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East Carolina University

Comprehensive Master Plan

Transportation Element Needs Assessment

Draft Report

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Transportation Element – Needs Assessment

1 OVERVIEW

The following document represents a needs assessment of the transportation system at East Carolina University and the surrounding areas. The assessment contained in this document is for a no build scenario. Current population growth estimates are utilized for this assessment but no new buildings are assumed. The aim of this document is to frame the issues and improvements that will be necessary to accommodate the growth forecast for the campus. As new building locations are identified and changes to current land uses (i.e. parking lots becoming building sites) are forecast this assessment will be updated in a separate document to reflect those plans.

This document is broken down in to five main sections. Those sections are:

- Pedestrian Improvements
- Bicycle Improvements
- Transit Improvements
- Parking Improvements
- General Transportation/Operational Improvements

In many cases these sections are self contained, but there is some overlap. As this assessment is updated to reflect the Master Plan these sections will become more interrelated particularly as it pertains to parking losses. The goal of this document is to begin the process of moving away from non-sustainable practices and towards sustainable practices.

Table 1.1 Sustainable and Non-Sustainable Practices

	Parking & Traffic Department	Student Transit Authority
Sustainable Practice	• "Real-cost" permit sales • Occupancy-based permit sales • "Park once" emphasis • Travel Demand Management programs • Long-range parking strategies	• Service area limitations (off campus) • Formalized bus stop locations and times • Easy transfers to other transit systems • Capital Improvement Plan
Non-Sustainable Practice	• Subsidized parking permit costs • Subsidized parking deck construction • Maximum permit flexibility (drive to meetings) • "Hunting" for parking spaces • Free visitor parking	• Subsidized transit costs to apartment complexes (75% of operating costs) • Demand-responsive route planning • Non-quantifiable decision making
Caveats	• Parking Enforcement program • 5-Year Finances Plan • Departmental outreach program	• Full-time driver safety coordinator • Departmental outreach program

2 PEDESTRIAN IMPROVEMENTS

2.1 Main Campus

2.1.1 On-Campus Improvements

Much of the pedestrian infrastructure on campus is well suited to accommodate the needs of East Carolina University. The exceptions to this are the sidewalks and paths along the city streets on the periphery of campus. Current sidewalks, especially those along Cotanche Street and Charles Boulevard, are too narrow to handle large pedestrian volumes, located on the back of curb, and have impediments within the sidewalk as shown in figure 2.1. Sidewalks should have a setback of at least 3' and ideally 5' or more. Sidewalks should be 5' wide and ideally 8' wide to accommodate high pedestrian traffic. All impediments should be removed from within the sidewalk. For locations where sidewalk is directly behind the back of curb impediments should be moved to behind the sidewalk. For areas where a setback exists impediments could be relocated to the setback, and potentially be coupled with increased setbacks.

Figure 2.1 Current Conditions on Cotanche Street

Additional on-campus improvement recommended for improved pedestrian conditions include prohibitions on service vehicles blocking sidewalks and removing or restricting vehicle access to Alumni Lane, Faculty Way, Cupola Court and Founders Drive. Service vehicles blocking pedestrian paths is an occurrence at all Universities, however the frequency with which it has been observed at East Carolina University seems to be greater than at other peer institutions. Removing or restricting access to roadways around the Main Quad will eliminate many vehicle-pedestrian conflicts and make the campus a pedestrian only area. Restricting vehicles to these facilities will have to be judged against the effects it may have on parking and emergency services response and to a lesser extent service deliveries.

Figure 2.2 Pedestrian Service Vehicle Conflicts

2.1.2 Off-Campus Improvements

Off-campus the University needs to work with the City of Greenville to improve pedestrian paths to campus. This includes but is not limited to:

- Filling in gaps in the sidewalk network in the Tar River University Neighborhood, focusing first on areas between 5th Street and 1st Street and then on areas north of 1st Street;
- Filling in gaps in the sidewalk network east of campus, particularly along 6th Street;
- Filling in gaps in the sidewalk network south of campus along/near Charles Street;
- Exploring the potential for a direct walking path, either a sidewalk or a multi-use path, between the Minges Park and Ride lot and main campus; and
- Provide better crossing treatments at intersections along the periphery of campus. Ideally these treatments would be similar if not the same as the current stamped painted crossings used in the downtown area.
    - It should be noted here that if stamped painted crossings are the selected treatment then they will have to be maintained in good condition at all times so as not to send the message that pedestrians are unimportant.

2.2 Health Sciences Campus

2.2.1 On-Campus Improvements

The problems of the Health Science Campus are significantly different from those of the Main Campus. The existing walkways on the Health Sciences Campus are in most areas sufficiently wide enough to accommodate the pedestrian traffic that would be expected on a medical science campus. There were few if any observations of service vehicles blocking walkways on the Health Sciences Campus. Unfortunately, the issues negatively impacting the pedestrian network

on the Health Science Campus are much more difficult to address than those on the Main Campus.

The existing layout of the Health Science Campus is not conducive to walking trips. The buildings on the Health Science Campus are generally separated by streets and parking lots and as such no unobstructed walking path exists between buildings. Additionally, the buildings face parking lots as opposed to facing one another. This means that walking paths from one building front door to another buildings front door often require walking around one or both buildings, adding unnecessary length to a walking trip between buildings. Increased building density on the Health Sciences Campus would help to promote walking trips. Allowing full access to buildings from secondary locations closer to other buildings would help improve existing conditions. A covered walking path across Service Drive would also improve pedestrian circulation between the Hospital and the Health Science Campus.

2.2.2 Off-Campus Improvements

The off-campus pedestrian network in the vicinity of the Health Science Campus provides most of the infrastructure that is needed to walk from nearby areas to campus. Crossings on Fifth Street and Strantonsburg Road could be improved, possibly with the use of a HAWK signal. That said, the off-campus network surrounding the Health Sciences Campus is considered more robust than the network around main campus and any improvements to off-campus areas should be prioritized around Main Campus first.

3 BICYCLING IMPROVEMENTS

3.1 Main Campus

3.1.1 On-Campus Improvements

At East Carolina University bicycles seem to be able to get around the campus very well. The problem for cyclists is what to do with the bicycle while it is not being used. There are a number of different bicycle rack options being used on campus. This can be confusing to novice cyclers who may not be familiar with all options and maddening to more advanced cyclists who may not be able to lock their bicycles securely to all types of racks. A uniform bicycle rack would be the preferred option for campus.

In addition to the type of parking provided the manner in which it is currently being provided needs to be improved. Bicycles do not park like cars. Cars park in lots while cyclists anticipate being able to park near their destination and preferably in a covered area. Current bicycle parking racks need to be decentralized and placed closer to building entrances, preferably in a covered location. Covered parking would be a great improvement and should be located at both class buildings and residence halls if possible.

Figure 3.1 Example of Unmet Bicycle Parking Demand

To improve the cycling conditions on campus the University should look for a location to provide a bicycle maintenance station. Such stations exist on other campuses and are frequently student operated. The maintenance station would need to have operating hours a couple of days a week and provide basic maintenance such as tire repair, general tune up and lubrication services. Ideally such a station would be located near an existing high traffic area such as Wright Plaza or the Student Rec Center.

In the future the campus population should be polled to determine their desire for a bicycle locker at the Minges Park and Ride Lot and the large commuter lot on the southeast corner of

10th Street and College Hill Drive near the Green Mill Run Greenway (Lot CH-3). The locker at the Minges lot would cater to drivers who utilized the park and ride lot but stored a bicycle at that lot to get to and around main campus. The locker in the CH-3 lot would be geared to cyclists who used the Greenway to commute to campus and wanted a location convenient to the greenway to store their bicycle.

3.1.2 Off-Campus Improvements

Off-campus the University needs to partner with the City of Greenville to work on the construction of the greenways and paths in the 2004 Greenway Master Plan. Many of the proposed paths in that document have direct links to campus. These links could be very useful in moving students and employees to and from campus in the future.

In addition to that the University should partner with the City to add bike lanes to roads leading to campus. Of most importance are 10th Street, Elm Street, and Charles Street. Additionally extending the current bike lanes on 5th street to the east would be very beneficial. In all cases the existing cross-sections will need to be studied to determine what changes need to occur to support bike lanes. In some locations the bike lanes exist already but are unmarked. For these areas the bike lane pavement marking and the appropriate signage (MUTCD sign R3-17) should be added.

As noted in the Pedestrian Improvements section a direct connection between the Minges Lot and the main campus could provide a benefit. A bicycling connection could be contained mostly on a separate path or it could include bike lanes on existing streets. For example, a bike path between the Minges Lot and Main Campus could be achieved by striping a bike lane on Charles Boulevard between 10th Street and Greenville Boulevard.

3.2 Health Sciences Campus

3.2.1 On-Campus Improvements

The bicycle facilities on the Health Sciences Campus are well suited to the needs of the cyclists on campus. Bike racks are decentralized and located near building entrances. One item that could improve cycling conditions on the Health Sciences Campus is the addition of bicycle lanes. Providing a dedicated area for cyclists could make cycling around the campus easier and more attractive as well as help to calm traffic on roads internal to the campus. The benefit of adding bicycle lanes would have to be balanced against any potential costs, especially as it pertains to parking spaces. Striping bicycle lanes on Service Drive would perhaps give the most benefit to cyclists of any bicycle lanes that could be striped on the Health Sciences Campus. That said striping those lanes may come at the cost of removing surgeon parking along Service Drive. This cost seems too high for the benefit provided. This is not to say that the benefits of bicycle lanes are outstripped by the cost of any parking. Removal of some parking spaces for bicycle lanes could provide a significant benefit for the cost. The parking for surgeons, however, is considered of a particularly high value for the benefits it provides those in need of emergency surgery and the usefulness it has in attracting and retaining surgeons.

3.2.2 Off-Campus Improvements

As with the Main Campus, the University needs to partner with the City of Greenville to work on the construction of the greenways and paths in the 2004 Greenway Master Plan. Many of the proposed paths in that document have direct links to the Health Sciences Campus. These links could be very useful in moving students and employees to and from campus in the future.

In addition to that the University should partner with the City to add bike lanes to roads leading to the Health Sciences Campus. Of most importance are Stratonsburg Road, Fifth Street, and Moye Boulevard. In all cases the existing cross-sections will need to be studied to determine what changes need to occur to support bike lanes.

4 TRANSIT IMPROVEMENTS

The current transit system for East Carolina University is very robust, providing high quality service at a very reasonable cost per service hour. The East Carolina University Student Transit Authority (ECUSTA), which runs the system, is focused on providing high quality service to their users. The following sections detail immediate and short term recommendations that ECUSTA can implement to improve existing service. Additional recommendations for long term improvements will be included in the final Master Plan document.

4.1 Main Campus Improvements

Perhaps the most critical need for current operations is the formalization of bus stop locations and times. Some stops, such as the Christenbury lot, the Joyner Library and the Student Rec Center already have become established. That said, those locations lack shelters, system information and signage. Improving the signage and amenities will help to reinforce the message that transit is the preferred mode to access campus and provide information to the users.

It is also recommended that the Wendell Smiley Way in front of Joyner Library be utilized as the main transit hub on campus. This location is more centralized than existing stop locations and will deliver transit users to the heart of campus. We also recommend that the Christenbury and Speight stops be retained in some fashion. The Christenbury stop will still be important as it is the stop closest to the academic center of campus and the Speight stop is ideal for servicing transit commuters from the east and north of campus. The demand for these stops will remain high and increase through time. That said, Wendell Smiley Way in front of Joyner Library is a better location for timed stops and layovers than the Christenbury or Speight stop.

4.2 Health Sciences Campus Improvements

On the Medical Campus the ECUSTA should gauge the interest in providing a campus circulator service. Ideally this service would be run in conjunction with the Pitt County Memorial Hospital (PCMH). PCMH is already running a shuttle service on their portion of the campus. Partnering with PCMH would prevent the ECUSTA from providing duplicate service and facilities (shelters, signage, etc). Partnering would also provide the entire campus with the highest quality service as opposed to two competing services. Such a service may not be needed immediately but would likely be needed as the Health Sciences Campus expands.

The addition of a campus circulator could also improve the existing Red Route service. Currently the Red Route has numerous stops on the Health Sciences Campus which increases the length of the route. The Red Route could drop off at a central point and riders could transfer to the Health Sciences Campus circulator, thus reducing the length of the route and potentially increasing the frequency of service between the Health Sciences Campus and Main Campus.

4.3 General Recommendations

Off-campus stop often lack basic signage alerting users to stop locations. This is particularly problematic on routes that aren't focused on an individual apartment community. This could lead to underuse. Formalizing stops will go a long way to improving the transit experience and will help to market transit services to potential users. If signs cannot be erected identifying locations on the transit map could be used as a substitute strategy. Physical demarcation of stops is the preferred alternative.

ECUSTA needs to begin conversations with Greenville Area Transit (GREAT) and the City of Greenville regarding federal transit funds that are currently going unused. The key to this will be working with GREAT and the City and not against them for the limited pot of funds. It should be noted that obtaining federal funds will likely require that the ECUSTA service be open to all. The ECU community will need to be part of any discussion that opens the service to other users.

ECUSTA needs to identify a more permanent bus service depot. Bringing these services in house may require a large up-front investment but should be a better use of funds in the long term. Ideally this would be near campus to reduce deadhead time to and from the depot. Potential locations already owned by ECU include the warehouse property on Beatty Street or the current location of the freshmen storage lot (OP-7). The freshmen storage lot is particularly appealing because in addition to its proximity to campus the lot is already fenced and the location provides the opportunity to partner with PCMH on bus service.

Additional operational improvements include:

- Review ridership data for the 402 Brown route and determine if off-peak service can begin prior to current start at 4:00 P.M.
- Review ridership data for the 303 Blue route and determine if service needs to be provided every day.
- Consider revising the Gold Route to provide less service to the Freshmen Lot. Currently service to the lot is provided every 40 minutes from 7:00 A.M. to 11:00 P.M. Monday thru Friday. At the least examine reduce service to the Freshmen Lot during peak on-campus class times (9:00 A.M. thru 2:00 P.M.).
- Identify an alternative revenue source to support Pirate Express Night Routes. Night time bus service between apartment communities and the downtown area is not a core need and should not be funded in part by student transit fees.
- Reduce or eliminate stops on Seventh Street (Student Rec Center) with the exception of the Red Line. Stops for routes other than the Red Line can be eliminated or relocated. This location can serve the campus community better as a drop-off/cell-phone lot.

Lastly, and perhaps most importantly, ECUSTA needs to examine and determine what role it will play in the future of East Carolina University. The plan produced by the current Master Plan process is likely to reduce parking on main campus. This will have the effect of forcing faculty and staff to park in a location not on main campus. ECUSTA needs to determine what role they want to play in providing transit services to non-students. Additionally, ECUSTA may

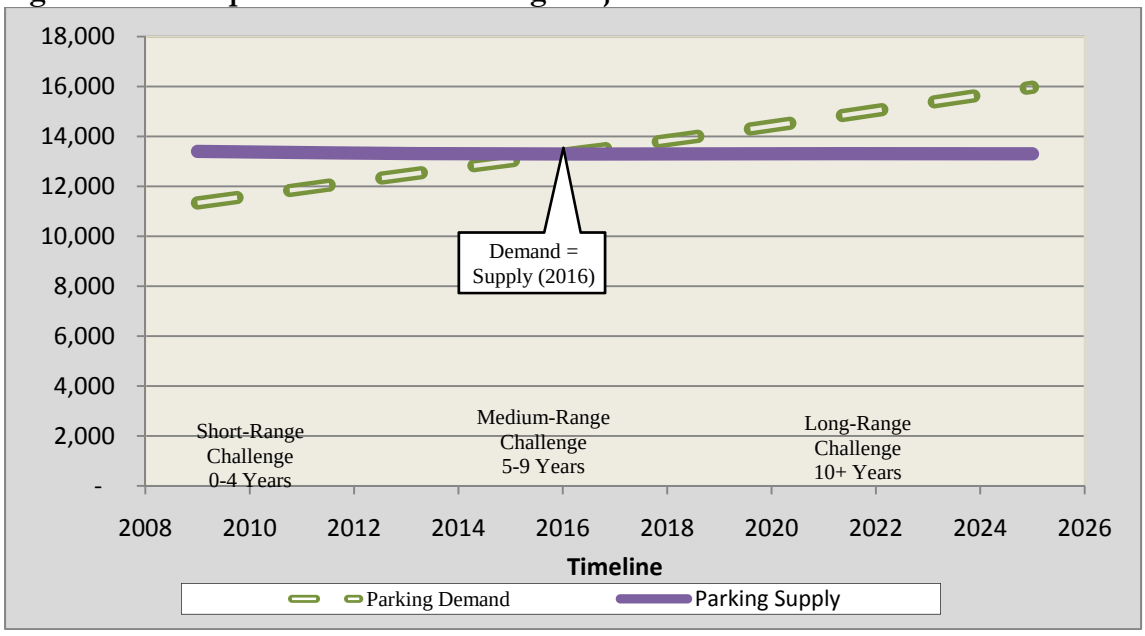
desire to rebrand during this process, at the very least dropping the "Student" portion of the name to show a new focus toward non-students.

5 PARKING IMPROVEMENTS

The current parking system works well providing spaces for those who want them. Weekday demand is currently below supply as lots have empty spaces during peak periods. Parking permit prices are relatively low as all parking is in surface lots on or near campus. As noted in the Pedestrian Improvements section, there are conflicts between service vehicles and pedestrian paths that should be addressed, but outside of that there are few current issues with the parking system. The challenge for parking, which is laid out below, comes in the future.

Given the forecasted growth in student enrollment and faculty/staff employment these conditions for parking will change over time. As of the 2009-2010 academic-years the total on-campus enrollment (excludes distance education students) for East Carolina University was 19,039 students with a total faculty and staff of 5,343 persons. The current parking demand is roughly 11,333 spaces during the peak time which is below the current capacity of 13,400 spaces. The enrollment and faculty staff levels are projected to grow to 26,649 and 7,573 respectively by the 2024-2025 academic-years. Parking demand will grow to 15,972 assuming demand per person remains at the current levels. Current plans call for the removal of approximately 100 spaces between now and 2014. Assuming there are no other reductions in the parking space inventory the parking demand in 2024 will be greater than the supply by 2,672 spaces. It is anticipated that the demand for spaces will be roughly equal to the supply in the 2016-2017 academic year and demand will be greater than supply the following year. These projections are shown in Figure 4.1

Figure 5.1 Population Based Parking Projections for No-Build Scenario



This analysis represents a no-build scenario. As part of the on-going master planning process parking lots are likely to be utilized as building locations. This would reduce parking supply, increase the deficit in 2024, and potentially move forward the time when parking demand will be greater than supply. This analysis will need to feed in to the process and be updated as the

master plan is finalized. This will inform decisions on how robust of a system will be needed to meet the unmet parking demand and how quickly any system will need to come online.

It should also be noted that this analysis is for the University as a whole. While supply is greater than demand on the campus as a whole, demand is greater than supply in some locations. On the core of main campus, for example, there is more demand for parking than there is supply. It is likely that this condition will be exacerbated in the future. The parking lots on main campus are the ones most likely to be converted to building sites. This will not only reduce the parking supply on campus but it will increase the demand by bringing more people to main campus.

While the specifics of how to address this cannot be determined now, one thing is clear: Transit will have to play a bigger role in parking particularly as it pertains to moving faculty and staff from parking spaces to work locations. To prepare for this eventuality it is very important that the Transit and the Parking departments begin to work more closely with one another now so a high level of service can be provided to the entire university population when it becomes more critical in the future.

Regardless of when a system is needed or how large such system needs to be there is no doubt that some system will need to be created to meet this unmet demand. Such a system will include both new supply alternatives and travel demand management strategies. New supply alternatives can include additional park and ride lots, which will require transit service and potentially land acquisition, and parking structures, which have significant costs. Travel demand management, some of which the University is already using, strategies could include:

- Incentivizing alternative modes, such as walking, bicycling, and car/vanpooling;
- Providing priority parking spaces for carpools/vanpools;
- Provide/increase short term car rental (programs scheduled to begin this academic year);
- Provide occasional use parking vouchers for those that agree not to buy a parking permit;
- Add strategically located metered parking;
- Offer free transit passes for GREAT bus service;
- Provide an emergency ride home program for those who use alternative modes; and
- Parking restrictions.

It is being recommended that the University explore reducing the number of permit types available. Specifically, the A3, A5 and A7 permit types as well as the B3, B5, and B7 permit types seem duplicitous. Preliminary analysis would suggest that only one type of "A" and one type of "B" permit would be sufficient for the Health Sciences Campus. This would allow for more choice to permit holders on the Health Sciences Campus and reduce the complexity of the system for enforcement and administrative personnel.

No other specific recommendations are being made for parking at this time. As the Master Plan is further developed the parking infrastructure on campus will change. To avoid potential conflicts recommendations will be held back until such time as the Master Plan is developed more fully. Based on survey results there is a need for a drop-off zone and for a cell-phone lot.

To avoid having to relocate said facility in the short term a specific location for those amenities and other changes will be held back until the Master Plan is more fully developed.

6 GENERAL TRANSPORTATION/OPERATIONAL IMPROVEMENTS

First and foremost on this list is working with the City of Greenville and the NCDOT to improve 10th street along the campus to be more pedestrian and bicycle friendly. The facility is currently four lanes wide with a median and turn lanes at intersections. The median along the corridor changes from a two-way left turn lane to a basic concrete median on the eastern edge. Sidewalk where it exists is generally along the back of curb. Ideally 10th would have a continuous planted median with few breaks, bike lanes on both sides of the road and sidewalks with 5' setbacks. This would provide a safe path for pedestrians and bicyclists while still moving traffic efficiently.

In addition to 10th Street, 5th Street could use some improvements. While not as inhospitable to pedestrians and bicyclists as 10th Street, 5th Street is not as attractive as it could be. The current cross-section includes 2 travel lanes, bike lanes in both directions, street trees, and sidewalk setback from the curb. While these are all positive aspects the corridor has an inconsistent curb treatment (granite in some locations, concrete in others) as well as a paved gutter pan. The granite curb should be replaced as needed with concrete curb as the granite curbs can be destructive to bicycle tires. Additionally the road itself should be re-surfaced to eliminate the cracking, provide better striping, and unpaved gutter pans. These improvements would provide a more aesthetically pleasing entrance to the campus and a better experience for all users.

Figure 6.1 5th Street Existing Conditions

Given the conflicts between pedestrian paths and service vehicles the University should look at some way of minimizing these conflicts. One potential improvement is to centralize all shipping and receiving at an off-campus location and then distribute items to campus at during period of lower pedestrian activity (afternoons, weekends, and after business hours). Another alternative would be to provide more service parking and actively enforce said parking.

Operationally it is recommended that the University bring parking and transit under the same Vice-Chancellor. As the University grows and parking is pushed off of main campus transit will need to serve the needs of the faculty and staff in addition to the students. Parking and Transit

will need to work co-operatively to ensure that a coordinated service is provided to all users. To facilitate this coordination the two departments should report to the same vice-chancellor with the same unifying goals relating to the mobility of all users. The role of Transit will change and grow as the University grows. It is critical that the University act pro-actively now so that the kinks can be worked out of the system before demand grows.