationship with Parking and Transportation Services.
- Continue to develop a web-based transit portal that shows the location of all buses.
- Add automated passenger counters to all buses and train drivers in techniques to improve accuracy of data.

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6 Parking Plan

As indicated in Section 2, parking demand on Main Campus will be approximately 9,700 parking spaces in 2025. If no new spaces are added the parking supply at 2025 will be approximately 7,100 spaces. This will result in a net shortfall of roughly 2,600 spaces, or roughly 1,400 spaces over the existing supply of 8,300. The shortfall on the Health Sciences Campus is not expected to be as large as that of main campus, but still significant at roughly 1,800 spaces.

This parking plan identifies ways for the University to address these parking shortfalls. For each campus a number of scenarios are presented as well as a cost-benefit analysis, a preferred alternative and an implementation plan for the preferred alternative.

6.1 Main Campus

For main campus a total of four scenarios were examined. These scenarios run the offer a wide range of options for meeting the projected parking demand. They range from a scenario that relies exclusively on constructing new parking decks to one that relies less on adding new parking and more on improving the use of alternative transportation modes. These scenarios attempt to show the vast options open to the University at this time.

6.1.1 Scenarios

A total of four scenarios were examined to meet the projected parking demand for the campus in 2025. Those scenarios are:

- All Decks
- Two Decks and Remote Parking
- One Deck, Remote Parking, and a New Storage Lot
- One Deck, a New Storage Lot, and Aggressive Demand Reductions.

These scenarios are outlined below starting from the one that is most similar to the existing conditions and progressing to the one that is most dissimilar. Special care is taken to focus on how and where the parking is provided as well as how the overall transportation system will be impacted.

Scenario 1 – All Decks

Scenario 1 relies heavily on the construction of new parking decks. In total, three new decks are required to meet the parking demand. The decks are assumed to be constructed at the New Student Union, on the existing College Hill Lot, near the proposed Academic A Building, and along Reade Street. In all cases the proposed decks are constructed on existing surface parking lots which negatively impact the net parking space gain for each deck. This scenario is most similar to the existing conditions in that most parking is provided very near the academic core of campus. The projected parking gains and losses are shown in figure 6-1.

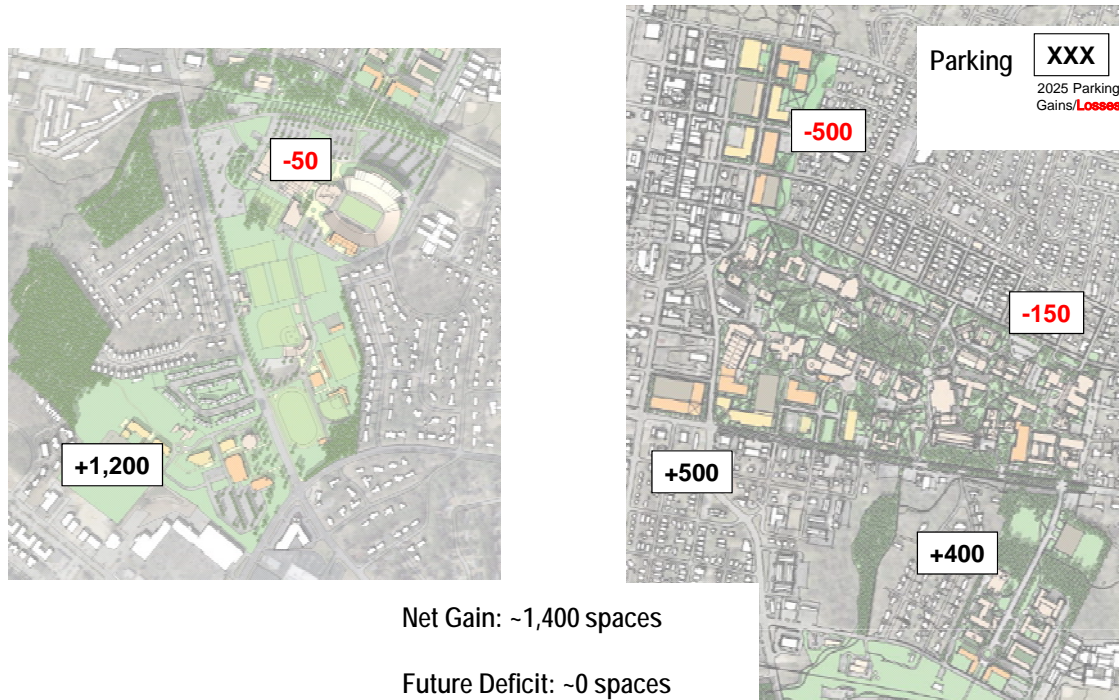
Figure 6-1 Parking Gains and Losses for All Decks Scenario



Scenario 2 – Two Decks and Remote Parking

Scenario 2 would see the construction of two new parking decks, one at the New Student Union and one of the College Hill Lot, as well as the construction of a new 1,300 space Remote Parking Lot at the Health and Human Performance (HHP) area of campus. The proposed remote parking lot would operate similarly to the existing Minges Park and Ride lot and would require a similar level of transit service. This scenario would be a change from existing conditions in that faculty and staff would have to use remote parking options, either Minges or the proposed lot, given that supply around the core of campus will be insufficient to meet the demand. It is assumed that under this scenario the bulk of commuting students would be shifted to the proposed lot in the HHP area of campus so that the Minges Lot can be used by faculty and staff. This shift is assumed as the nearest parking is typically reserved for faculty and staff while students park further out. This also represents a highest cost assumption as the student lot will require more transit than the faculty staff lot so citing the student lot furthest away takes this in to account. The impacts to the parking supply for this scenario are shown in figure 6 -2.

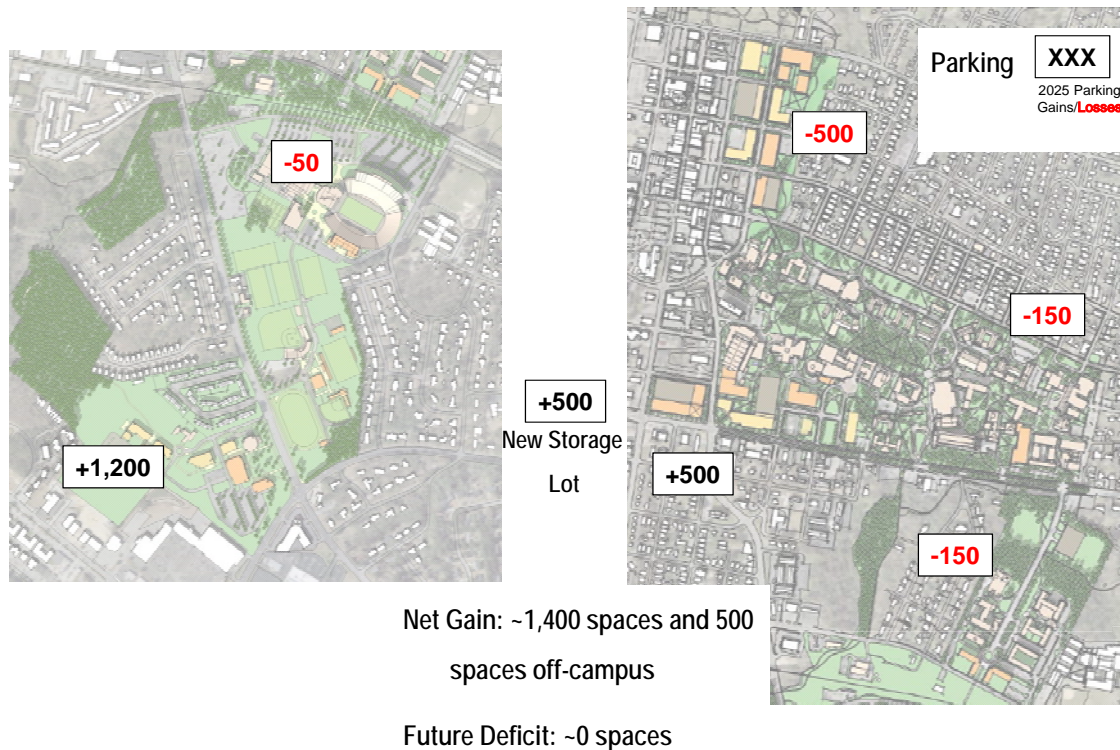
Figure 6-1 Parking Gains and Losses for Two Decks and Remote Parking Scenario



Scenario 3 – One Deck, Remote Parking, and a New Storage Lot

Scenario 3 can be thought of in many ways as a variation of scenario 2. As opposed to constructing a new parking deck on the College Hill Lot as was proposed in scenario 2, a new storage lot for resident students is constructed off campus. This new lot would reduce demand on campus by roughly 400 spaces, which is equal to the net parking gain of the proposed deck on the College Hill Lot. This scenario would impact resident students as well as commuters. The impacts to the parking supply for this scenario are shown in Figure 6-3.

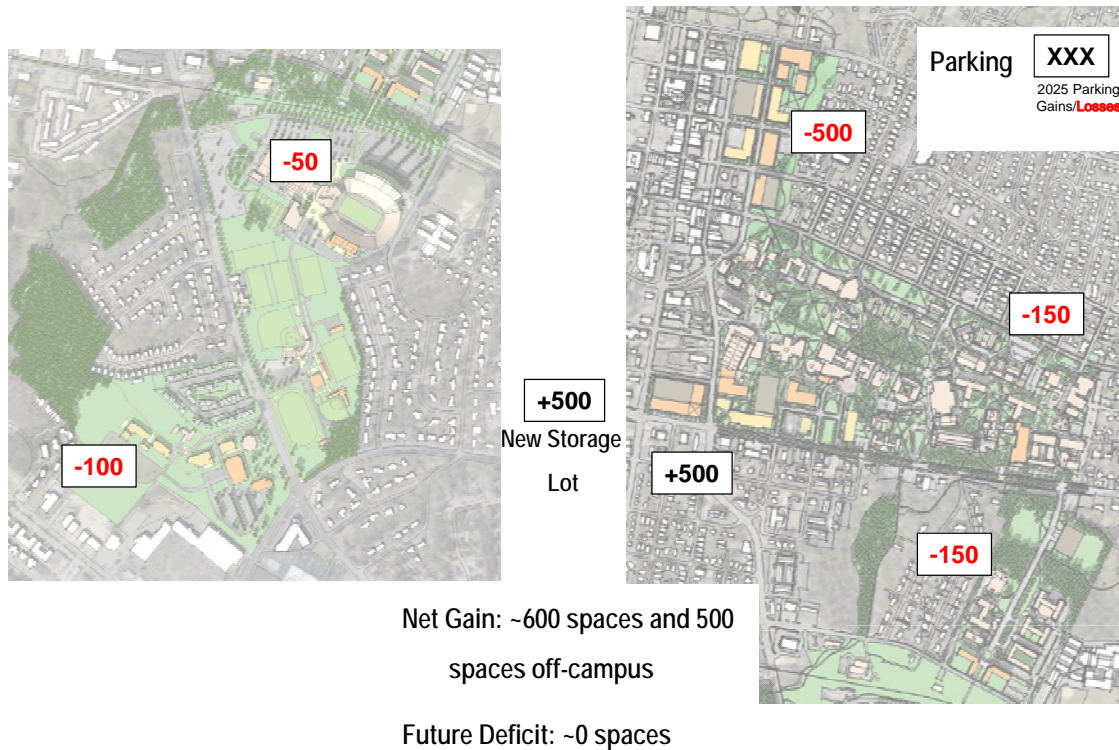
Figure 6-3 Parking Gains and Losses for One Deck, Remote Parking, and a New Storage Lot Scenario



Scenario 4 – One Deck, a New Storage Lot, and Aggressive Demand Reductions

Scenario 4 represents the greatest break from existing conditions. As with Scenario 3 a new deck is added at the New Student Union. Scenario 4 also includes the new off campus storage lot for resident students, although this lot is assumed to be slightly larger than the lot in Scenario 3. As opposed to Scenario 3 no new parking lot is constructed at the HHP area of campus. The rest of the demand is met through a combination of aggressive incentives to shift people to the use of alternative modes and parking prohibitions to reduce the parking demand. This is a very different scenario from the other three that aims to maintain as much open space as possible while reducing the carbon foot print of the University. This is the type of solution that is often used by Universities in urban areas where no other viable solutions exist because of limited available land or by Universities that desire to make a strong environmental statement. The impacts to the parking supply for this scenario are shown in Figure 6-4.

Figure 6-4 Parking Gains and Losses for – One Deck, a New Storage Lot, and Aggressive Demand Reductions Scenario



6.1.2 Cost benefit

The annual costs for each scenario are show in Table 6-1. Scenario 1 is by far and away the most expensive of the four scenarios with an annual cost of almost \$1.5M more per year than the next most costly scenario. Scenarios 2, 3, and 4 are all within roughly the same range, although 2 is approximately \$1M more costly per year.

Table 6-1 Annual Costs of Main Campus Parking Scenarios

Scenario	Annual Costs					Total
	Deck Construction	Surface Space	Storage Lot	Transit	TDM Programs	
All Decks	\$ 5,250,000	\$ -	\$ -	\$ -	\$ -	\$ 5,250,000
2 Deck + HHP	\$ 3,000,000	\$ 585,000	\$ -	\$ 247,500	\$ 50,000	\$ 3,880,000
1 deck, HHP, Storage Lot	\$ 1,500,000	\$ 585,000	\$ 275,625	\$ 307,500	\$ 65,000	\$ 2,730,000
1 deck + Demand Reduction	\$ 1,500,000	\$ 100,000	\$ 288,750	\$ 600,000	\$ 400,000	\$ 2,890,000
Notes:						
1) All costs are over base line. Some transit improvements are included in baseline costs.						
2) All costs are in 2011 dollars.						
3) HHP lot assumes half the cost of 3 busses for 11 hours per day for 250 days per year. Assumes other half is current service.						
4) storage lot assumes 1 bus for 4 hour for 250 days per year.						
5) Demand reduction includes storage lot plus 3 new busses for 12 hours for 250 days.						
6) Demand Reduction includes 400 park and ride spaces leased for 250\$ each per year.						
7) Assumed costs are:						
Deck cost per space per year	\$ 1,500.00					
Surface space cost per year	\$ 450.00					
Storage lot costs per space	\$ 525.00					
transit cost per service hour	\$ 60.00					

6.1.3 Preferred option

At this time Scenario 2, Two Decks and Remote Parking, is the preferred alternative. It is significantly less costly than the All Decks scenario and more similar to existing conditions than either Scenario 3 or Scenario 4. It should be noted here that Scenario 2 and Scenario 3 were considered the two best options for meeting the projected parking demand. Scenario 2 was selected over Scenario 3 because it is a worse case option from a cost standpoint. The construction of a storage lot, or of a deck on the College Hill Lot will not be required until after 2020, which gives plenty of time to determine the preferred option between the two. Given that it is better to assume the higher cost scenario and shift later to the lower cost than then assume the lower cost scenario and then shift to the higher cost later.

6.1.4 Implementation

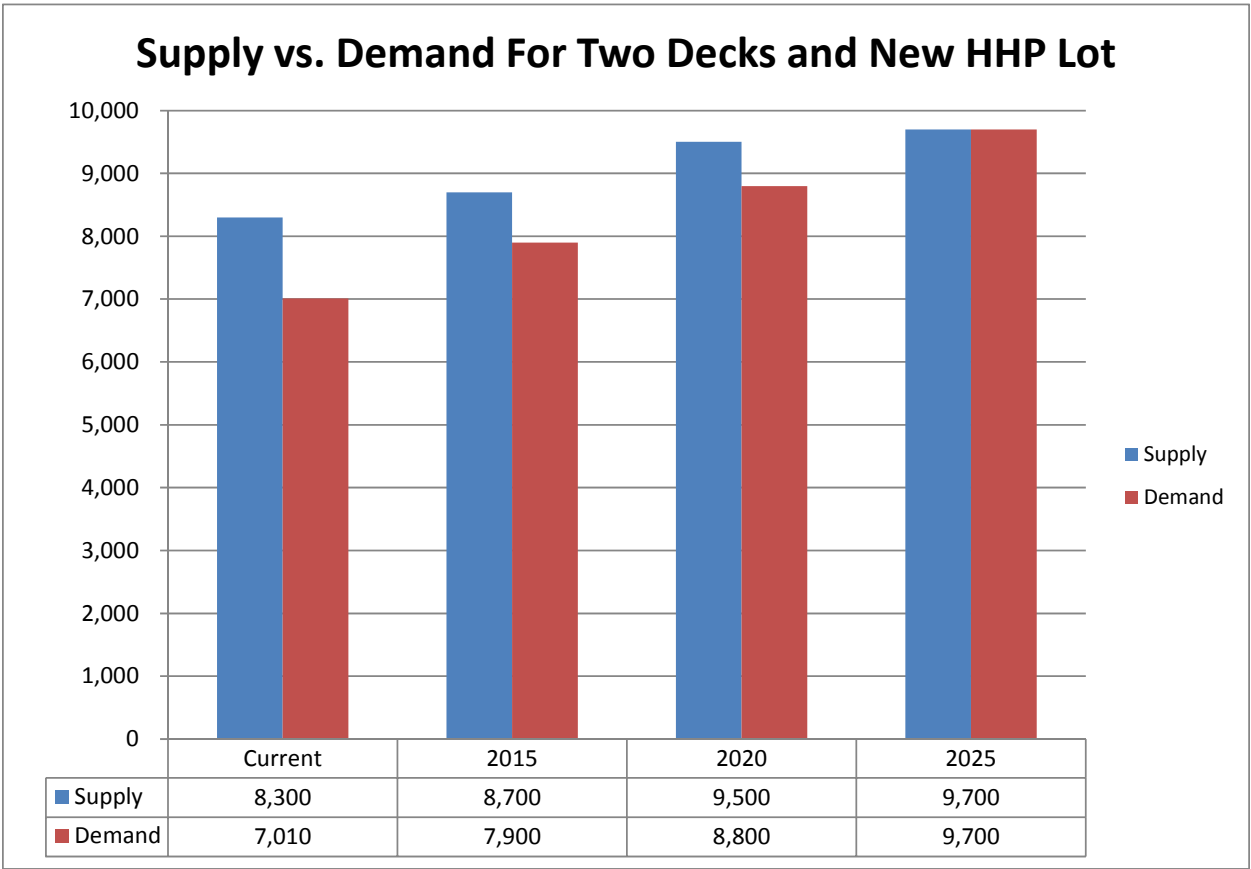
First, and foremost, it is critical that the deck associated with the New Student Union be constructed within the first five years. Constructing the Student Union Deck on this time frame will help to ensure that there is still a surplus of parking in the near term. It is also recommended that the new deck have a large number, perhaps as many as half of the total spaces, of pay by hour spaces. These spaces, priced as high as 2.00\$ per hour, could generate a significant amount of revenue, helping to offset the costs of the deck. Short term spaces should be controlled by pay on foot stations to keep collection costs to a minimum. Charging for special events would also generate additional revenue that would further offset the costs of the deck.

The construction of the Remote Lot in the HHP area of campus should begin between 2015 and 2020. While the final build out size of the lot is 1,300 spaces it is not necessary to construct all 1,300 spaces at once. The lot could be constructed at a much smaller size at first and expanded as needed. Given that the lot will be serviced by transit it is critical that the initial phase of construction be of sufficient size to support transit service. For this reason, it is recommended that initially the lot have at least 450 spaces if not more. It should also be noted that not all 1,300 spaces need to be constructed prior to 2020. A surplus of parking is projected for 2020 if all 1,300 spaces are constructed.

Lastly, between 2020 and 2025 a decision should be made on constructing either the deck on the College Hill Lot (Scenario 2) or the remote storage lot (Scenario 3). If the deck is selected then it should be approximately 1,000 spaces. If the storage lot is selected it should be approximately 500 spaces. Ideally, this lot would be fenced and gate controlled at all times. The lot should be sufficiently far from campus to prevent walking trips, but near enough to be served by transit. Transit service should be infrequent and no more than 4 times a day. The Dickinson Lot is a particularly attractive location especially if a new transit maintenance facility is co-located on that parcel.

The parking supply and demand for the preferred alternative is shown in Figure 6-5.

Figure 6-5 – Parking Supply and Demand for Preferred Alternative.



6.2 Health Sciences Campus

The Health Sciences Campus presents a unique challenge in that while it is academic in nature it is also service oriented. On one hand open space must be maximized to preserve the campus atmosphere and to allow room to grow in the future. On the other hand care must be taken to provide parking near to the final destination for customers that are likely to have mobility limitations. For that reason a delicate balance must be struck.

6.2.1 Scenarios

A total of three scenarios were examined to meet the projected parking demand for the Health Sciences Campus in 2025. Those scenarios are:

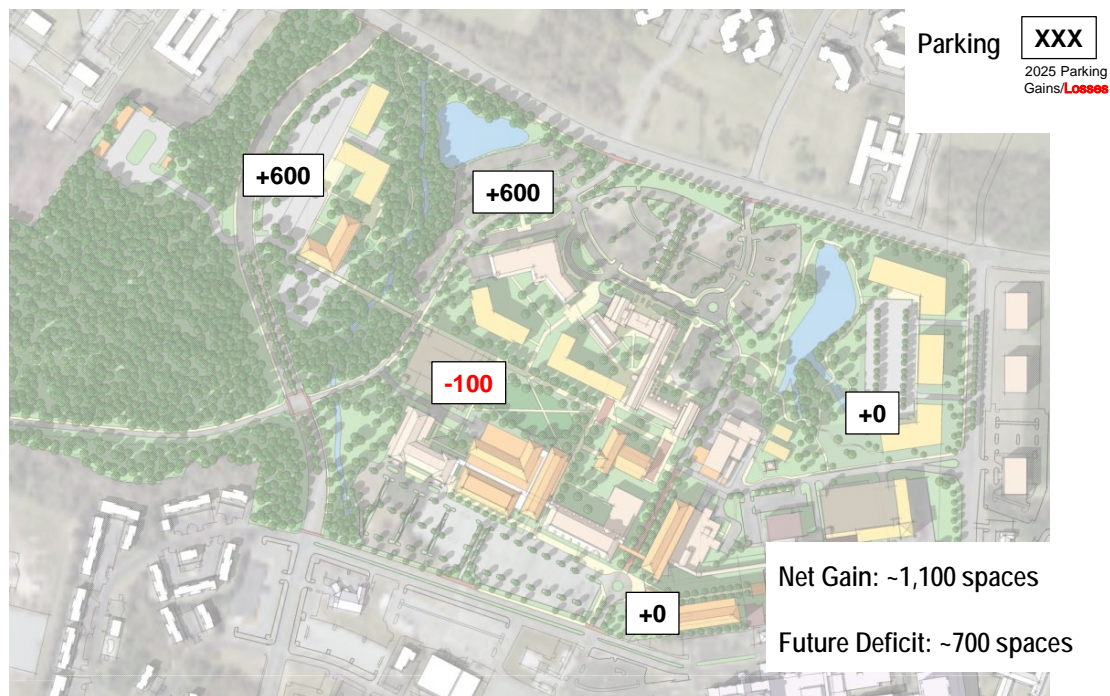
- No Decks
- All Decks
- Two Decks

These scenarios are outlined below.

Scenario 1 –No Decks

Scenario 1 is a scenario the constructs no new parking decks. The primary goal of this scenario is to maintain as much open space as possible. Constructing no new parking decks will not meet the projected parking demand and as such will require some use of park and ride. The parking gains and losses for this scenario are shown in Figure 6-6.

Figure 6-6 Parking Gains and Losses for No Decks Scenario

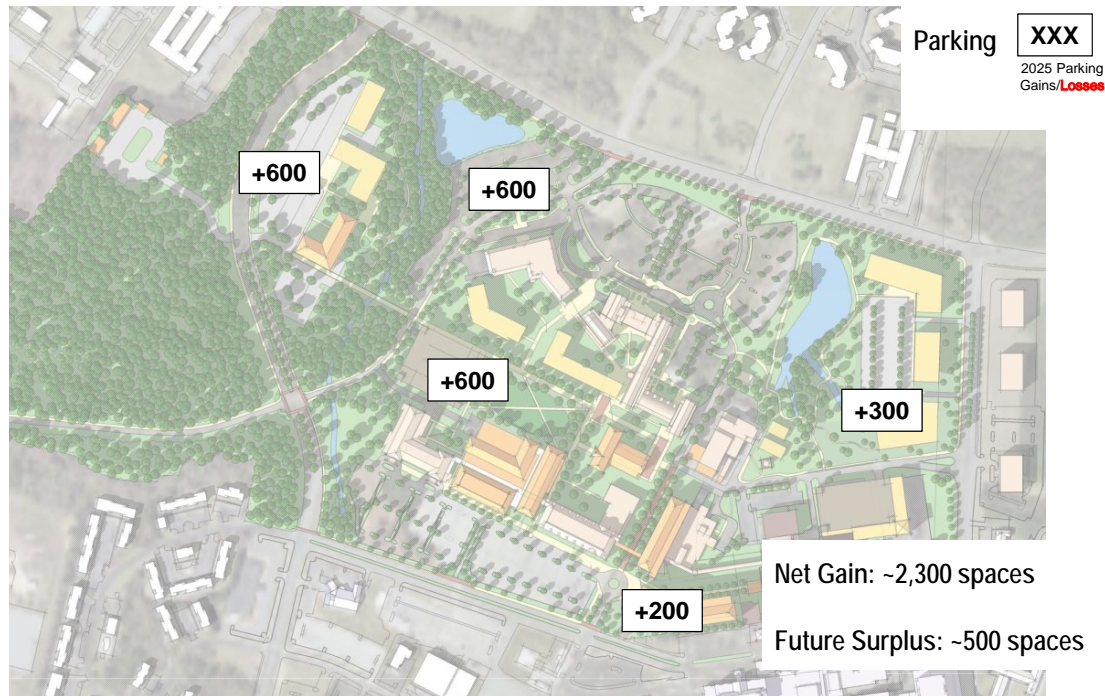


Scenario 2 –All Decks

The All Decks scenario is built around constructing parking decks on all sites identified in the Master Plan as parking. A total of three decks are constructed. The first is north of the Family Medicine Building. The second is under the proposed Medical Education Building. The third is on the existing lots on Moye Boulevard south of Fifth Street. The proposed deck on Moye Boulevard would likely require transit service as the walking distance from there to the center of campus is fairly long. The total supply for this

scenario is roughly 5,400 spaces, which is roughly 500 spaces more than the projected demand. The parking gains and losses for this scenario are shown in Figure 6-7.

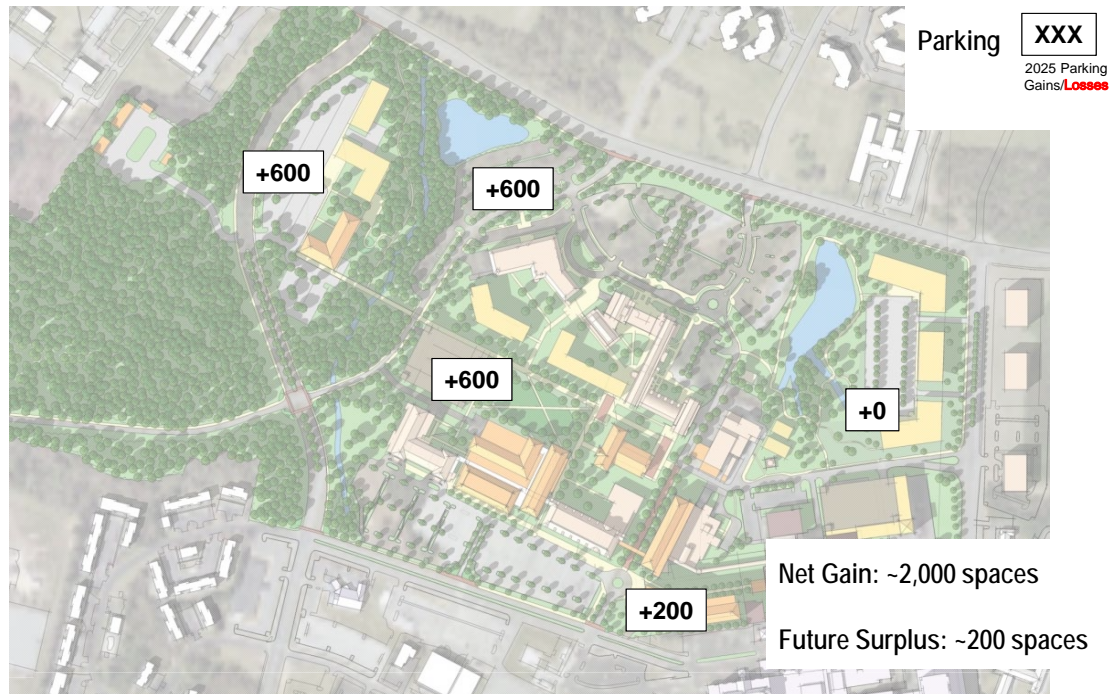
Figure 6-7 Parking Gains and Losses for All Decks Scenario



Scenario 3 –Two Decks

Scenario 3 proposed to build two decks to meet the parking demand. The decks in this scenario are the one north of Family Medicine Building and the one under the Medical Education Building. No transit service is required for this scenario as all decks are near the center of campus. The total supply for this scenario is roughly 5,100 spaces, which is roughly 200 spaces more than the projected demand. The parking gains and losses for this scenario are shown in Figure 6-8.

Figure 6-8 Parking Gains and Losses for Two Decks Scenario



6.2.2 Cost benefit

Scenario 1 is by far the least expensive option, but it does not provide enough parking on the campus. Of the two remaining scenarios Scenario 3 is less expensive than Scenario 2 due to the lack of the deck on Moye Boulevard. The annual costs for each scenario are shown in Table 6-2.

Table 6-2 Annual Costs of Health Sciences Campus Parking Scenarios

Scenario	Annual Costs			Total
	Deck Construction	Subterranean Deck Construction	Transit	
No Decks	\$ -	\$ -	\$ 495,000	\$ 500,000
All Decks	\$ 2,250,000	\$ 500,000	\$ -	\$ 2,750,000
Two Decks	\$ 1,500,000	\$ 500,000	\$ -	\$ 2,000,000

6.2.3 Preferred option

Scenario 3 is the preferred alternative. Scenario 1 is the least cost option, but the failure to provide insufficient supply to meet the demand is considered a fatal flaw. Scenario 2, while providing more parking supply than Scenario 3, is not preferred because it has higher costs and Scenario 3 provides sufficient supply to meet the demand.

6.2.4 Implementation

Implementation of Scenario 3 is fairly straight forward. The deck behind the Family Medicine Building should be constructed when the Integrated Ancillary Services and Clinics Building and/or the Faculty Offices Building is added. This deck could be constructed earlier to ensure sufficient supply exists at all times. When construction of the deck begins the existing surface lot will be removed from the supply which could cause short term problems. Constructing the deck sooner will alleviate any issues that will arise but must be weighed against the costs. The second deck below the Medical Education Building will be constructed at the same time as the Medical Education Building.

6.3 Additional Operational Improvements

This section identifies the additional operational improvements that the University can undertake.

6.3.1 Permit Consolidation

It is recommended that the University consolidate a number of the existing permit categories. Currently there are numerous A and B class permits for both the Main Campus and the Health Sciences Campus. At this time it is recommended that there be one A-type permit and one B-type permit per campus. These permits should be valid only on one campus. If need be a select group of permits can be valid on both campuses, but this should be limited to a select small group.

When Founders Drive is closed the Main Campus A and B permits should be split in to two groups; one for lots east of Founders Drive and one for lots west of Founders Drive. This will help to reduce the number of people driving from one lot to another lot in search of a space. If need be a third category could be added that would just include parking along Reade Street. Similarly, when Service Drive is closed on the Health Sciences Campus the permits should be split in to two groups; one for lots on the north side of campus and one for lots on the south side. This will likely be more critical than the split for Main Campus as the route between lots on the north and south side of the Health Sciences Campus is more circuitous than the route between lots on the east and west side of Main Campus.

6.3.2 Visitor Parking

It is recommended that the University identify dedicated visitor parking spaces. Ideally these spaces would be near campus and located next to a building with a staffed front desk that can sell or distribute temporary parking passes. Ideal locations for a visitor parking lot on Main Campus would be near the proposed Visitor Center on 10th Street and near the Parking, Environmental Safety, and Mail Services in the Warehouse district. On the Health Sciences Campus the spaces should be on the north portion of the campus near the proposed Student Services Building.

It is also recommended that any visitor parking be incorporated in to the recommended wayfinding system. Visitor parking could serve as the primary vehicular destination for persons new to campus. Signs would direct drivers to visitor parking locations at which point drivers could get a temporary parking permit as well as detailed information and/or maps to a final parking location.

6.3.3 Charging for Visitor/Patient Parking on Health Science Campus

It is recommended that the University begin the process of charging for visitor/patient parking on the Health Sciences Campus. Charging patients and visitors for parking at health complexes and on medical universities is a common practice. The practice is so common that Pitt County Memorial Hospital (PCMH) located directly adjacent to the HSC currently charges for similar parking. Charges for parking should mirror or be slightly lower than similar parking at PCMH. The money raised by this program should be utilized to offset the debt service required for constructing the parking decks and/or for providing transit circulator service around the Health Sciences Campus.

The specific mechanism used for collecting fees for parking could take many forms. One possible is a direct pay system where drivers pay for the parking directly at entry and exit gates. Given that the clinics on the Health Sciences Campus provide services to a number of persons with ambulatory issues and the indigent a direct pay system may not be the preferable system. An alternative to the direct pay would be for the clinics and institutes on campus to pay for the parking. Regardless of the mechanism selected it is recommended that the process begin sooner than later. The sooner funds are collected the more the cost of the decks can be offset.

6.3.4 Coordination with Student Housing on Main Campus

As noted above the preferred parking scenario for Main Campus projects less parking near the academic core of campus and more parking in the peripheral areas. As a result of the limited parking near the academic core it will not be feasible to continue to provide resident student parking along 5th Street and Reade Street. To address this it is recommended that parking work with University Housing to have lower classmen, and particularly freshmen, reside in residence halls on and near the academic core of campus and reserve the dorms on College Hill for upper classmen.

6.3.5 Supply Monitoring

It is recommended that the University continue to monitor the parking supply and update the parking projections in this plan with a special focus given to gains and losses associated with building construction. As noted elsewhere in the Transportation Plan, there are a number of assumptions that were made in the development of this plan. Many will have only marginal impact, but a select few, particularly those related to the phasing of construction, could have a great impact on the anticipated time when new parking is needed. This could greatly impact the phasing and implementation schedules identified in this section. For that reason the parking supply must continuously be monitored and the parking supply projection be updated. This is recommended because it would locate the upper classmen resident students nearest to the remaining resident student parking on College Hill.

6.4 Summary of Parking Recommendations

Main Campus Recommendations and Supporting Policies:

- Construct a five story deck in concert with the new Student Union on the location of the existing WC-8 lot (near Mendenhall). This deck will need to have a capacity of approximately 1,000 spaces. Some spaces will be reserved for short term parking and

some for permit parking. Any short term parking should be controlled via pay on foot stations. This deck will need to be constructed in the 4-7 year time frame, depending on the pace of campus population growth and building construction. This deck could be constructed earlier to provide a cushion of spaces to offset any temporary losses due to construction.

- Construct a new 1,300 space surface park and ride lot near the Health and Human Performance (HHP) section of campus. This lot can be constructed in phases in as needed.
- Construct one additional deck that provides a net increase of approximately 500 spaces. This deck is likely needed in the 10 to 15 year time horizon. Specific location is to be determined but initial thoughts are to construct this deck on the site of the existing surface lot on College Hill Drive south of 10th Street. An off-campus storage lot could be constructed in the place of this deck.
- Construct a 700 space deck north of the proposed Family Medicine site with access to MacGreggor Downs Road.
- Construct 200 sub-grade parking spaces as part of the Medical Education Building.
- Construct a lot of roughly 600 spaces to accompany the New Cancer Center.
- Consolidate parking permits and revise prices to reflect new parking options.
- House freshmen resident students in residence halls on main campus. Maintain residence halls on College Hill Drive for upperclassmen where possible.
- Adopt a “Park Once” philosophy to cut down on intra-campus vehicle trips during the day.
- Consolidate existing permit types, such as the A3, A5, and A7. The existing A, B, and C designation can be retained. Those permit types should each be divided in to two sub-categories; one for the south side of the HSC and one for the north side of the HSC.
- Begin charging visitors for parking to develop a fund to pay for/off set parking deck construction. Such fees should be limited at this time to a maximum of what Pitt County Memorial Hospital charges.

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7 Travel Demand Management and Supporting Policies

The previous sections described how transit use, bicycling and walking can be encouraged by providing services and infrastructure that are relevant and attractive to the East Carolina University community. However, those are not the only ways in which travel demand can be managed. And in any case, those alternatives are most effective when supported by programs that remove obstacles to their use, encourage people to try them out for the first time, and support people who make the switch. This is the principle behind a comprehensive travel demand management (TDM) program.

This section describes the recommended TDM program and some additional supporting strategies. Importantly, the recommendations are not only about helping people to meet their mobility needs; by doing so, they also help East Carolina University to achieve its transportation goals.

7.1 Existing TDM Programs

East Carolina University currently has several TDM elements in place, including the following:

- **Safe Ride:** Point-to-point transit service for late-night transportation needs.
- **ZipCar:** Carsharing program that currently deploys two vehicles on the College Avenue campus.
- **Faculty/Staff Rideshare:** Carpooling program for faculty and staff.

Staff also undertake outreach and promotion as resources allow.

The Plan recommends adding to these existing programs and developing them into a more comprehensive Travel Demand Management portfolio.

7.2 Ridesharing

There are two main forms of ridesharing: vanpooling and carpooling. Vanpooling is typically administered by an agency that provides a van for commuting, at little or no charge, to a group of five or more people who all travel to the same workplace. Carpooling is typically for groups of two to four commuters, and not necessarily for people traveling to the same destination. Frequently, carpools drop members off at one location and continue on to a final destination.

Both forms of ridesharing can be useful in reducing parking demand. Ridesharing is underutilized more typically due to lack of information rather than a lack of desire. The key is to provide a ride-matching service and advertise the availability of the services. The ride-matching service can be as simple as an electronic bulletin board that allows people to post when they are available to rideshare, or as complex as a system that electronically matches participants for carpooling. Advertising could simply be e-mails to the campus population reminding them that ridesharing is available and promoting the ride-matching service.

It is recommended that East Carolina University offer a carpooling rideshare program for faculty and staff at a minimum. Student carpool parking permits could be offered to encourage students to drive alone less often. This strategy would help to maximize existing parking supply, especially in the core of Main Campus. Informal carpooling already takes place, with students giving each other rides to class or

between classes. The goal is to tap into this willingness to carpool but to ensure it works effectively. UCLA is a good example, offering two- and three-person carpool parking permits. The permit costs decrease as the number of carpoolers increases to encourage more efficient use of vehicles and valuable parking space.

NCDOT offers a ride-matching service for carpoolers (<http://www.sharetheridenc.org/>). However, as a statewide service it has a low profile at East Carolina University. To maximize the utility a combination of stronger promotion and East Carolina University-based initiatives will be necessary to make the most of this service. East Carolina could create an even more effective tool by developing a service specifically tailored to the University. The benefits of creating a unique matching service need to be weighed against the cost to create the service to ensure a tailored program is cost-efficient. At this point in time the use of the NCDOT tool is likely the most cost-efficient approach.

Priority parking spaces are a key incentive for carpoolers and vanpoolers. Many campuses reserve some of the most convenient spaces for these users. As well as being efficient (more people can use the best spaces) and high-profile, it adds to the incentive for carpooling and vanpooling by eliminating parking search problems and long walks. This incentive is becoming increasingly standard on campuses across the country.

7.3 Alternative Parking Strategies

Alternative parking strategies are seen to be some of the best next steps in changing how commuters access East Carolina University. These strategies would still allow commuters the use of a car and the ability to park in a University maintained lot. The lots, however, would not be on or directly adjacent to campus and access to vehicles during the day would be limited or at the least not highly prioritized. These strategies in many ways replace existing parking supplies on campus with new parking options off campus, thus freeing up on-campus sites for core needs.

7.3.1 Storage Lot

As noted in the Parking section, a storage lot for resident students would free up significant space on main campus and still allow students to have a car near campus. In many ways this could be considered an interim step between the current system that allows most students to park on campus and a future system that include restrictions on student parking.

A storage lot would ideally be located along or close to an existing transit line but far enough away from campus to discourage walking to the lot. The lot should be fenced and can include other safety measures such as key access, security cameras, and razor wire as needed to ensure the safety of vehicles. Transit access to the lot should be limited with emergency service provided by Public safety. Permits for storage lots should not be valid for parking on the Main Campus or the Health Science Campus other than on weekends. Campuses that have allowed those in remote lots to park on campuses on weekday afternoons and evenings have seen levels of use more in keeping with a park and ride lot as opposed to a storage lot. This increases costs and can increase traffic in the area particularly in the PM peak hour.

7.3.2 Park and Ride Lots

Park and Ride is a management strategy that the East Carolina University population is already quite familiar with. The large Minges Park and Ride lot is the way the University is accessed by most of the students who drive to campus. It was in many ways the familiarity with the system that lead to the recommendation in the Parking section to add a new park and ride lot on the Health and Human Performance area of campus.

The next logical progression of this is to add additional park and ride lots that are located off campus that would capture commuters further out from campus and reduce the number of vehicles near campus. Ideally these lots would be located on or near existing transit routes and along the major corridors commuters use to access Greenville. For example, a lot near North Campus Crossing along US 264 would be very attractive to commuters from Washington and Pactolous and is along an existing transit route. A second location could be at the University Commons shopping center. This location is already serviced by transit, albeit on a limited basis. It would be attractive to commuters coming to campus from Ayden and Winterville. Partnering with major retail centers to utilize some of the excess parking that exists during weekday business hours is a frequent strategy utilized to keep costs of such lots low.

7.4 Complementary Measures

The recommendations below are aimed at supporting faculty, staff and students who wish to switch from driving alone to using other modes, by removing potential obstacles or offering incentives. These complementary measures are often known as a Commuter Alternatives Program (CAP).

7.4.1 Local Ride Home

There are two major concerns that act as barriers to using alternative modes to commute from nearby neighborhoods: missing the last commuter shuttle and the safety of walking after dark. Safe Ride addresses this by offering rides home to nearby neighborhoods. There are, however, some improvements that could be adopted to improve this service. East Carolina University should expand the existing Safe Ride service to take people home to nearby neighborhoods beginning as early as 5:00. This will make Safe Ride an option to all members of the University and not only those who are on campus after 7:00 PM. The service area should include Greenville, but could also include Winterville, Ayden, and Washington. The service should be dispatched and operated in the same way as the existing Safe Ride service. A limited number of vouchers could be given to those people who opt not to buy a parking permit which will help to manage the demand for this service.

7.4.2 Carsharing

ZipCar is a carsharing program currently used by East Carolina University that provides cars for short-term use during the day by people who did not bring their own car to campus. Faculty, staff, and students who are at least 18 years old and have good driving records are given access to a fleet of shared cars that can be reserved online or over the phone. The cars are available for both official and

personal trips.

Individuals, departments or other campus organizations can become members for an annual fee (as low as \$25 a year). The cars are rented by the hour and are available at all times. The cars make it feasible for people who have converted to alternative modes to make business or personal trips by car during the day, removing an obstacle to switching modes. There is little cost to the institution.

The ZipCar service is relatively new to the University, and should continue to grow as demand dictates. In addition to adding vehicles to the inventory the University should also increase the locations where a car can be picked up.

7.4.3 Bicycle Loan and Departmental Bicycles

The University has recently begun a Pirate Bikes program which makes bicycles available for short trips. This overcomes the obstacle of “I need to bring my car to campus because...” While this is a good first step the University needs to continue to expand and improve this service. The University of Rochester and the University of Montana both have free ‘bicycle libraries’ for one-day or overnight hire (Montana even has a tandem, which is apparently popular for dates). Harvard has a ‘departmental bicycle’ program aimed at not only being cheap and sustainable but also getting people to meetings quicker than in a car. The program at East Carolina University should be grown along these lines.

7.4.4 Guaranteed Ride Home

A Guaranteed Ride Home Program should be provided for people who commute by means other than driving alone. This encourages people to switch modes by removing the fear of being stranded. For use in emergencies, the ride home may be guaranteed by reimbursing taxi costs, allowing overnight use of fleet vehicles, or other means (the expanded Safe Ride service would provide the ride home for local trips). Universities with such programs report that although it is rarely used, since workers tend to have co-workers drive them in emergencies, it is a valuable safety net for those who choose not to bring their car to campus.

7.4.5 Support for Parking When People Need It

Occasional Parking Vouchers should be offered to people who do not normally drive to work. This removes the “Some days I have no other choice” obstacle by ensuring that people can park for free on the days they need to bring their own car. Each voucher covers one day of free parking, and a typical program provides 10-20 vouchers per year.

A **Flex Parking** or **Pay-as-You Park Program** allows users to pay only for the time they park, in contrast to the typical arrangement where an annual, semester, or monthly parking permit allows unlimited parking. This encourages users to avoid bringing their vehicles if they can travel by alternative means (thus reducing parking demand), because they are more aware of the daily costs of parking and have an incentive to use alternative modes. Motorists use either a smart card (where parking facilities are gated) or an in-vehicle meter that is visible from the outside of the vehicle and activated when the vehicle is parked. The University of Wisconsin-Madison and Carnegie Mellon University use this program.

The case for offering ***Parking Cash-Out or a Transportation Allowance*** is a new TDM strategy being employed at a number of institutions. Stanford University, in particular, has implemented cash-out with much success, as a way of meeting its need to grow the University without growing its traffic impact. While these programs have been successful where they were implemented there are some states with laws that prohibit these types of compensation for public employees or from public institutions. For this reason these programs are found more often at private universities as opposed to public universities. This is not to say that a cash-out program could not be viable at a public institution like East Carolina University. Such a program could be a very useful tool. Care needs to be taken before any implementation to ensure it is consistent with state law.

7.4.6 U-Pass

Many campuses support city transit through a U-Pass program, in which members of the university community can ride for free by showing their ID. Typically the program is funded through the transportation fee or from parking income. This would be fairly easy to organize around East Carolina University, because there are limited transit providers. While the existing service provided by GREAT is minimal such a program could be well utilized given the proximity of the GREAT terminal to Main Campus. The University should continue to work with transit operators to examine these types of arrangements.

7.5 Support and Advice

This section covers a range of strategies which provide support and advice to the East Carolina University community, helping people to make informed transportation choices that in turn help East Carolina University achieve its transportation goals.

7.5.1 TDM Coordinator

A full time transportation demand management coordinator should be in place to educate and assist commuters in using alternative modes. East Carolina University already employs a person who works part time on this issue. Experience suggests, though, that having a dedicated person is a tremendous benefit in keeping up promotion and momentum for TDM, which can be easily lost among other activities. It is also widely seen as a hallmark of an institution's commitment to TDM. The coordinator's duties would include being the point-person for commuters and departments to turn to, reaching out to promote travel options, keeping resources up-to-date, and other program management tasks. The coordinator typically has a background in transportation planning with experience in marketing or public liaison.

7.5.2 Orientation

It is easier to affect new commuting patterns than to change existing ones, so new employees and students should be made aware of the full range of transportation choices available to them before they default to buying a parking permit. Best practice on this issue is still developing. Simply adding transportation details to orientation meetings or literature may not be the best approach, as inductees

already have a large volume of information to digest. A creative approach is needed, perhaps with incentives such as a free transit pass for the first month of employment or raffle giveaways for students that could include early registration or electronic prizes.

7.5.3 Publicity and information

The University community should be kept aware of the full range of transportation options, and as with orientation material, innovative techniques are always worth trying.

Leading universities are increasingly presenting transportation options on an equal basis, and indeed highlighting the importance of sustainable choices – rather than the traditional approach in which transportation essentially meant parking, and other modes were simply ‘alternatives’ at the bottom of the page. East Carolina University should continue its own progress in this direction.

7.5.4 Individualized Travel Marketing

Individualized Travel Marketing involves giving people details on alternatives available for their own commute. It is easy for people to work out how to drive to work and get a parking permit. This tool addresses the difficulty of assessing all possible alternatives to driving when people consider the use of alternative modes. Often people reject generic marketing on the basis that “there’s no alternative for me”. Individualized Travel Marketing overcomes this hurdle by demonstrating the alternatives that are available *to each individual*. This can be straightforward with current journey planning software. Typically it is done in a ‘marketing campaign’ style, with follow-ups for interested people, often accompanied with a transit pass or other incentive. Results have been positive, and most of the people who test the alternatives actually stick with them. When combined with improvements to the alternatives themselves, results have been particularly good. Orientation (see above) may also be a particularly useful time for this approach.

7.5.5 Incentives to try alternative modes

The strategies listed in the Commuter Alternatives Program aim to remove some of the barriers to using alternative modes. However, sometimes an incentive is needed for people to at least *try* an alternative. Some universities will ‘hold’ people’s parking permits with the promise that they can have their old spot back if the alternative does not work out. Emory University offers commuters who have been driving alone \$3 a day for up to 90 days when they try an alternative. These and other creative offers should be considered.

7.6 Transportation and East Carolina University Life: A Mutually Supportive Relationship

Finally, the following recommendations cover some issues at the intersection of transportation and overall life at East Carolina University. Transportation often needs to be part of both the corporate and the individual decision-making process; these decisions can in turn help to support the University’s transportation goals.

Internal awareness-building and training: Achieving the Plan's goals will require decision-makers across the University community to be aware of the Plan, its impacts, and the relationships between transportation and the wide range of decisions that always need to be made on a campus. This includes not only major decisions such as capital projects but also more mundane decisions such as event locations or detailed facility design issues. The Department of Parking and Transportation Services should undertake awareness-building and training for other East Carolina University staff, covering the Plan, its impacts on current and future projects, and how it will need to be taken into account in decision-making. This will be particularly necessary at East Carolina University as parking and transportation concerns will need to be incorporated in to all major projects on the campus.

Building location and design review: The location of new East Carolina University buildings, and the design of new or refurbished buildings, should take their transportation needs into account. New buildings that generate significant travel demand should be close to campus transit routes. Site layouts and building design should promote access by pedestrians and bicyclists. The Department of Parking and Transportation Services should be involved at an early stage in **ALL** building proposals.

Supporting off-campus housing choices: East Carolina University and the other transportation providers are not realistically able to provide transportation between every commuter's neighborhood and the campus. It is therefore important to understand the transportation options available when making a housing decision, rather than afterwards, particularly for students and staff who are new to the area. Some universities produce a booklet or map that shows apartments with transit service to campus or within walking distance, and this approach should be explored. This map could focus on the routes serving the neighborhoods near campus and not those apartment communities serviced by dedicated transit routes.

Any additional mobility needs should be kept under review. For example, some resident students pointed out difficulties in visiting a grocery store without a car. For others, the need may be to reach off-campus entertainment, volunteer activities, an airport or other locations. Often, the answer may be as simple as providing 'how to get there' information; the maps (and other resources) at www.redefinetravel.org are a useful example of this. This could be an area where a partnership with GREAT would be highly effective. Like all the other TDM strategies, the aim is to help people to help achieve East Carolina University' goals.

7.7 Summary of Recommendations on TDM and Supporting Measures

- Construct a 400 space student storage lot, located in Warehouse District near Campus Police Station. Lot must be fenced and gated and served by transit once or twice a day. This lot could reduce parking demand on main campus by 400 spaces.
- Examine the viability of additional park and ride lots for employees.
- Incorporate existing programs into an expanded Commuter Alternatives Program.

- Encourage ride-sharing by offering priority parking spaces and aggressively promoting the program.
- Support walking and bicycling by providing more access to the on-demand after-dark 'SafeRide' service for people living close to campus.
- Expand the 'Zipcar' car-sharing service.
- Further develop the bicycle loan service.
- Support people who use alternatives, by offering a Guaranteed Ride Home and occasional parking vouchers and/or pay-as-you-go parking.
- Develop 'Parking Cash-Out' or a 'Transportation Allowance' that rewards sustainable choices while retaining a social equity policy.
- Continue working with GREAT and other operators to offer the East Carolina University community free or discounted travel on local buses and trains.
- Provide a full-time TDM Coordinator dedicated to helping commuters learn about alternatives and to promoting alternative modes.
- Consider ways to promote the full range of transportation options during employee and student orientation.
- Further develop publicity and information materials, ensuring that they promote the full range of transportation options.
- Offer Individualized Travel Marketing – giving people details on alternatives available for their own commute – in a 'marketing campaign' style and/or for orientation.
- Consider offering incentives for people to try out alternative modes for the first time.
- Undertake awareness-building and training for East Carolina University staff, covering the Plan, its impacts on current and future projects, and how it will need to be taken into account in decision-making.
- The Department of Parking and Transportation Services should be involved at an early stage in ALL building proposals, to ensure that transportation needs are fully taken into account.
- Support off-campus housing choices by highlighting locations with transportation links to campus.
- Keep any additional mobility needs under review and offer support or advice as appropriate.
- Consider parking restrictions for students, particularly underclassmen and those living near campus or in apartment communities served by ECUSTA. Student parking bans have the largest potential to reduce parking demand.

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