MEETING SUMMARY OF A REGULAR MEETING OF THE PUBLIC TRANSIT COMMITTEE
CHAPEL HILL TRANSIT TRAINING ROOM

Tuesday, August 28, 2018 at 11:00 AM

Present: Michael Parker, Chapel Hill Town Council
Nancy Oates, Chapel Hill Town Council
Bethany Chaney, Carrboro Alderman
Donna Bell, Chapel Hill Town Council
Damon Seils, Carrboro Alderman
Julie Eckenrode, Assistant to Carrboro Town Manager
Than Austin, UNC Transportation & Parking
Cheryl Stout, UNC Transportation Parking

Absent: Brad Ives, UNC Associate Vice Chancellor for Campus Enterprises

Staff present: Brian Litchfield, Transit Director, Nick Pittman, Transit Planning Coordinator, Rick Shreve, Budget Manager, Tim Schwarzauer, Grants Coordinator, Matt Cecil, Transit Development Manager, Flo Miller, Deputy Town Manager, Kayla Seibel, Long Range and Transportation Planner, Bergen Watterson, Transportation Planning Manager, Zachary Hallock, Carrboro Transportation Planner, Lindsay

Guests: Fred Lampe, Molly DeMarco, Heather Brutz – Transportation and Connectivity Advisory Board

1. The Meeting Summary of June 26, 2018 was received and approved.

2. Employee Recognition – Brian recognized Michelle Sykes-Parker who has been promoted to Training and Safety Specialist and Travis Parker who has been promoted to Assistant Operations Manager-Demand Response.

3. **Consent Items**

   A. FY 2018-19 Budget Update and July Financial Report – Brian reviewed this item for the Partners. He highlighted cuts to SMAP funding and the award of funds for the reimbursement of bus purchases. He also noted that the Capital Plan is being adjusted to reflect decrease in the number of buses in service from 99-93.
   The annual contracts are in progress.

   B. Disposition of Vehicles – This was provided for the Partners information.

4. **Discussion Items**

   A. North South Corridor Bus Rapid Transit – Matt reviewed the item for the Partners. He reviewed the recommendations. The LPA from 2016 us being proposed which does not included extension to the Durham Technical Community College. It is also recommended

that the 420 service be improved as funds are available. An update will be provided to the Partners in October after this has been presented to the Chapel Hill Town Council.

B. EZ Rider Advisory Committee Appointments – Brian reviewed the process to select the candidates for appointment. Seven members were selected: Jane Whittier, Allen Stutts, Clara Miller, Ellen Perry, Kevin Shields, Kathryn Shipman and Robert Warren. The Partners approved these members by consensus.

5. **Information Items**

A. Microtransit Pilot Project Update – Nick reviewed the item for the Partners. Staff is working with TransLoc on a simulation and test for this service. An update will be provided in October. It was noted that goals for this project need to be defined.

B. Bus Build & Project Update – Brian reviewed this item. Six more new buses will be arriving late January or early February.

He reported that the RFP's for bus stop improvements and the repairs to the Jones Ferry Park/Ride lot need to be reissued.

C. Short Range Transit Plan Update – Nick reviewed this update for the Partners. Another update will be coming in October.

D. August Service Adjustments – Provided for information.

E. Transit Advertising Request for Proposals Update – Brian reviewed the item. The RFP should go out in early September.

F. Tar Heel Express Update – Brian reviewed this item for the Partners.

G. FY 2017-18 Summary Performance Report – Brian reviewed this item. It was noted that ridership has increased. One of the members asked for some qualitative reporting to be included in the report.

6. **Departmental Monthly Reports**

A. Operations – This item was provided for the Partners information.

B. Director's Report – Brian noted that CHT has received a grant award for the purchase of 2 electric buses. It is unclear whether the charging stations were included in the award. Staff has submitted a grant application to the EPA for up to 7 electric buses. If CHT was awarded this grant it would cover 45% of the cost of 7 electric buses.

7. **Future Meeting Items**

8. **Partner Items**

9. **Next Meeting** – October 23, 2018 at Chapel Hill Transit – Transit Training Room

10. Adjourn

The Partners set a next meeting date for October 23, 2018

CONSENT ITEM October 23, 2018

3A. August/September Financial Report

Prepared by: Rick Shreve, Budget Manager

September 2018

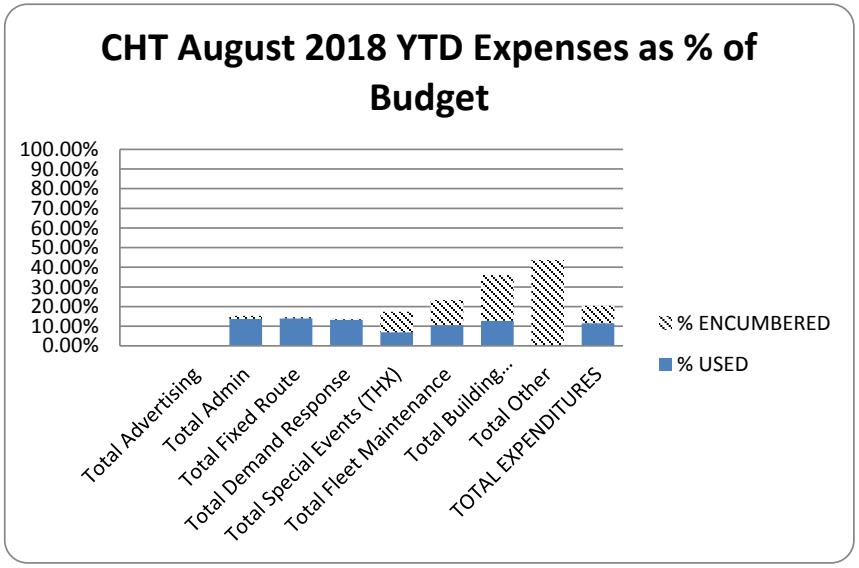
- Expenses for the month of September were $1,376,311. Along with the encumbrances, which are heavily weighted towards the beginning of the fiscal year, approximately 29.20% of our budget has been expended or reserved for designated purchase (e.g. purchase orders created for vehicle maintenance inventory supplies encumber those funds, and show them as unavailable for other uses).
- One significant caveat to note is that these data are subject to some changes, pending the Town of Chapel Hill's audit process for FY17-18. This process allows for identifying invoices that have been charged to the previous year that more accurately fall in the current fiscal year, as well as current year charges that will revert to the previous year.
- We will provide an update on the FY17-18 audited figures once we have final numbers; this will likely be available for the November Partners' meeting.

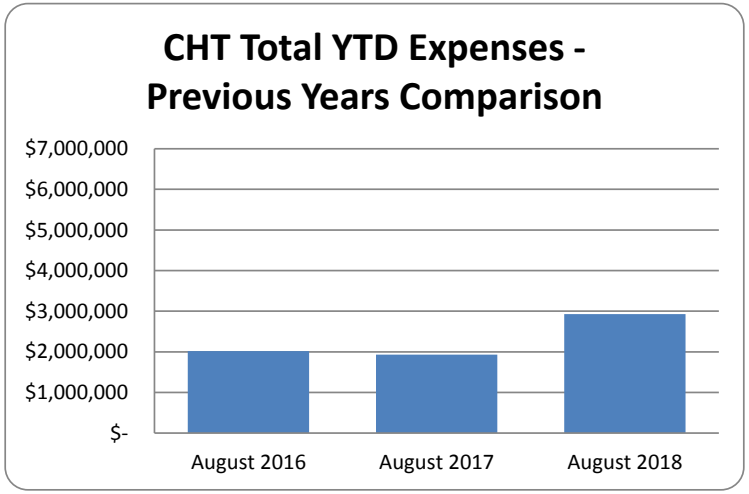
Highlights

- This aggregation of expenses and encumbrances for the first quarter of the fiscal year is consistent with years past, and is perfectly in line with what we would expect at this point in the year.
- The higher-than-typical encumbrances in the "Other" expense category are primarily associated with the North-South BRT work, largely funded by the Orange Transit Plan.
- The attached data exhibits the financial information by division within CHT, and should be a useful tool in monitoring our patterns as the year progresses, and is a high-level representation of the data used by our division heads.
    - It is worth noting that the "Special Events" line is mostly comprised of Tar Heel Express expenses, and the line labeled "Other" is comprised primarily of special grant-funded expense lines that are not permanent fixtures in the division budgets.

Transit 640 Fund Budget to Actual at end of August 2018

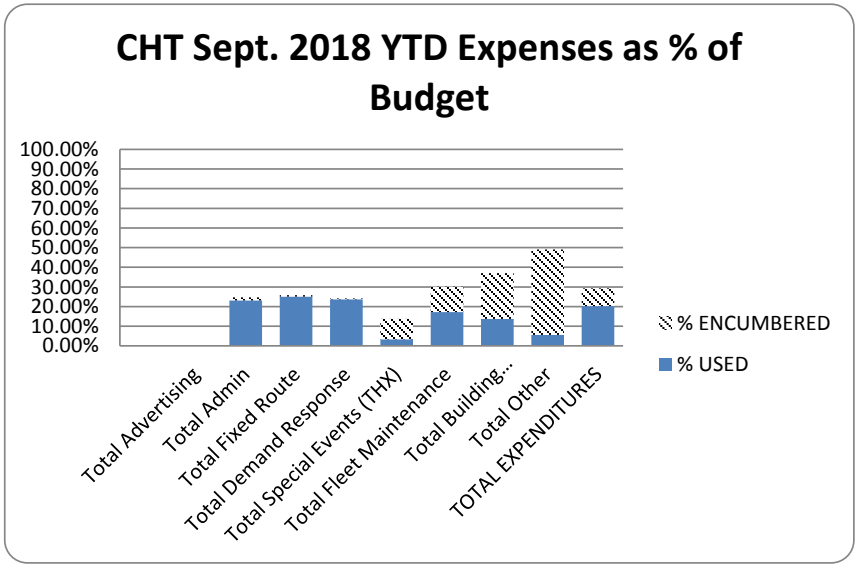
	ORIGINAL BUDGET	REVISED BUDGET	ACTUAL MONTH EXPENSES	ACTUAL YTD EXPENSES	CURRENT ENCUMBRANCES	BALANCE AVAILABLE	% USED OR ENCUMBERED August = 16.67%
Total Advertising	$ 91,916	$ 91,916	$ -	$ -	$ -	$ 91,916	0.00%
Total Admin	1,982,264	1,990,764	135,789	274,295	30,231	1,686,238	15.30%
Total Fixed Route	11,899,399	11,899,399	824,850	1,666,197	75,868	10,157,334	14.64%
Total Demand Response	2,381,391	2,381,391	157,614	318,380	8,856	2,054,156	13.74%
Total Special Events (THX)	336,905	336,905	11,649	23,531	35,000	278,374	17.37%
Total Fleet Maintenance	4,766,675	4,921,368	255,658	516,429	631,136	3,773,803	23.32%
Total Building Maintenance	929,054	993,717	62,531	126,312	232,037	635,368	36.06%
Total Other	1,380,691	2,927,685	2,586	5,225	1,271,994	1,650,467	43.63%
TOTAL EXPENDITURES	**$ 23,768,295**	**$ 25,543,145**	**$ 1,450,677**	**$ 2,930,369**	**$ 2,285,122**	**$ 20,327,655**	20.42%

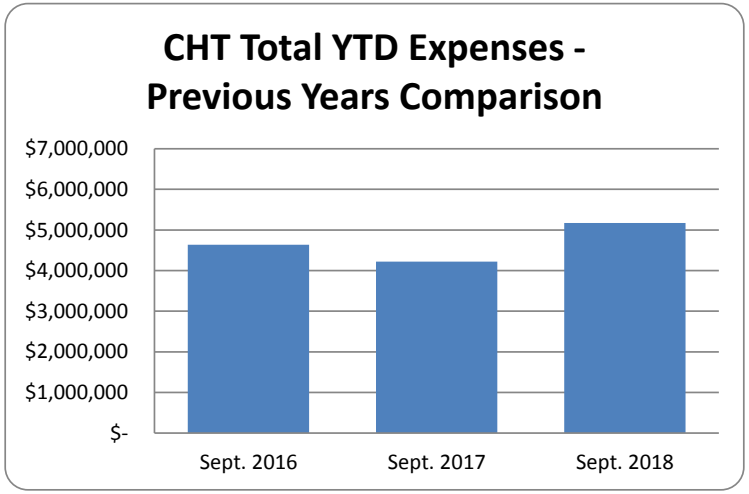




Transit 640 Fund Budget to Actual at end of September 2018

	ORIGINAL BUDGET	REVISED BUDGET	ACTUAL MONTH EXPENSES	ACTUAL YTD EXPENSES	CURRENT ENCUMBRANCES	BALANCE AVAILABLE	% USED OR ENCUMBERED Sept. = 25.00%
Total Advertising	$ 91,916	$ 91,916	$ -	$ -	$ -	$ 91,916	0.00%
Total Admin	1,982,264	1,990,764	128,833	462,166	30,231	1,498,367	24.73%
Total Fixed Route	11,899,399	11,899,399	782,590	2,987,705	75,868	8,835,825	25.75%
Total Demand Response	2,381,391	2,381,391	148,973	565,803	8,856	1,806,732	24.13%
Total Special Events (THX)	336,905	336,905	11,266	11,423	35,000	290,482	13.78%
Total Fleet Maintenance	4,766,675	4,921,368	242,330	846,011	631,136	3,444,221	30.01%
Total Building Maintenance	929,054	993,717	59,895	136,359	232,037	625,321	37.07%
Total Other	1,380,691	2,927,685	2,424	163,617	1,271,994	1,492,074	49.04%
TOTAL EXPENDITURES	**$ 23,768,295**	**$ 25,543,145**	**$ 1,376,311**	**$ 5,173,085**	**$ 2,285,122**	**$ 18,084,938**	29.20%





DISCUSSION ITEM October 23, 2018

4A. Short Range Transit Plan Update
Action: Receive presentation and provide staff and consultant team with feedback.

Staff Resource: Nick Pittman, Transit Planning Manager

Overview

Following the presentation of the draft preferred service scenario in the June 2018 meeting, staff hosted public outreach sessions in September related to the draft preferred alternative. During those meetings around 70 participants visited and provided comments.

During this month's meeting, staff from Nelson\Nygaard will be in attendance to present and seek feedback on the Long Term Strategic Issues previously reviewed with the Policy and Technical Committees.

Next Steps for Preferred Scenario

- Review comments from the public outreach sessions and online survey.
- Update to Partners Committee in November, with a likely presentation on the final scenario.

Next Steps for Overall Plan

- Develop options to serve areas beyond the current route structure for Chapel Hill Transit. These options will likely require funding to be identified.
- Develop and present performance metrics and dashboard.

Note

- Any service change(s) coming out of this process would be implemented in Fall 2019.

Attachment

- Draft Long Term Strategic Issues Fact Sheet and Report

Chapel Hill Transit Short Range Transit Plan

Long-Term Strategic Issues

October 2018

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LONG-TERM STRATEGIC ISSUES

While developing a transportation plan, there is a degree of uncertainty surrounding the future planning and operating context. These uncertainties are represented by a number of developmental, operational, and interagency variables that occur over a 10-year planning horizon. Analyzing these variables and assessing probabilities and outcomes for Chapel Hill Transit (CHT) provides insight into the role the transit agency will play in the future. Initiatives and variables analyzed include:

- Bus Rapid Transit (BRT) Implementation
- Regional Transit Service Coordination
- Regional Transit Initiatives
- Transportation System Planning
- Environmental Impacts
- Future Development
- Park-and-Ride Corridors
- Transit Hubs
- Light Rail Integration

This report describes the current conditions of these variables, identifies the potential opportunities they present for CHT, and makes recommendations based on literature review, technical analysis, and an assessment of probabilities and outcomes.

BUS RAPID TRANSIT IMPLEMENTATION

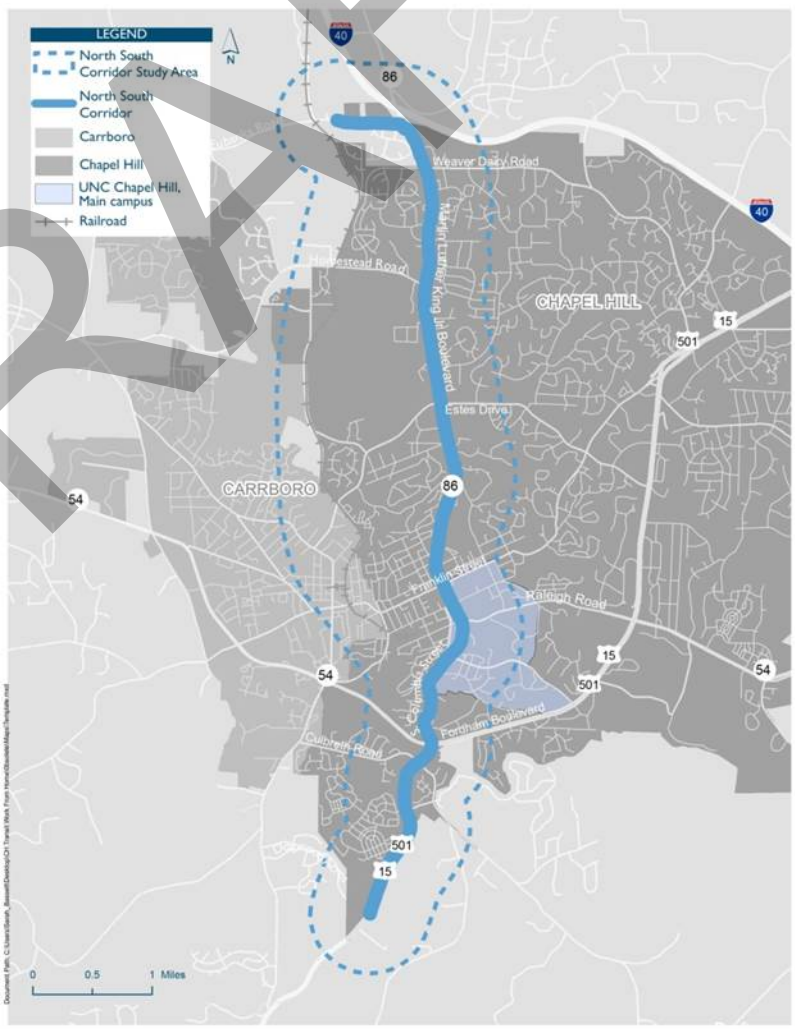
Introduction

Potential implementation of the North-South BRT corridor in Chapel Hill will have widespread implications for how the transit system functions. This evaluation considers the potential opportunities associated with developing and implementing BRT, as well as integrating local and regional services with the new BRT system. The Martin Luther King Jr. Boulevard corridor is the highest transit ridership corridor in the CHT service area. Transit demand in the corridor is expected to increase as large residential developments are completed over the next few years. The North-South BRT project is intended to create additional transit capacity and provide a high quality service to meet this growing demand.

Before BRT integration can start, the project needs final federal approvals, identified funding sources, engineering and design for infrastructure investments, and analysis for potential route extensions.

Current Conditions

The North-South Corridor Study project is currently in the environmental and preliminary design phase and has not yet finalized the level of service or infrastructure improvements that will be associated with the final design. The BRT project has not yet reached the 30% design phase and projected costs may be subject to change. As of May 2018, an additional extension providing east-west service from the Eubanks Road Park-and-Ride to Durham Technical Community College is still being analyzed for feasibility and may impact service recommendations upon completion of the assessment.

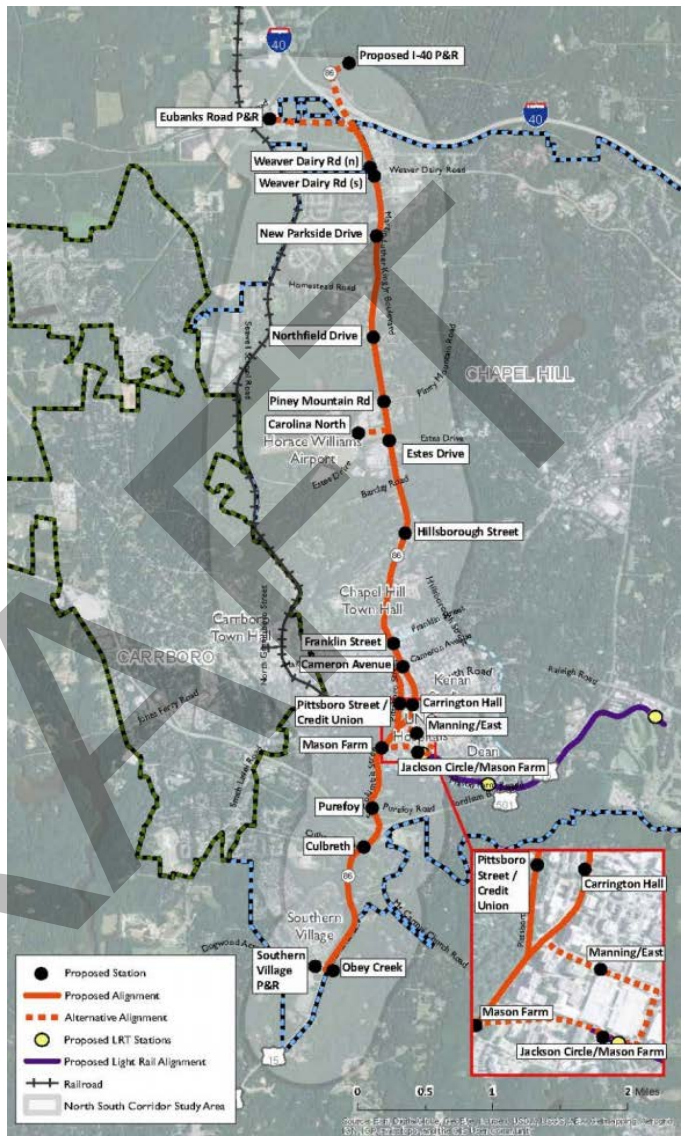


BRT Locally-Preferred Alternative

The existing Orange County Transit Plan includes $6 million in funding for this project, significantly less than the $30 million previously allocated. This amount of funding is insufficient to cover the local match requirement needed to secure federal funding, potentially jeopardizing construction and implementation of the BRT system. There is currently a $94 million funding gap, up to 80% of which may be federally funded, that must be bridged before the

project can move out of project development and into implementation. The project must first secure about $12 million in non-federal funding in order to qualify for the next round of Small Starts Grants and become eligible for additional federal funding.

While securing funding remains a major concern before moving the project forward, a Locally Preferred Alternative (LPA) has been developed from the study. The LPA is a combination mixed traffic/dedicated lane BRT route that will connect the Eubanks Road Park-and-Ride lot with the Southern Village Park-and-Ride lot along Martin Luther King Jr. Boulevard, South Columbia Street, and US 15-501. This alignment would operate on the major north-south transit corridor in Chapel Hill.



Proposed BRT Stations

Opportunities

Service Simplification and Feeder Service

The implementation of BRT on the main north-south transit corridor in Chapel Hill provides an opportunity for CHT to simplify service by reducing duplicative services on Martin Luther King Jr. Boulevard and South Columbia Street and establish feeder services with connections at BRT stations. This opportunity is largely dependent on the final alignment, level of service, and infrastructure treatments for the BRT system. Investing in feeder services may result in additional transfers for passengers, so improved travel times and frequent service on the BRT system will be necessary to maintain high levels of ridership and customer satisfaction.

The 2015 Service Plans Technical Memorandum recommended eliminating Route NS and modifying Routes A, NU, V, T, and G to provide complementary east-west services connecting to the BRT corridor. The underlying local CHT service is likely to continue operating as it does currently with only small changes to improve accessibility to the BRT line. While some services would be truncated and focused on encouraging transfers to BRT, it is likely that Routes A, HS, and T will continue to provide underlying local service after BRT implementation. This is to provide capacity during peak times and also to serve areas where the BRT does not stop. Also, feeder service may also be provided by on-demand type services that use smaller vehicles to serve nearby neighborhoods and destinations.

Enhanced Regional Coordination

Establishing a high frequency transit spine along Martin Luther King Jr. Boulevard provides an opportunity for increased coordination with other regional transit agencies, including GoTriangle. The northern terminus of the LPA, the Eubanks Road Park-and-Ride, currently serves CHT local routes and GoTriangle Route CRX. There is also potential to alter CHT and GoTriangle route alignments to serve the Southern Village Park-and-Ride Lot at the southern terminus of the LPA. Rerouting regional buses to serve these park-and-ride lots with seamless BRT connections to UNC Hospitals and downtown Chapel Hill would further simplify service. Additionally, limiting the number of transit vehicles operating in mixed-traffic travel lanes throughout the built-up areas near downtown Chapel Hill and the UNC campus may reduce service delays throughout the system. Any efficiency gains, however, must be compared to BRT vehicle capacity and the travel time impacts on those with longer commutes.

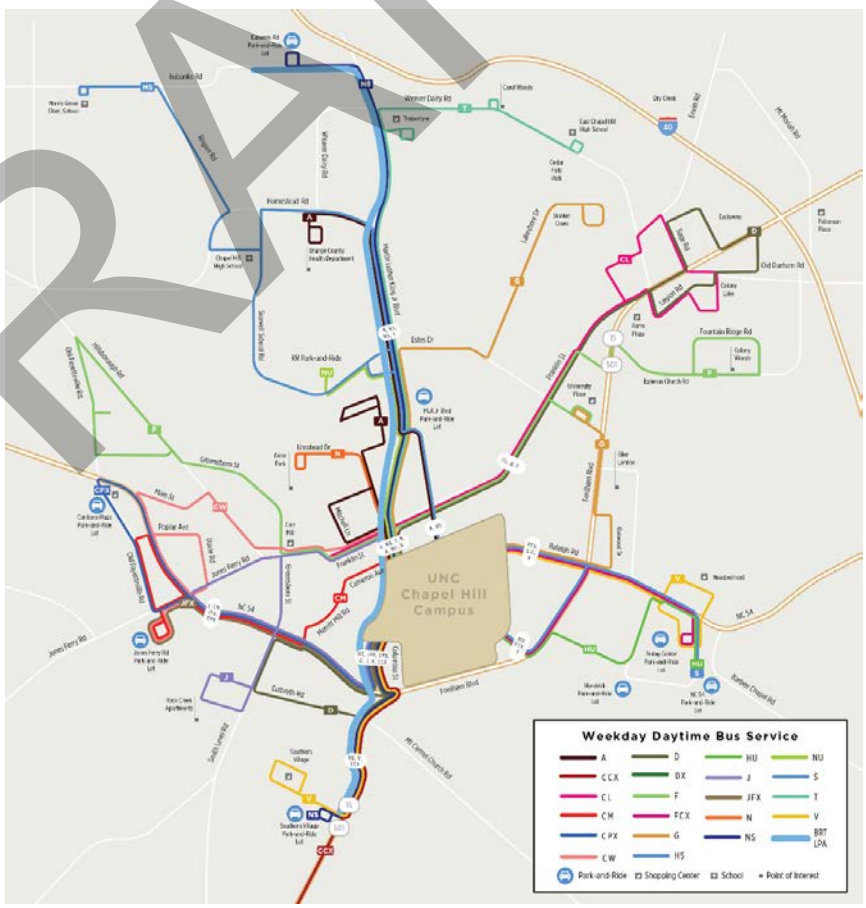
Additional High Capacity Transit Corridors

While planning work in recent years has focused on implementation of the North-South BRT corridor, there is also interest in looking at additional corridors for high capacity transit. In particular, an east-west alignment operating along Franklin Street from Eastowne/Patterson Place through Carrboro is of interest for additional study in the future.

Financial Implications

It is not anticipated that implementation of the North-South BRT will result in any savings to the existing system; rather, infrastructure improvements associated with the North-South BRT route would improve operating speeds and efficiency, make the service more attractive for riders, and meet future need for transit along this corridor.

Preliminary cost estimates for the LPA assume between $97 and $106 million in capital costs (2015 dollars) and a systemwide annual operating/ maintenance cost of $3.4 million (2015 dollars). Additional funding sources for both capital and operating costs, including local funding match, must still be identified before the project can move forward.



Proposed BRT Alignment and Existing CHT Service

Next Steps

The implementation of BRT on the Martin Luther King Jr. Boulevard corridor is still in the developmental stages and has not yet identified adequate funding sources to move into project implementation.

While BRT implementation provides the opportunity to restructure local services, the primary goal is to address future transit demand, not to reduce the costs for providing existing services. Meeting future demand is critical, especially as new residential development along Eubanks Road comes on-line and increases ridership potential. Without implementing the North-South BRT corridor, service frequency for Route NS will need to be increased to address growing demand on the corridor.

REGIONAL TRANSIT SERVICE COORDINATION

Introduction

Regional coordination has become increasingly important among agencies such as CHT, GoTriangle, Orange County Public Transportation (OPT), GoDurham, Piedmont Authority for Regional Transportation (PART), and Chatham Transit. Ensuring effective and productive coordination with regional providers creates opportunities for improved performance and customer satisfaction on the CHT system—in particular, identifying and leveraging opportunities on shared transit corridors through interagency coordination.

Current Conditions

CHT currently operates in a service area that overlaps with other agencies, and there is opportunity to improve services through enhanced collaboration and policy integration. Existing services are both complementary and supplementary, with most services operating on major corridors, including Martin Luther King Jr. Boulevard, NC 54, US 15-501, Columbia Street, Raleigh Road, and Franklin Street. Major transfer opportunities exist at Eubanks Road Park-and-Ride, UNC Hospitals, and UNC-Chapel Hill Campus. While many of these services are supplemental and should theoretically work together to accommodate the high transit demand on the corridors, CHT's fare free policy makes their services more attractive to riders. Subsequently, these services have become competitive rather than complementary.

From a service perspective, GoTriangle Routes 400, 405, 800, 800S, 805, and CRX operate within the CHT service area providing service to the Eubanks Road Park-and-Ride Lot, UNC Student Union, and UNC Hospitals. Additionally, GoTriangle Route 420 is operated by CHT and provides service during peak periods; midday service along the same alignment is offered by OPT. PART provides service from Greensboro to UNC-Chapel Hill via Burlington, Graham, and Mebane. Chatham Transit offers the CT Express between Siler City and UNC-Chapel Hill. While CHT and GoDurham services do not currently connect, there is opportunity for future service coordination at Patterson Place and The Streets at Southpoint.

Opportunities

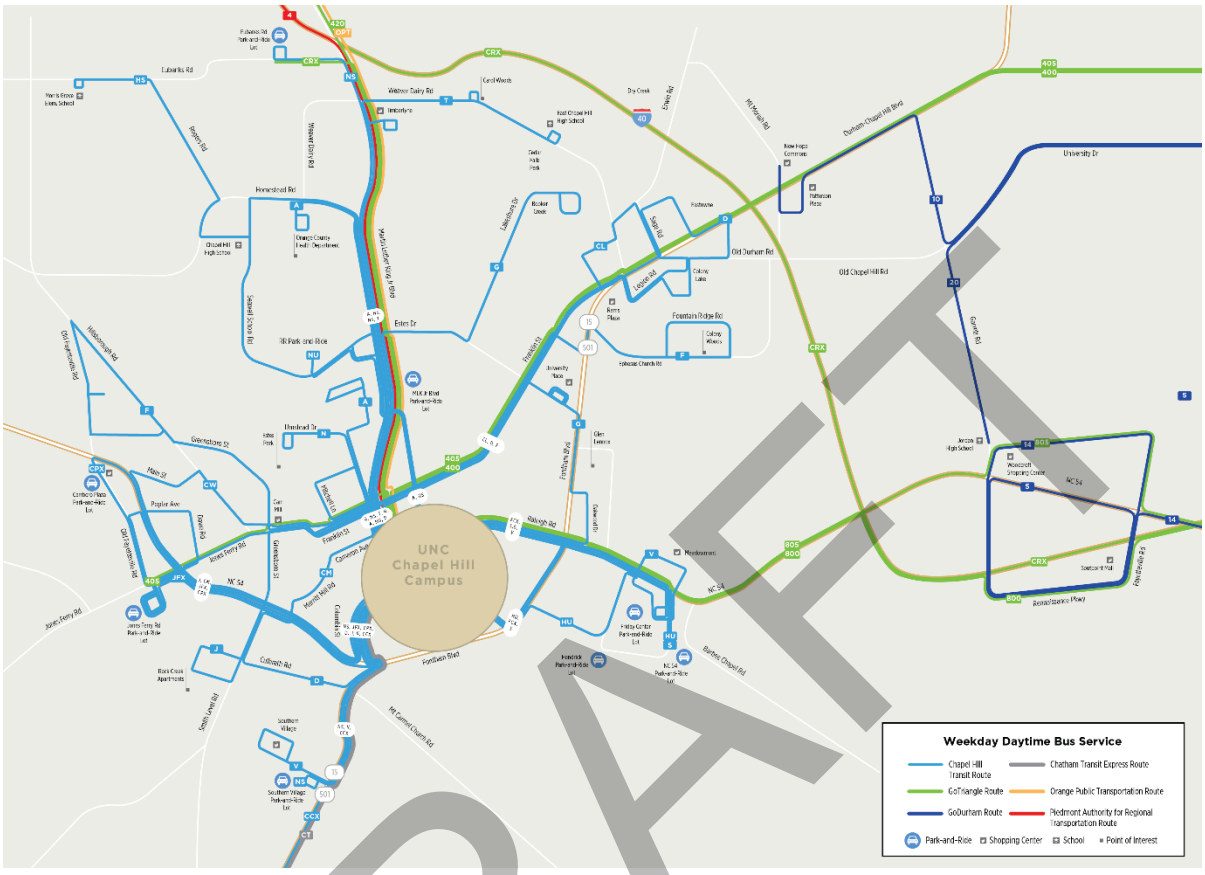
Leverage Shared Transit Corridors

Enhanced coordination between CHT and other regional service agencies would provide the opportunity to identify and leverage shared transit corridors, including NC 54, US 15-501, Martin Luther King Jr. Boulevard, Raleigh Road, South Road, and Columbia Street. This entails identifying areas of overlapping service and analyzing operations and transfers to invest in the most efficient regional transit services, regardless of operator. Additionally, CHT service currently approaches, but does not serve, Patterson Place or The Streets at Southpoint shopping centers, two high ridership locations served by GoTriangle and GoDurham. Coordination with these agencies will allow CHT to determine if it is practical to expand to reach these destinations in the future.

Investigate Additional Partnership Opportunities with UNC-Chapel Hill

CHT currently partners with UNC-Chapel Hill for a variety of functions, including drug and alcohol training required by the Federal Transit Administration (FTA), allowing the general public to access campus transportation services, and providing service to meet ADA requirements. CHT should continue to investigate opportunities to leverage the existing relationship with UNC-Chapel Hill, including

coordination with UNC Hospitals for transportation needs and the potential to partner for public safety functions.



CHT and Regional Services

Maximize Demand Response Resources

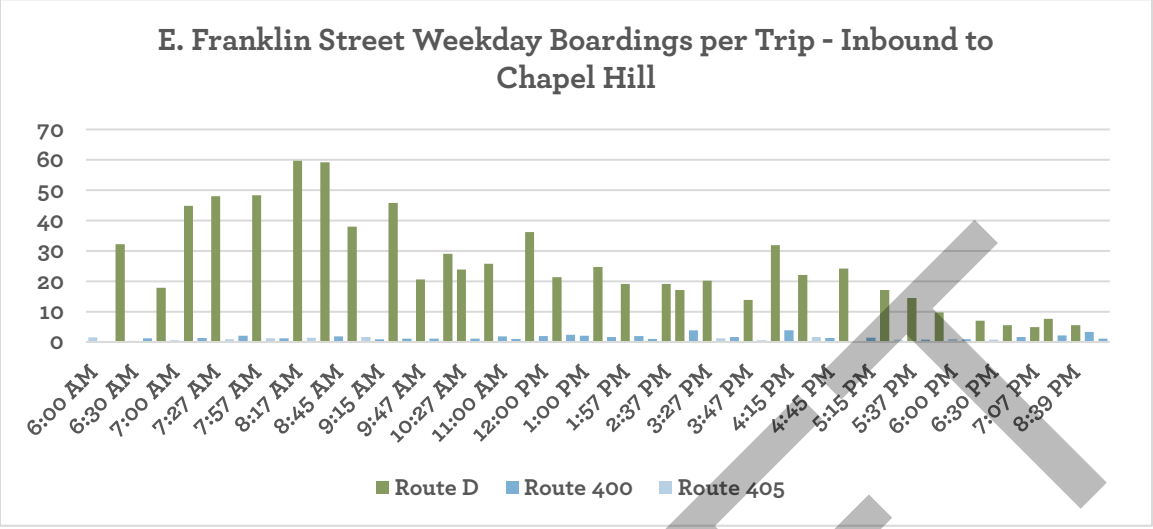
Currently, CHT operates paratransit service in the urban areas of Orange County, while OPT and Chatham Transit provide service in rural areas. There is opportunity to consider consolidation of paratransit service in Orange County to better meet the needs of riders, as well as facilitating easier integration with region-wide services. Consolidated paratransit service would allow for coordinated dispatching and potential cost savings for the county as a whole.

Pursue Coordinated Fare Policy

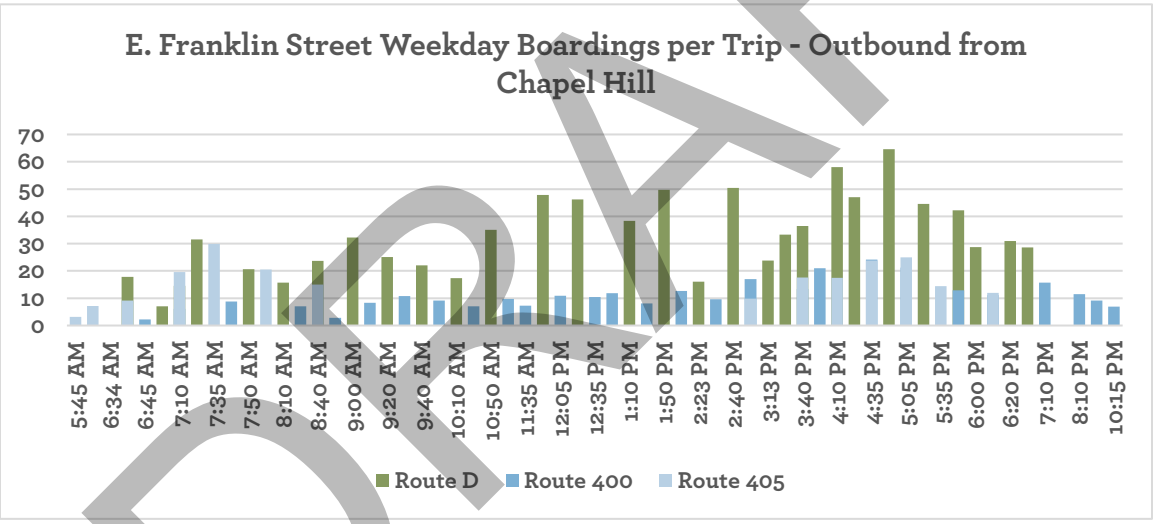
One major difference between CHT and other regional operators is CHT's fare free policy. This policy creates an incentive for passengers to take CHT service instead of other regional options since they can use the service for free; in some cases, this results in GoTriangle, OPT, PART, or Chatham Area Transit routes operating with excess capacity. Charts showing average daily boardings per trip on East Franklin Street suggest that GoTriangle service is underutilized, particularly in the inbound direction. Coordinating on fare policies to create a system for transfers or free fares within the CHT service area would create a more efficient transit system and better balance capacity between the competing services.

Adjusting these fare disparities may incentivize additional passengers to ride GoTriangle service instead of CHT service on their high ridership corridors, which are currently over capacity. Creating this incentive would likely have financial impacts for both agencies—for example, reducing GoTriangle fares may

require a subsidy from CHT. In return, CHT may have more flexibility to delay capital expenditures and operating costs associated with adding capacity to meet growing demand on high ridership routes.



Average Daily Boardings per Trip within the CHT Service Area Travelling toward Chapel Hill



Average Daily Boardings per Trip within the CHT Service Area Travelling away from Chapel Hill

Financial Implications

Potential financial implications related to regional transit service coordination are primarily focused around improved efficiency through coordination. The fare discrepancy issue between CHT and GoTriangle may have significant implications for operating costs between the agencies.

CHT's Routes D and NS are already operating near capacity, with ridership expected to continue growing in the future. To meet this demand, CHT may need to deploy additional vehicles or increase service frequency, both of which will increase capital and operating costs for the agency.. To provide a sense of scale, improving service frequency on Route NS to operate every 6 minutes during the morning peak period would require three additional vehicles (approximately $1.5 million in capital costs) and 1,900 revenue hours (approximately $192,000 in annual operating costs). Adding one additional vehicle to Route D during the AM and PM peak periods would require an additional 1,400 revenue hours (approximately $141,000).

Successful coordination with GoTriangle to provide fare free service in this area would reduce the capacity strain currently facing CHT and allow them to postpone the purchase and deployment of additional vehicles. Such an agreement may require CHT to provide a per passenger subsidy to GoTriangle or engage in some other cost sharing program, but this may result in a net gain for CHT's finances by not having to invest in new vehicles or service hours.

Next Steps

CHT should continue to think regionally in the years ahead. As CHT, OPT, and GoTriangle develop short range transit plans, the agencies should identify shared interests, maintain regular contact, and have ongoing discussions regarding priorities, fare policies, and service planning. A coordinated regional approach to transit service can help each entity ensure regional resources are used as effectively as possible. This coordination should be used to improve the development of transit hubs, access to park-and-rides, and implementation of BRT and light rail.

GoTriangle currently operates high frequency service (every 10-30 minutes) between UNC and The Streets at Southpoint and between UNC and Patterson Place—thus complementary service with seamless transfer opportunities would allow CHT to improve service in other areas of the system while providing reliable transit service to these destinations.

CHT should also explore partnerships with other regional agencies operating in underserved areas outside of the existing service area—including Alamance and Chatham Counties, where many local employees reside—to ensure there are viable travel options for passengers. In addition to coordinated service, CHT should continue to pursue opportunities for fare policy partnerships with regional providers.

REGIONAL TRANSIT INITIATIVES

Introduction

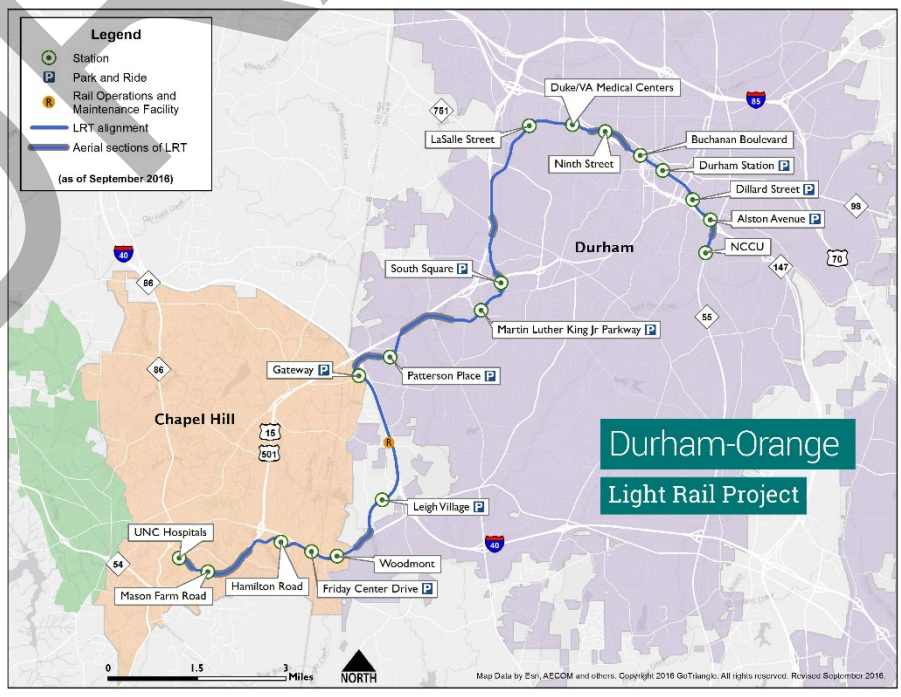
The regional plans from the Durham-Chapel Hill-Carrboro Metropolitan Planning Organization (DCHC MPO), Orange County, and CHT prioritize investments in regional fixed-route transit service, including commuter and connector bus service, rail, and BRT. Specific projects and initiatives include the Chapel Hill North-South Corridor BRT Study, the Durham-Orange Light Rail Project, a new Amtrak station in Hillsborough, and expanding existing bus services to reach underserved communities throughout the region.

Transit agencies throughout the region responsible for their own planning and service operations include GoTriangle, OPT, GoDurham, GoRaleigh, and GoCary. As of August 2018, each of these agencies are currently conducting SRTP processes to assess existing services and provide future recommendations and implementation plans.

Other regional planning studies include a comprehensive fare analysis in Durham and Wake County, the Wake County Major Investment Study, and the Wake County Bus Plan. These planning initiatives will identify preferred alignments for BRT and local bus services in Wake County, as well as provide recommendations for integrating regional fare policies between agencies.

Current Conditions

The 2017 Orange County Transit Plan outlines several regional transit initiatives, including expanded regional bus service, the Hillsborough Amtrak Station, Durham-Orange LRT, and the North-South BRT Corridor. These regional initiatives have significant impacts directly on CHT service alignments and opportunities to integrate transfers for regional travelers. The DCHC MPO's 2035 Long Range Transportation Plan recommends a significant expansion of bus service throughout the research triangle region and developing a 56-mile light rail system connecting Chapel Hill, Durham, Research Triangle Park, Morrisville, Cary, Raleigh, and North Raleigh. Additionally, SRTPs occurring throughout the region, including GoTriangle, GoDurham, and OPT, will analyze existing transit services and make recommendations for future service improvements occurring within or near the CHT service area.



Proposed Alignment of Durham-Orange Light Rail

Opportunities

The DCHC MPO Long Range Transportation Plan and Orange County Transit Plan identify a suite of regional transit initiatives that will

duplicate existing CHT service or provide transfer potential for regional travelers, including the Hillsborough Amtrak Station, expanded regional bus services, and regional LRT systems. These priorities provide both an opportunity for improved regional connections throughout Chapel Hill, Carrboro, and Orange County and a challenge for identifying the future of local service after light rail is implemented. Light rail implementation is expected to impact the local CHT service network, as new feeder services and revised alignments may be necessary to serve light rail station areas. This is explored in more detail in the Light Rail Integration section of this document.

In addition to regional transit service, coordination about park-and-ride access and the development of transit hubs can be used to ensure smoother transfers and improve regional accessibility. Impacts to local CHT service are explored in more detail in the Park-and-Ride Corridors section of this document. Concurrent SRTPs provide the opportunity to coordinate future transit development among CHT, GoTriangle, GoDurham, and OPT to provide service in rural Orange County—for example, service along the west NC 54 corridor—and to popular destinations near the edge of the service area, like Patterson Place and the Streets at Southpoint.

Financial Implications

There are no significant costs associated with this issue.

Next Steps

The regional plans and SRTPs from DCHC, Orange County, and CHT prioritize investments in regional fixed route transit, including commuter and connector bus service, rail, and BRT. Specific projects and initiatives include the CHT North-South Corridor BRT plan on Martin Luther King Jr. Boulevard, the Durham-Orange Light Rail Project, a new Amtrak station in Hillsborough, and expanding existing bus services to reach underserved communities throughout the region. Outreach and coordination with other agencies to develop integrated regional transit policies and services can improve transfer opportunities and regional accessibility.

TRANSPORTATION SYSTEM PLANNING

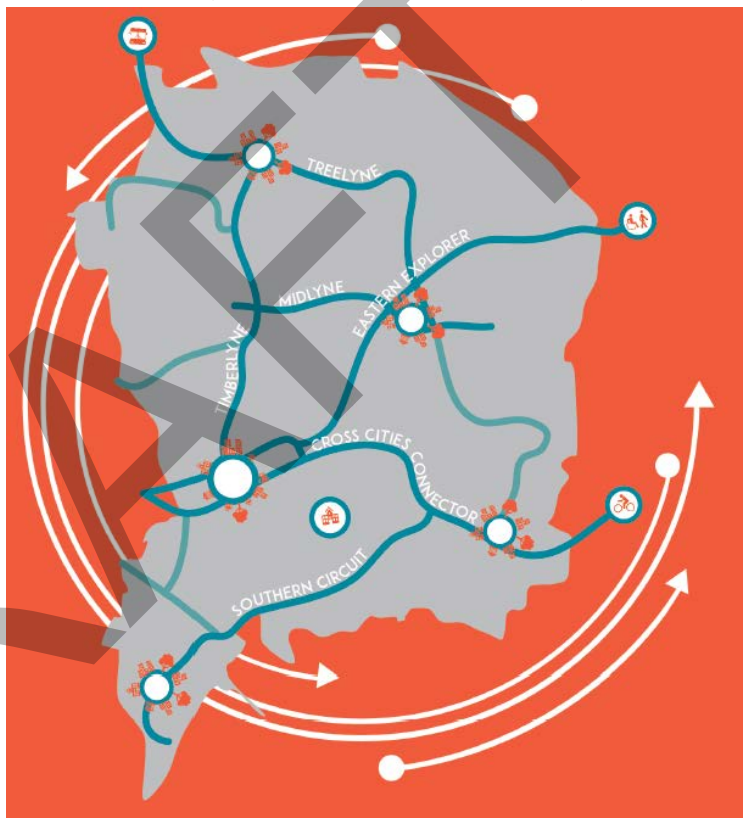
Introduction

Transit agencies and cities across the nation are developing and implementing strategies to improve first- and last-mile connections to transit services, stops, and stations to facilitate a seamless and convenient travel experience and attract more riders. CHT transit plans can be significantly strengthened by accounting for policies and recommendations established in related transportation system planning documents, including pedestrian, bicycle, and mobility plans for the surrounding towns and UNC-Chapel Hill. This integrated system planning approach can prioritize first mile-last mile connectivity and complete streets policies to increase ridership, bolster the multimodal transportation system, and improve accessibility to transit.

Current Conditions

The Chapel Hill Mobility and Connectivity Plan calls for complete streets on Martin Luther King Jr. Boulevard, Franklin Street, Fordham Boulevard, and US 15-501. This would help to create a multimodal network that allows pedestrian and bicycle-friendly routes connecting to major destinations in Chapel Hill and Carrboro.

The Chapel Hill Bike Plan calls for improved bicycle access to transit centers and reduced conflicts between bicycles and pedestrians near transit stops. The plan also recommends integrating bicycle infrastructure and storage facilities at major transit stops. These recommendations are intended to promote safety and accessibility for pedestrians and bicyclists accessing the transit network.



Chapel Hill Mobility and Connectivity Multimodal Network

Opportunities

Integrating transportation system recommendations into CHT transit plan development provides the opportunity to make routes more accessible for bicyclists and pedestrians, particularly by improving infrastructure near major transit stops.

While implementing complete streets policies is beneficial for improving safety and accessibility for pedestrians and bicyclists, they can be challenging to implement in areas with limited roadway space. Complete streets policies on Martin Luther King Jr. Boulevard specifically could impact the development of fast and reliable BRT in this corridor. A possible approach to complete streets in the community is to emphasize bus infrastructure on certain corridors and bicycle infrastructure on others, creating a network of streets that emphasize specific travel modes; however, it should be noted that identifying and designating preferred modes on specific corridors may be a contentious issue.

Another potential solution is to implement newer interventions, such as transit islands, designed to enhance safety for all users. This is a particularly important consideration on corridors with a significant grade change that are also slated for transit enhancements—such as potential future East-West BRT implementation on East Franklin Street. Regardless of ultimate policy decisions and formal designations, considering how to effectively provide facilities for all multimodal street users will be an important priority moving forward.

Less infrastructure-intensive improvements, such as providing adequate bicycle storage at transit stops near major bicycling corridors and integrating stops with the UNC Tar Heel Bikes bikeshare program, are easier to accomplish in the short-term. Additionally, some agencies[1] have specialty racks to allow bikes on board transit vehicles, allowing for improved integration for bicycle users and faster boarding compared to front-loading bicycle racks. Other agencies[2] use front-loading bicycle racks designed for three bicycles instead of two to help facilitate additional options for cyclists.

Autonomous Transit

Automation will reach different types of transit on different timelines. Medium-occupancy autonomous shuttle models are already in testing. Mass transit includes some elements of autonomy now, but full autonomy will likely lag behind adoption of autonomous technology in personal vehicles, despite transit operations having the most to gain from automation.

Overall, autonomous vehicles (AVs) are projected to increase vehicle miles traveled and associated congestion. However, autonomous transit could operate far more efficiently than personal AVs in terms of total person-movement or throughput, especially in dedicated lanes or guideways.

Autonomous transit, if thoughtfully guided, has the potential to increase the type and frequency of transit service available. Some transit agencies are beginning to plan now for shifts in travel demand, curbside access, procurement, and safety requirements.

Transit agencies and cities can create the ideal operating environments for autonomous vehicles by creating separate, dedicated operating lanes—an advantage that private vehicles do not have.

[1] Community Transit (Snohomish County, WA) *Swift* BRT service is one example

[2] King County Metro and Sound Transit (Seattle, WA) use front-loading racks manufactured by Sportworks with capacity for three bicycles

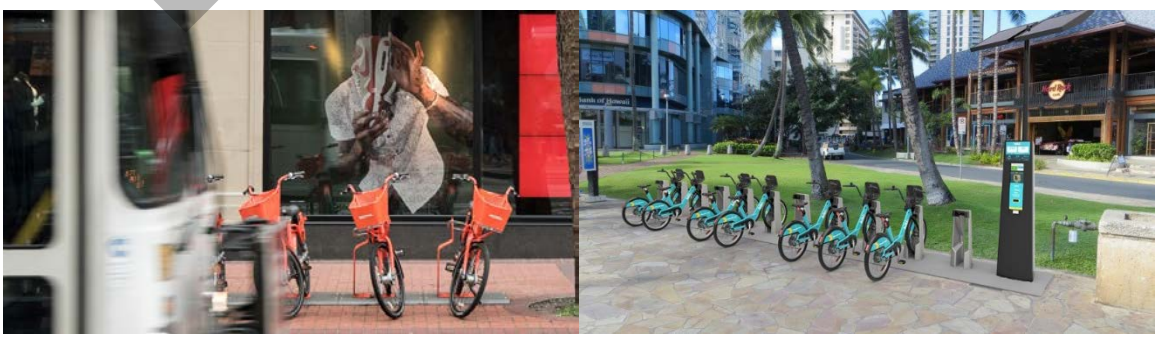
To help facilitate an integrated transportation system, CHT should prioritize improving the following:

Improvement	Description
Connectivity	Pedestrian walkways and bicycle infrastructure providing safe routes and access to transit stops. This includes installation of newer innovations such as transit islands to better facilitate bike and bus interaction.
Wayfinding	Signs and maps along major bicycle and pedestrian routes that identify the locations of transit stops.
Pedestrian Improvements	Adding new pedestrian crossings and sidewalk improvements around transit stops and stations.
Bicycle Storage	Providing both short term and long term bicycle storage and parking at major transit hubs. Bicycle parking should be secure, highly visible, and protected from the elements.
On-Board Bike Integration	Investing in onboard integration for bikes in the form of front-loading bike racks with capacity for three bicycles or by allowing riders to carry their bikes onboard on higher capacity transit (such as future BRT and LRT systems).
Bike Share near Transit	Incorporating bike share stations near major transit stops.

Pedestrian Connectivity and Wayfinding Improvements

Off- and On-Board Bicycle Storage

Bicycle Lane and Transit Islands



Transit-Bike Share Integration

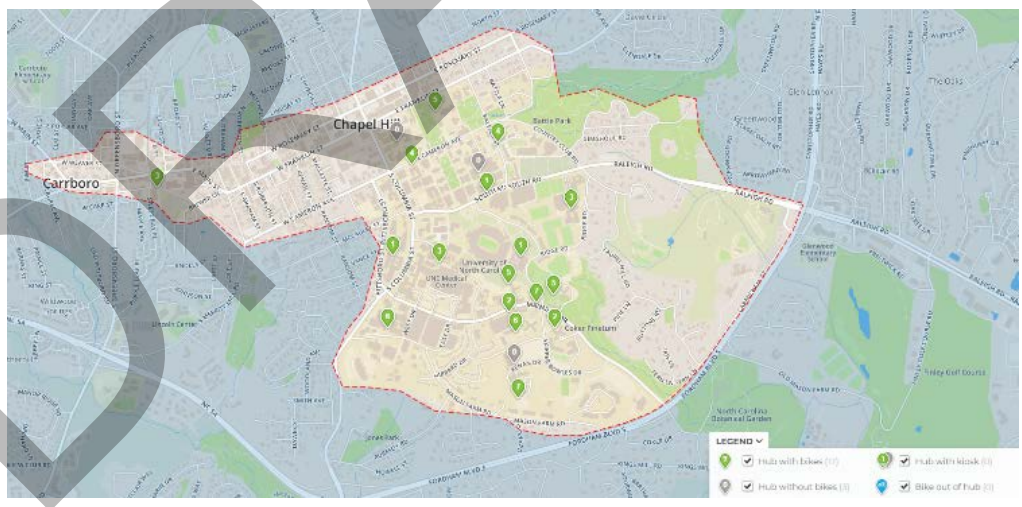
Financial Implications

Improving bicycle infrastructure and facilities would create additional costs for CHT, the town of Chapel Hill, and UNC-Chapel Hill. Costs for developing bicycle infrastructure vary based on complexity of the intervention—for example, from less expensive bike lane striping to more expensive buffered bike lanes and separated multi-use paths. However, since these improvements are comprised of capital costs, they may be eligible for a variety of grant funding options.

Next Steps

Taking an integrated transportation system approach to planning generally produces benefits for pedestrians, bicyclists, and transit riders, but it is important to clearly articulate competing priorities while developing infrastructure improvements and recommendations. Integrating Tar Heel Bikes bikeshare with popular CHT stops near the UNC Campus, planning for the potential integration of dockless bikeshare and/or electric scooters, and providing adequate bicycle storage and pedestrian safety improvements near major transit stops are more easily accomplished than major infrastructure overhauls.

In terms of long-range priorities, incorporating AASHTO bicycle and pedestrian design guidelines into new high capacity transit developments, as called for in the Chapel Hill Bike Plan, would help create a more integrated, multimodal transportation system.



Existing Locations of Tar Heel Bikes Stations

ENVIRONMENTAL IMPACTS

Introduction

This evaluation provides a high-level environmental analysis of CHT operations and capital plans to evaluate consistency with the Town of Chapel Hill's carbon reduction pledge and UNC-Chapel Hill's Three Zeros Environmental Initiative. While these policies are intended to inform decision-making across the spectrum of carbon emissions, water usage, and waste reclamation, transit is a key component of both pledges.

Current Conditions

The Town of Chapel Hill Carbon Reduction Pledge calls for a 60% reduction in greenhouse gas emissions by 2050 (from 2005 levels), with a milestone of 15% reduction by 2015. UNC's Three Zeros Initiative takes an integrated approach to reducing its environmental footprint with the goals of zero net water usage, zero waste to landfills, and zero net greenhouse gas emissions.

UNC-Chapel Hill's Three Zeros Initiative

Transit use reduces carbon footprints compared to driving a private automobile, at a rate of about 20 pounds of carbon emissions per day.[3] In 2016, CHT eliminated approximately 10.5 million in vehicle miles traveled by other modes—more than 400 times around the Earth in one year. Increasing transit ridership by facilitating a mode switch from driving alone is in accordance with the Town and UNC's environmental goals.

Increasing the fuel efficiency of the bus fleet is also an important consideration. The CHT fleet is currently comprised of a combination of vans, light transit vehicles, standard buses, and articulated buses. The fleet features a mixture of diesel and hybrid vehicles that operate with various fuel efficiencies. CHT has been replacing older buses with newer clean diesel buses to further reduce overall emissions as older vehicles are replaced and removed from the fleet. There currently is interest in exploring deployment of electric vehicles and the potential for solar facilities to reduce the environmental impacts of operating the transit system.

Opportunities

CHT plays a key role in reducing carbon emissions for the Town of Chapel Hill and UNC by facilitating transportation mode shifts from private automobiles to transit use. The primary challenge for CHT in this regard is to reduce carbon emissions by continuing to replace older vehicles in the fleet and exploring potential alternative fuel sources, including operating electric vehicles and utilizing solar power at transit facilities.

[3] **Source: http://www.townofchapelhill.org/home/showdocument?id=15334**

Operate a Mixed Vehicle Fleet

Trends suggest that diesel might not be the fuel of the future. There are opportunities to improve emissions reductions and efficiencies by continuing to strategically operate a mixed fleet of vehicles. Regionally, GoRaleigh is beginning to operate Compressed Natural Gas (CNG) vehicles. Smaller buses are more fuel efficient than larger buses; however, since operations and maintenance costs account for about 90% of the cost of operating the vehicle, the financial benefits of these fuel savings are not significant. Replacing older, less fuel efficient vehicles with newer vehicles will also continue to improve emissions in CHT's fleet.

Electric Vehicles

In addition to newer, more fuel efficient clean diesel buses, investing in electric vehicles could result in significant emissions reductions for CHT. Compared to diesel buses, electric vehicles generally have higher capital costs, but lower operating costs.

Electric vehicles have started to be implemented by a select number of transit agencies across the U.S.—for example, the Antelope Valley Transit Authority in California has embarked on an ambitious plan to turn over their entire fleet (85 buses) by the end of 2018. As of May 2018, CHT has placed a bid to add electric buses to their fleet, but any future capital expenditure is tentative.

Overall, there are several considerations that need to be evaluated for selecting appropriate route(s) for electric bus service:

- Bus Range: One of the challenges with electric vehicles is the distance a bus can travel before needing to be recharged. Although battery technology is improving, CHT would need to consider manufacturer recommendations and test results for the vehicle range under the worst case conditions (i.e., fully loaded with auxiliary loads such as heat or air conditioning).
- Charging Station Locations: Using electric buses also requires an investment in charging stations. Charging station locations need to be secured at appropriate locations along a route to take full advantage of battery charging opportunities. The number and location of charging stations needed on a route depend on maximum speed required along the route, number of stops, service hours, operating speeds, and driver shift schedules.

The success of electric bus implementation depends on the understanding of operations and maintenance personnel. The specific recommendations for personnel requirements include:

- Bus Safety Review: A safety review of the bus engineering and operational safeguards is a good practice. Reviewing how high voltage power lines are routed and identified in the engine bay is important to assuring the safety of operations and maintenance staff.
- Maintenance Personnel Training: A maintenance personnel qualification training program should be established to assure that only staff that have received the proper training are allowed to perform maintenance on the battery-powered buses.
- Bus Operator Procedures Update and Training: Bus operators have an impact on how well buses perform in service. Bus operating manuals/procedures need to be updated, and drivers must be trained on bus operating parameters including the operation of the charging system.

Electric Bus Considerations

Pros	Cons
Zero mobile emissions	High initial capital costs (charging stations, vehicle price)
Energy to charge buses can be from renewable sources	Adequate layover time must be provided at charging station locations
Higher efficiency in stop-and-go driving	Routes must be scheduled so only one bus charges at a time
Silent and smooth ride has been credited with contributing to ridership increases	Technology is developed, but not fully refined.
Battery technology is continually improving	Battery life and full lifecycle cost is currently unknown

Source: Nelson\Nygaard adapted from TCRP Report 146: Guidebook for Evaluating Fuel Choices for Post-2010 Transit Bus Procurements (2010)

The electric bus market has developed two distinct options for charging, with some variations of these anticipated as the technology develops and matures:

- Extended Range or Overnight Charging: This option allows the bus to operate similarly to a standard diesel bus on-route. With bus manufacturers claiming 150 to 180 miles per charge, this generally equates to the daily mileage of most urban-service transit operations. Recently, one manufacturer has added the option of an on-route boost charge that can extend the range of the bus using the same technology as the quick charge option—essentially a smaller charger that gives the batteries a partial charge to extend the range.
- Fast or Quick Charge: This option allows the bus to travel 30 to 40 miles on a route and return to a station for a 10 to 15-minute recharge of the batteries. The charge time can vary with the distance the bus travels between charges. This option is also evolving with the ability to adjust the charge cycle to the distance of the route.

Buses that renew the electric charge through the service day currently seem to be the most popular option for deploying electric buses. At the same time, buses that use slow-discharge battery packs are continually gaining range. One electric bus manufacturer claims their buses will travel 200 miles in normal operations. This trend is worth watching, as it may be possible to begin electric bus deployment with on-line rapid charging stations and complete the changeover with slow-discharge battery packs where the buses are charged at the end of the service day.

King County Metro (Seattle, WA) Electric Bus

Solar Power Generation

Transit agencies are ideal candidates for solar installations because they require large amounts of electricity to operate and because they typically have large facilities with roofs or yards that can host solar arrays. Both large-scale solar arrays and small-scale solar installations can help reduce energy costs, reduce greenhouse gas emissions, and improve operating efficiencies for transit agencies. Agencies like Valley Metro, LA Metro, and IndyGo have invested in large solar fields near or attached to their operations facilities.

The CHT building located on Millhouse Road is a potential candidate for solar power generation given the available space for installation surrounding the building, on the roof, above bus canopies, and due to the close proximity to the Town of Chapel Hill Public Works building, a potential partner in developing shared energy resources.

Financial Implications

The emissions benefits for electric vehicles are higher than for clean diesel and would help support local environmental initiatives. At the same time, capital costs are notably higher. Electric vehicles themselves are more costly than diesel vehicles and require additional charging infrastructure including fast charge stations, maintenance facility chargers, and installation costs. Operating costs are generally lower for electric vehicles based on current fuel efficiency, fuel costs, and reduced maintenance needs (fewer moving parts). The feasibility of transitioning to an electric fleet may depend on the availability of grant funding for capital improvements and acquisitions.

Alternative Fuels Capital Cost Summary

Property	Diesel	Electric
New Vehicle Cost (Each)	$450,000	$750,000
Facility Conversion	-	$865,000

Source: Proterra, CHT, National Transit Database, U.S. Department of Energy Efficiency and & Renewable Energy

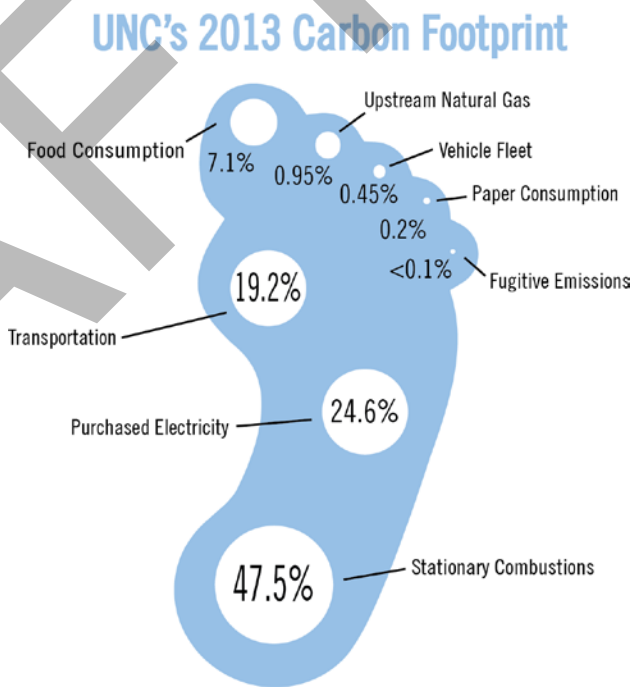
Note: Electric bus facility conversion amount includes one fast charge station, one maintenance facility charge station, and installation; additional fast-charge stations would likely be necessary to support CHT operations. Fast-charge stations are estimated to cost $600,000 each, plus installation.

Alternative Fuels Cost Summary

Property	Diesel	Electric
Fuel Economy (Miles/Gallon)	3.2	1.73 kWh/mile
Fuel Cost per Gallon	$2.96	$0.08/kWh
Estimated Annualized Fuel Savings (Cost)	-	$1,358,042
Annual Propulsion System Maintenance Savings (Cost)	-	$125,319
Annual Facility Maintenance and Operation Savings (Cost)	-	$89,513
Total Operations Savings (Cost)	-	$1,572,873

Source: Proterra, CHT, National Transit Database, U.S. Department of Energy Efficiency and & Renewable Energy

Note: Annualized savings and costs based on 1,790,266 vehicle revenue miles, which is what CHT operated in 2016 for the fixed route system.



Next Steps

To better communicate the carbon reduction propensity of the CHT system, a "value proposition" about the environmental benefits of CHT service could be developed to articulate consistency with Town and UNC-Chapel Hill goals. CHT should also continue to retire old vehicles and purchase newer, more efficient vehicles as their capital budget allows. The potential for integrating electric vehicles into the fleet or investing in solar technology should continue to be investigated; however, a careful analysis of the risks, benefits, and opportunities of investing in electric vehicles or solar facilities should be taken before committing resources.

As of August 2018, CHT was awarded a grant for purchase of two electric vehicles. CHT should continue to evaluate vehicle reliability and improvements in technology to facilitate local operation, which includes considerations such as grade and hot summer temperatures.

FUTURE DEVELOPMENT

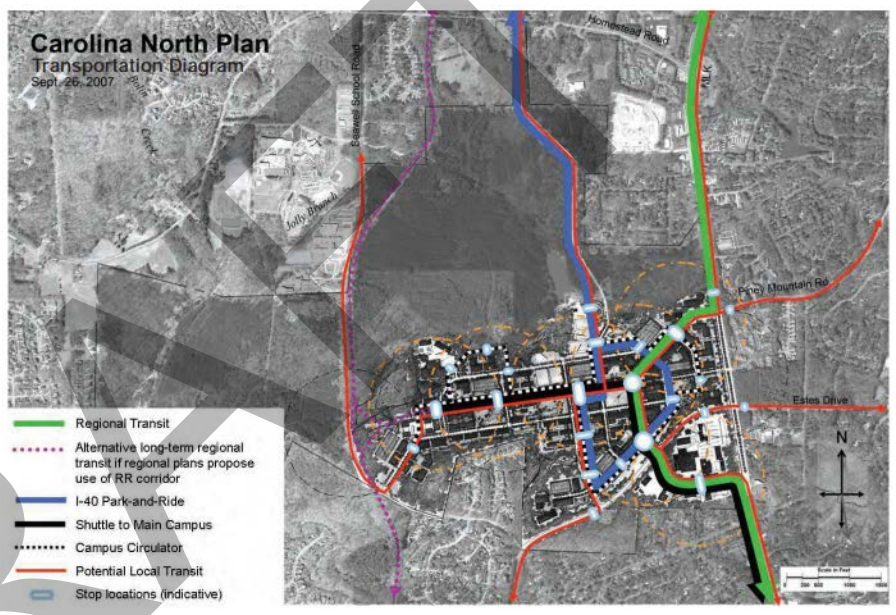
Introduction

Planned mixed-use, residential, and commercial developments within the CHT service area have the potential to create new demand for transit and overwhelm the capacity of buses on existing routes. Identifying the locations and impacts of future development on the transit system is a necessary ongoing process to ensure efficient, high-performing transit service.

Current Conditions

Current large-scale developments with potential impacts include:

- Carraway Village
- Obey Creek
- Glen Lennox
- Carolina North Campus
- Blue Hill District
- East 54
- Chatham Park
- Carolina Square
- Amity Station
- Grove Park
- UNC Hospitals Eastowne Campus
- Additional growth on the main UNC campus and at the UNC Hospitals.



Carolina North Campus Proposed Transportation Access

These developments contain at least 200 new residential units each, and in the case of Blue Hill District and Carolina North Campus are larger developments consisting of multiple buildings and uses that may become major commercial and residential destinations. While these developments are dispersed throughout the service area, they are all located on a few key corridors: Martin Luther King Jr. Boulevard, Franklin Street, NC 54, and US 15-501. These developments are served by a combination of CHT routes, including Route G, NS, T, N, A, NU, D, HS, CL, D, V, S, HU, FCX, and CCX.

Additionally, development will continue occurring in Chatham Park, as well as Durham and Wake counties that will have impacts on regional transit and interagency coordination.

Opportunities

New residential developments provides an opportunity for CHT to improve ridership and route efficiency. The impacted routes should be considered for increased service frequency in order to capture increased demand and improve service to rapidly developing areas.

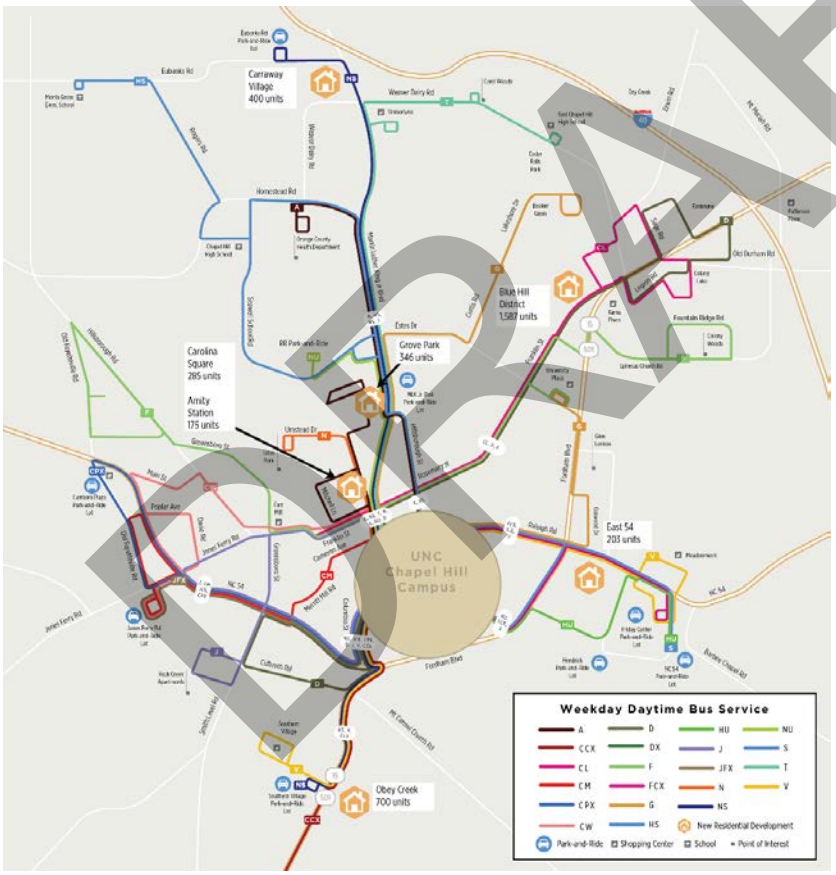
In particular, the new developments on Routes NS (400+ units on the north portion and 700 units on the south portion) and Route D (1,200+ units) are very likely going to require additional peak resources and buses. For such large-scale residential developments, CHT needs to plan ahead to ensure that sufficient buses and operating hours are available. There is potential for GoTriangle service to

accommodate a portion of this expected ridership growth through interagency collaboration and potential fare policy adjustments.

Financial Implications

Increased development intensity along transit corridors is likely to increase demand for transit in the area. Identifying these developments and increasing transit capacity to meet this growing demand will require additional capital and operating expenditures. Monitoring these developments and forecasting the necessary timeframe for making improvements will allow CHT to make strategic investments and expenditures. In this way, CHT may plan and schedule their capital and operational improvements, rather than addressing capacity issues as they arise, rather than when the agency may lack sufficient available funding.

CHT should continue to investigate opportunities for "payment-in-lieu," transit improvement districts, or other methods designed to ensure new developments are paying their fair share to meet increased demand on the transit system. The existing transit payment-in-lieu policy is designed to establish a method to assess a fee supporting transit infrastructure improvements necessary to meet anticipated increase in service demand generated by a new development. Changes to the existing payment-in-lieu policy would require legislative action. Opportunities for operating funding support should also be pursued.



Proposed Residential Developments and Existing Chapel Hill Transit Service

CHT should evaluate the potential of establishing a transit improvement district or transportation benefit district as a mechanism for funding additional transportation improvements. These are legislatively authorized, independent taxing districts established for the purpose of funding transportation improvements in a given area. These districts could impose fees in the form of taxes or licensing fees to provide additional funding for transit improvements.

Next Steps

In order to continuously improve and maintain service performance, CHT should develop an ongoing strategy for identifying and analyzing impacts of new developments. This strategy can be used to tailor transit services based on areas of future transit demand, determined by the number of new residential units in planned developments. There may be opportunities for development agreements with new apartment buildings or large employers allowing CHT to provide input in the development review process and provide comments related to bus service integration.

PARK-AND-RIDE CORRIDORS

Introduction

Chapel Hill, Carrboro, and UNC-Chapel Hill all have growth plans that depend on CHT to mitigate parking and traffic concerns. CHT's primary park-and-ride strategy has been focused on the east NC 54 corridor, but as traffic patterns continue to evolve, additional park-and-ride capacity or changes to park-and-ride policy may be necessary. This section identifies the existing and potential markets for park-and-rides based on capacity, utilization, and commute trends. Identifying development patterns near downtown Chapel Hill and UNC, as well as in areas outside Orange County, and the impacts that they have on existing park-and-ride lots may influence future policies and planning strategies for CHT.

Current Conditions

There are currently nine park-and-rides served by CHT and GoTriangle; however, five of these are reserved for UNC students, staff, and faculty—Friday Center, Martin Luther King Jr. Boulevard, NC 54 East, Chatham County, and the Hedrick Building. Park-and-ride lots available for public use are located on Eubanks Road, Jones Ferry Road, Carrboro Plaza, and Southern Village. There are currently plans for 700 new parking stalls to attract ridership to the planned light rail line; however, the exact location and pricing have not yet been determined. Significant changes in the transportation operating environment are anticipated at Friday Center when light rail is completed.

A travel demand analysis identified the most common origins for commutes ending in the town of Chapel Hill. The most common commutes originate in the north side of Chapel Hill, from the west in Carrboro and the NC 54 corridor, and from the area surrounding the Southern Village Park-and-Ride Lot. Other high volume commute trips originate in Durham, University Place, Friday Center, Mason Farm, and Chatham County.

Chapel Hill-Carrboro Commute Travel Demand

Current commute patterns indicate that the majority of trips into Chapel Hill from outside of Orange County are originating in Chatham and Durham Counties. These trips would currently be able to access the Chatham County Park-and-Ride Lot, served by Route CCX, or the Southpoint Park-and-Ride lot, served by GoTriangle Routes CRX, 800, and 805.

Beginning in 2013, Chapel Hill

and UNC began charging for use of park-and-ride lots. Overall, these charges have created some capacity at the lots because some people have been discouraged from using the lots, while others have started to walk instead of driving to them. This change in parking policy provides some context for the low utilization rates in some park-and-ride lots, though most town officials expect the lots to return to pre-charge utilization levels in the long term[4].

Park-and-Ride Lot	Capacity	Pre-Fee Utilization Rate	Utilization (September 2016)	Utilization Rate
Eubanks	395	89%	175	44%
Southern Village	400	100%	282	71%
Carrboro Plaza	145	91%	20	14%
Jones Ferry	443	54%	78	18%
Friday Center*	871	-	752	86%
NC 54 East*	512	-	87	17%
Hedrick*	278	-	36	13%
Chatham*	550	-	129	23%
MLK*	40	-	40	100%

* UNC-Chapel Hill-managed park-and-ride lot

Opportunities

The park-and-ride system inherently comes with tradeoffs in terms of service productivity, land use, and environmental impacts. One benefit of park-and-ride lots is that they can expand the transit service area to lower density, suburban areas that could otherwise not support fixed-route transit service; density is effectively created by allowing passengers to drive to one location to access the bus.

CHT's park-and-ride model utilizes a mix of close in and far out park-and-ride lots including a cluster just outside of UNC's Campus around NC 54 with further out lots located on Eubanks Road, Carrboro Plaza, Jones Ferry Road, and Chatham County. Close-in park-and-ride lots are generally more expensive to maintain due to the relatively high value of land that has strong redevelopment potential. However, their service costs are lower because of the short distances to/from UNC's campus.

More distant park-and-ride lots require a longer transit trip and may be less attractive to potential users. However, a longer transit trip means riders are spending less time traveling in automobiles. Potential park-and-ride lots may be considered west of Chapel Hill in White Cross and south of Chapel Hill in Chatham County. Regional growth is expected to occur in Chatham County and Alamance County, and there is interest in working with Orange County Public Transportation (OPT) and Piedmont Authority for Regional Transportation (PART) to consider partnering on park-and-ride and service development to address demand from these areas.

In the future, the Carolina North campus presents a challenge to address the 30,000 commuters that would be traveling to the area. Identifying current capacity and demand across the existing park-and-ride system will provide greater insight into locating new park-and-ride facilities to serve this population.

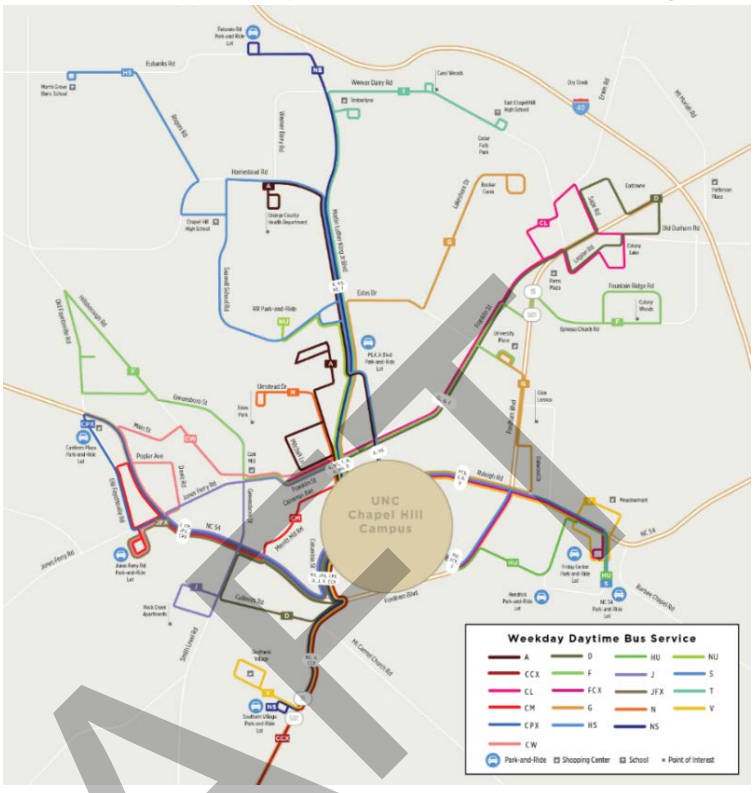
[4] As of summer 2018, this is beginning to play out in the NC 54 East corridor, as ridership on GoTriangle Routes 800 and 805 is decreasing while a corresponding increase in ridership is occurring on CHT Route FCX.

Finally, light rail implementation provides an excellent opportunity for CHT to re-think the existing park-and-ride provision model. Service design should be re-evaluated in the future to maximize light rail investment.

Financial Implications

In recent years, traffic volumes on the west NC 54 corridor have continuously increased, largely due to trips from Alamance County. To intercept regional commute trips further from the urbanized area and support access to jobs for rural Orange County residents, a park-and-ride at White Cross is proposed.

Depending on the level of service investment and operator, costs for fixed-route service originating in White Cross and ending at UNC-Chapel Hill could range from approximately $90,000 to $530,000. Peak-only service offered every 60 minutes would result in the lowest level of investment. No capital costs for park-and-ride construction are included, though it can be assumed that some level of investment and maintenance would be required.



Chapel Hill Park-and-Ride Lots and Existing CHT Service

Illustrative West NC 54 Service Cost Summary: White Cross to UNC-Chapel Hill (Weekdays Only)

Service Type	Frequency: Peak	Frequency: Off-Peak	Service Span	Vehicle Requirement	Annual Operating Cost Estimate (Varies Depending on Operator)
Peak Only	60	--	6:30 AM - 9:30 AM; 3:30 PM - 6:30 PM	1	$90,000 to $150,000
All Day	60	60	6:00 AM - 9:00 PM	1	$220,000 to $380,000
All Day with 30-Minute Peak Service	30	60	6:00 AM - 9:00 PM	2	$300,000 to $530,000

Next Steps

Most existing park-and-rides have capacity to address any near-term demand increases. In the future, the primary markets for park-and-ride use are likely to be from Chatham, Durham, and Alamance Counties. There are opportunities for CHT to intercept more trips from rural and suburban areas, particularly in the White Cross and Chatham County areas. CHT should prioritize coordinating with other regional transit service providers (OPT, GoTriangle, etc.) to identify locations for new park-and-ride facilities to the south and west to serve commuters from Chatham and Alamance Counties. Light rail implementation will also provide an excellent opportunity for CHT to re-think the existing service model and determine options to best leverage the investment in light rail.

TRANSIT HUBS

Introduction

Transit hubs are designated off-street facilities that are useful for reducing delays in heavily congested areas, providing a safe and comfortable environment for passengers to make transfers, and that provide sufficient space for buses to dwell during layover periods between routes. Transit hubs can provide space for both stop bays, which provide separation from general purpose traffic for the bus to stop, or layover bays, which allow buses to pull out of service for recovery time at the end of their trip before starting the next one. Layover recovery time is an essential component of transit operations and is built into the schedule in order to recover from delays, allow opportunities to wait if a trip is running ahead of schedule, and ensure reliable scheduling in congested areas.

Developing transit hubs is a key strategy for reducing transit vehicles dwelling on streets and facilitating transfers at high ridership locations. Effective transit hubs provide passenger benefits and performance improvements by separating the bus from general purpose traffic in select locations. High ridership and transfer locations in downtown Chapel Hill, Patterson Place, and at the UNC Hospitals are primary locations to analyze the feasibility of transit hubs.

Current Conditions

CHT does not currently have any transit hubs outside of their park-and-ride lots; however, there are several high ridership transit stops that may be candidates for investing in transit hub development. Potential transit hub locations are designated as primary or secondary based on the existing and projected buses per hour serving the location, bus layover activity, and potential for transfers.

Primary Transit Hubs:

- Manning Drive/East Drive at the UNC Hospitals: This location currently has room for approximately four buses to serve the area at a single time. This is adequate for existing bus volumes, but does not account for layover and recovery needs for routes terminating at this location. Buses must travel multiple blocks in highly congested conditions to find space for layover and recovery. This location will also be the terminus for the planned Durham-Orange light rail line, which will increase passenger and bus volumes due to transferring between bus and rail.

Secondary Transit Hubs:

- Franklin Street & Columbia Street: There is no designated layover space for routes in downtown Chapel Hill, including at Franklin Street & Columbia Street. Buses do occasionally lay over in this area for one to five minutes, though space is limited to one to two buses. When possible, operators will leave the previous time point late to avoid laying over in this area. There are a number of physical constraints in the area that would make development difficult, but this could serve as a key location for evening and night services.
- South Road at the UNC Student Union: South Road at the UNC Student Union currently has space for two buses. Recovery is not scheduled at this stop, but it still occurs. There are nearby facilities for operators to take breaks. From a right of way perspective, there is insufficient space available to develop off street facilities; however, there is potential for improving bus stop amenities and providing pedestrian improvements to increase visibility of the bus stop.
- Patterson Place/Gateway Station: This location would be a designated interchange between CHT, GoDurham, and light rail in the future. As a potential regional transfer point, it will be

necessary to consider rerouting services to this stop, which may require additional layover space to ensure efficient operations.

Opportunities

Manning Drive/East Drive at the UNC Hospitals

The UNC Hospitals stop is currently served by 25 routes operated by CHT and GoTriangle, resulting in 53 buses per hour in each direction during the peak hour. The high volume of buses at this location will be exacerbated when the planned light rail station opens. Given the high volume of bus traffic in this area, no CHT routes have designed layover here; however, GoTriangle Route 400 does have layover designated at this stop. Currently, the main stop has sufficient space for approximately four buses at any given time in each direction.

The upcoming Light Rail Station at the UNC Hospital is projected to have 2 bus bays in each direction. Service levels are anticipated to be over 50 buses per hour in each direction. The Transit Capacity and Quality of Service Manual suggests guidelines on the number of buses that can be reasonably expected to serve a given stop (see image above). The dwell times and the bus clearance times during peak times are not known, but during peak times, the bus bays will most likely be affected by a steady flow of traffic either entering or leaving the parking garages. In addition, pedestrian volumes will be heavy, which will impact bus travel to the bays. If bus operations, scheduling, automobile and pedestrian flows are directed away from the bus stops, then two bays may accommodate the anticipated bus volumes that the UNC Hospital Light Rail Station. However, there is a high likelihood that delays due to high ridership, traffic impacts, and pedestrian conflicts will cause two bays to be inadequate to accommodate anticipated demand. It is recommended that curb and pullout space be maximized to accommodate as many stop bays as possible, ideally three or four bus bays in each direction, to account for additional service growth in the future.

Estimated maximum number of buses per hour that can be served by a single bus bay

Dwell Time (s)	Clearance Time 10 s	15 s
15	116	100
30	69	63
45	49	46
60	38	36
75	31	30
90	26	25
105	23	22
120	20	20

NOTE: Assumes 25% failure rate, 60% coefficient of variation of dwell times, and $g/C = 1.0$.

Multiple CHT and GoTriangle routes are anticipated to end at the UNC Hospital Light Rail Station. There is currently no designated area for layover. The number of bus bays, as documented above, are not sized to allow for layover. A general rule of thumb is at least one layover space per route. Some routes are more frequent than others, so shared space is possible, but more frequent routes also may require more than one layover space. An estimated four GoTriangle routes, one PART route, and up to four CHT routes end in the station vicinity. Layover space is desirable for all routes.

An alternative solution would be to reroute several of these routes to provide service within a block or two of the light rail station, requiring passengers to walk to or from their transfers. Developing adequate layover space at this station is preferred, but if the available right of way is inadequate, this alternative may improve bus operational efficiency.

Existing Bus Pullout Space on Manning Drive at UNC Hospitals

Franklin Street & Columbia Street

The Franklin Street & Columbia Street route is served by a total of 10 CHT and GoTriangle routes. The development near Franklin Street & Columbia Street has relatively small building setbacks, which severely limits the ability of CHT to construct a fully separated transit center. This location has no designated layover occurring and has space for one to two buses at a time. Route J sometimes uses this area as a "recovery" stop. During evening times, when services run much less frequently, transfers to other routes could happen at this location, but this is difficult because multiple buses cannot line up to facilitate transferring.

To account for future growth in transit services, CHT could consider adding a transit hub near the Franklin Street / Columbia Street intersection. This could consist of expanding the existing on-street stalls or be an off-street facility.

Striped Bus Pullout Area and On Street Parking at Franklin Street and Columbia Street

South Road at the UNC Student Union

The South Road and UNC Student Union stop is served by eight CHT and GoTriangle routes. Like Franklin Street & Columbia Street, this location has relatively small building setbacks, which severely limits the ability of CHT to make large-scale capital improvements. This location does not have any designated layover occurring; however, it does happen occasionally. There is a 180-foot long pullout in the westbound direction, but no corresponding pullout in the eastbound direction.

Given the passenger and bus volumes at this location, upgraded passenger amenities such as expanded shelters are appropriate. In addition, an eastbound pullout, where buses can load passengers without blocking traffic, should be considered.

Bus Pullout on South Road at the UNC Student Union

Patterson Place

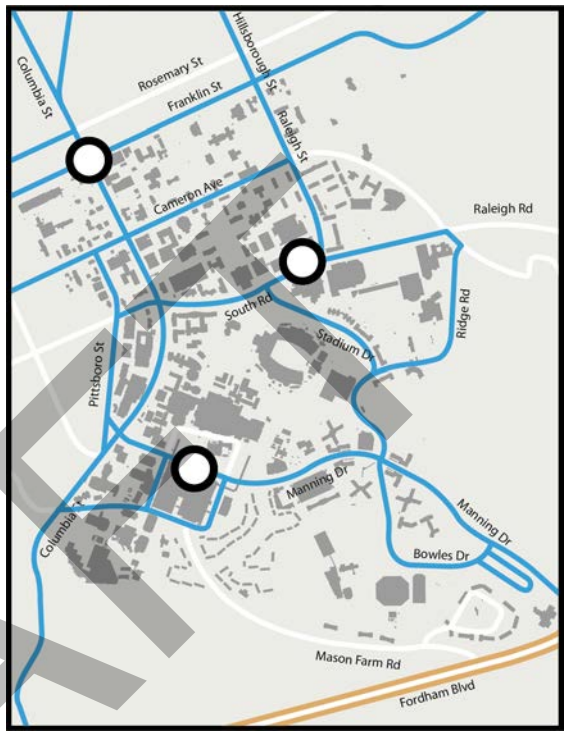
While CHT service does not currently reach Patterson Place, the ongoing SRTP process may recommend service to this area in the future. This would make Patterson Place a key regional transfer point between CHT and GoDurham services. There is ample parking and street space locating within and adjacent to the development to operate as a transit hub for buses serving Patterson Place.

Ample space on street and in parking lots for a transit hub in Patterson Place

Financial Implications

Identifying and constructing transit hubs will result in a capital expenditure for the sake of improving operational efficiency. Inadequate layover space increases dwell times and average travel times for routes serving some of the most popular destinations in the CHT system. Improving dwell times and operational efficiency will prevent unnecessary expenditures on deploying addition vehicles to maintain schedules.

The costs and benefits associated with transit hubs can vary based on the level of investment and infrastructure improvements. For example, the North Boulder Mobility Hub is a proposed transit hub in Boulder, CO with a projected opening in 2019. This transit hub is a fully separated location with bus bays for four standard buses and one articulated bus, short-term car share parking, integrated bike share and secure bike storage, and a driver relief station. The North Boulder Mobility Hub is projected to cost $3.1 million..



Potential Transit Hub Locations

Next Steps

Transit hubs are effective for improving performance in dense, congested areas. Separating bus operations and stop locations from general traffic reduces conflicts with automobiles, facilitates transfers, and provides a more pedestrian-friendly transit stop. Three of the highest ridership stops in the CHT system are located in dense, congested areas of Chapel Hill; however, limited right-of-way at these locations presents a challenge for physically developing the infrastructure necessary to complete a full transit hub. Patterson Place is also a viable location for a transit hub, although CHT does not currently provide service to the development. With potential service changes coming from the SRTP, Patterson Place may be served by CHT in the future.

North Boulder Mobility Hub (Boulder, CO)

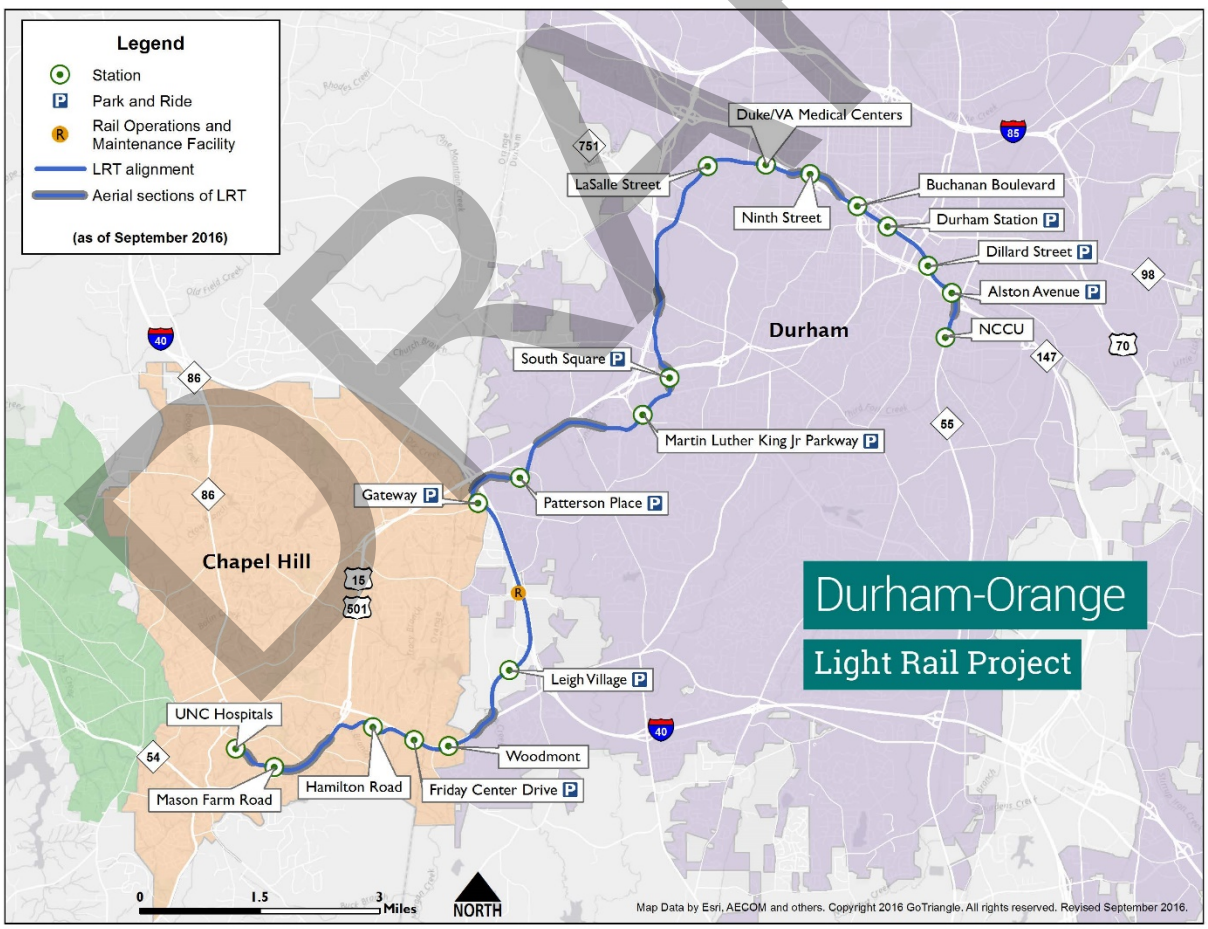
LIGHT RAIL INTEGRATION

Introduction

The Research Triangle region is currently in the midst of planning for light rail implementation with an opening year of 2028. This provides an opportunity for CHT to leverage their existing services to alter route alignments and provide connections to proposed light rail stations within the CHT service area. While the project has become politicized and funding is now in question, the introduction of light rail service has the potential to yield additional dividend hours for CHT and other regional agencies to reallocate for improvements to existing services or for additional feeder services to improve access to the light rail.

Current Conditions

The proposed alignment for the Durham-Orange Light Rail project connects to Chapel Hill near the southeast side of the town with proposed stops near Friday Center, Hamilton Road near the East 54 development, Mason Farm Road, UNC Hospitals, and Patterson Place. The existing CHT routes serving this area include Route V, HU, S, FCX, and G, with additional connections throughout the system at the UNC Hospitals stop.



Proposed Station Design for Durham-Orange Light Rail

Opportunities

The western terminus of the Durham-Orange Light Rail line at UNC Hospitals provides the strongest opportunity for integration with the CHT system, given this is one of the highest ridership stops in Chapel Hill. However, the hospital complex is relatively built up and developing a separated transit hub to fully capitalize on the light rail line will be challenging.

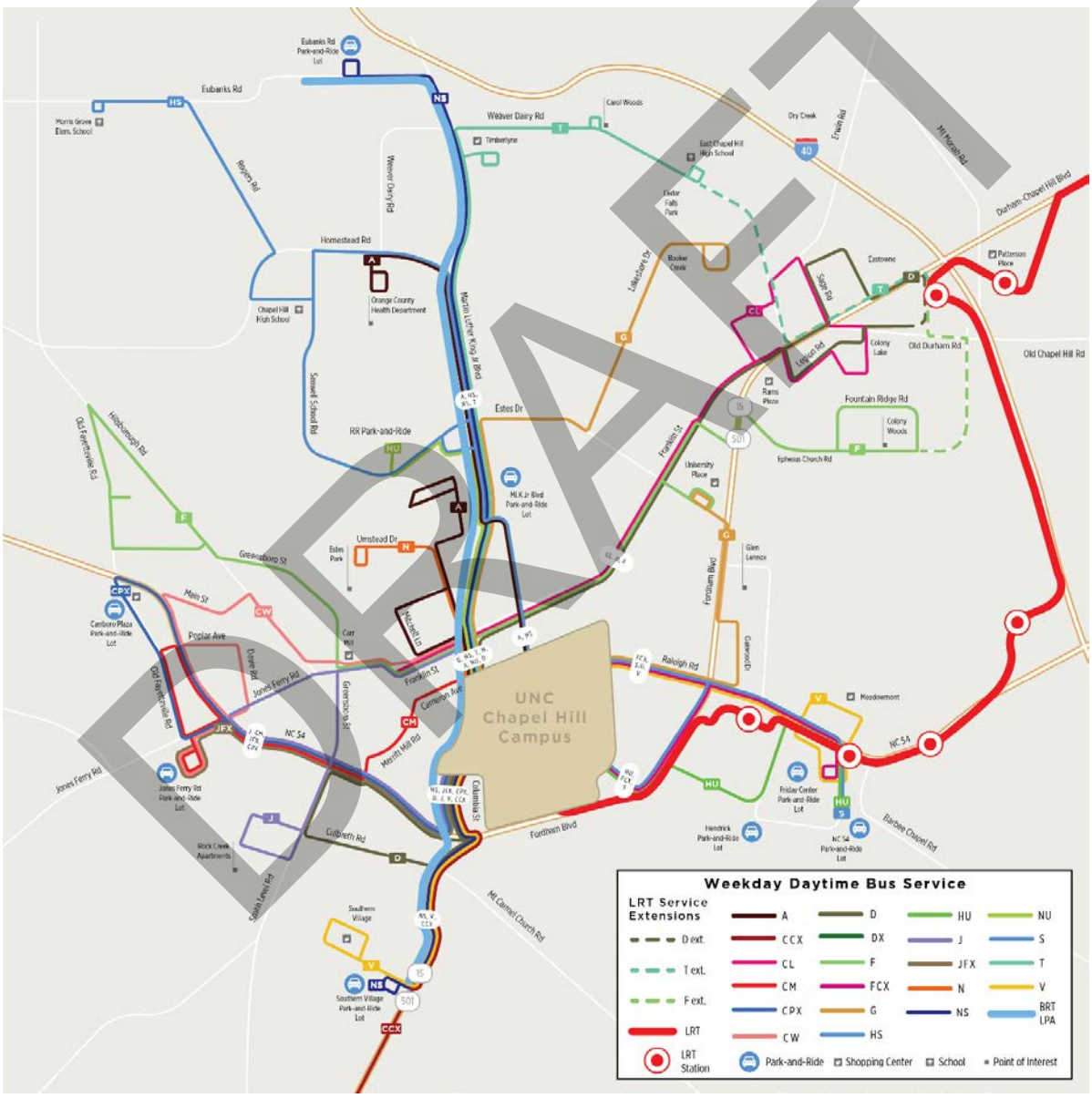
Additionally, CHT should evaluate the viability of existing services to meet future demand once light rail is implemented. It is likely that existing Route RU and U may be insufficient to meet travel needs.

Proposed Station Design for Durham-Orange Light Rail

Considerations for Orange County light rail stations include the following:

- Patterson Place: There may be some overlap between the Patterson Place and the Gateway Station routes. Gateway Station is currently recommended as the focal point for connecting bus service.
- Gateway Station: While there may be some overlap between the Patterson Place and the Gateway Station routes, Gateway Station is currently recommended as the focal point for connecting bus service. Possible CHT service extensions include Route D, Route T, and Route F. These extensions would require at least an additional three peak buses and at least 8,000 additional revenue hours.
- Leigh Village Station: Congestion on NC 54 in the vicinity of I-40 severely limits possibilities for CHT operated service into Leigh Village. No CHT service extensions are recommended since any extension would simply duplicate light rail service.
- Woodmont Station: Given the station location and the difficulty of finding a turnaround, no CHT-operated feeder services are proposed for this location.
- Friday Center Station: Light rail service will segment the market from park-and-rides in this area. Service to the hospital area would be provided by light rail, and direct service to the academic portions of campus would continue to be served by frequent, all-day bus service via Raleigh Road. Possible CHT service adjustments include changes to existing Route S and Route V.

- Hamilton Road Station: Given the station location and the difficulty of finding a turnaround, no CHT-operated feeder services are proposed for this location.
- Mason Farm Road Station: Existing Route B would serve this station in the westbound direction only.
- UNC Hospital Station: Six routes (CPX, CW, J, JFX, U, and RU) should be adjusted to directly serve the UNC Hospital Station.[5] More than 100 buses per hour are anticipated to serve this station, with east and westbound bays being close to equally utilized. It is not clear that the anticipated bus bays at this station or the roadway configuration can accommodate these types of bus volumes. BRT integration is a consideration as well. As many bus bays as possible should be provided in this location.



Proposed Light Rail alignment and service extensions on existing alignments of Routes D, T, and F

[5] **Route FCX (Friday Center to Hospital) is assumed to no longer operate, in keeping with Short Range Transit Plan recommendations.**

Financial Implications

There are no assumptions in either the Orange County Bus and Rail Investment Plan or the DCHC 2035 Long Range Transportation Plan that would result in CHT reducing bus service hour in response to light rail implementation. The Orange County Bus and Rail Investment Plan assumes a revenue hour "dividend" for CHT to reallocate existing bus service when light rail comes on-line. However, many of these service hours are funded by UNC and may not be reallocated directly to CHT service—for example, revenue hours could instead be used to make investments in additional pass programs or other improvements besides increasing service frequency or span. Additional funding may be required to fund the route extensions described above.

Next Steps

Each of the proposed light rail stations have unique characteristics in terms of available right of way, existing stop locations, and adjacent bus alignments; therefore, the recommendations for each station are dependent on their unique local context. The underlying service patterns of local CHT service are unlikely to change significantly after light rail implementation. Several routes, including Routes D, T, and F, may be extended from their existing alignments in order to provide access to the Gateway Station. The Friday Center Station would already be served by the existing alignments of Routes S and a local route, currently Route V. Similarly, the Mason Farm Road Station would continue to be served by the existing alignment of Route B. In addition, several existing routes should have changes to better serve the UNC-Chapel Hill Hospital stop and meet anticipated demand. While several small routing changes would be necessary to provide sufficient connectivity with the light rail system, these changes would not be transformative to the local CHT system.

Chapel Hill Transit
Long-Term Strategic Issues

SEPTEMBER 2018

NELSON
NYGAARD

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Bus Rapid Transit Implementation

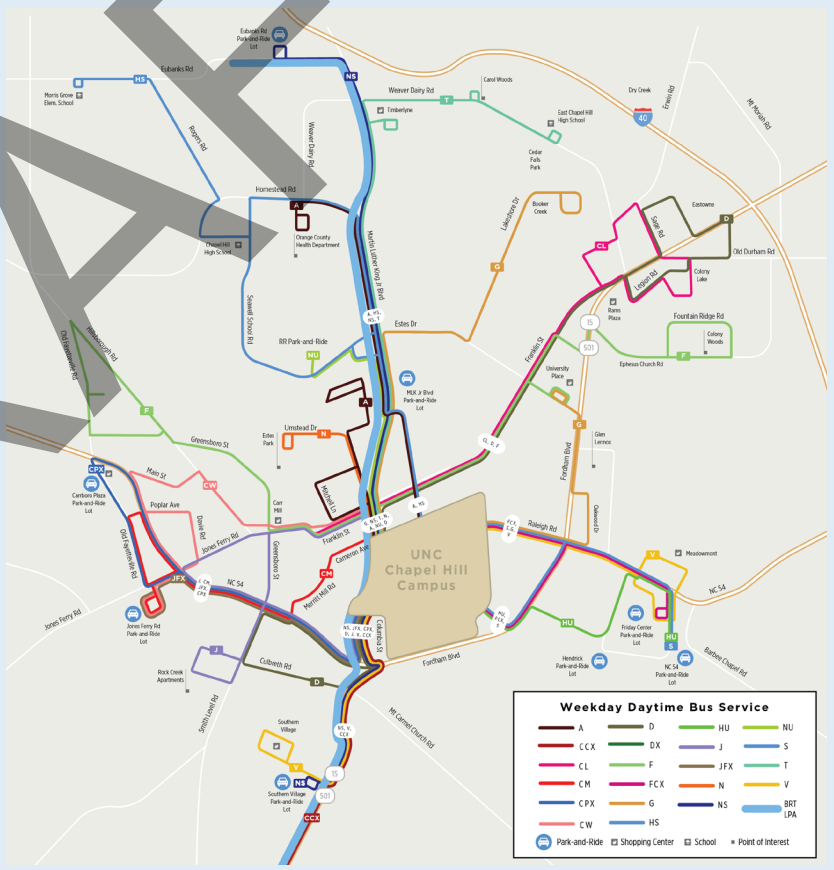
POTENTIAL IMPLEMENTATION OF BRT IN CHAPEL HILL WILL HAVE WIDESPREAD IMPLICATIONS FOR HOW THE TRANSIT SYSTEM FUNCTIONS.

CURRENT CONDITIONS

- The North-South BRT project will provide high quality service to meet growing transit demand on the highest transit ridership corridor in the CHT service area.
- The project's Locally Preferred Alternative (LPA) is a combination mixed traffic/dedicated lane BRT route that will connect the Eubanks Road Park-and-Ride lot with the Southern Village Park-and-Ride lot along Martin Luther King Jr Boulevard, South Columbia Street, and US 15-501.
- There is currently a $12 million non-federal funding gap that must be bridged before the project can qualify for federal grant funding and move out of project development and into implementation.

OPPORTUNITIES

- **Simplify service** by reducing duplicative North-South services and establishing feeder services with connections at BRT stations.
- **Enhance regional coordination** with GoTriangle at key transfer locations including the Eubanks Road Park-and-Ride, UNC Hospitals, and Southern Village Park-and-Ride.
- **Consider modifications** to Routes NS, A, NU, T, and G to provide complementary feeder service, but maintain the majority of underlying local service.
- **Identify potential additional corridors for high capacity transit**, including an east-west alignment along Franklin Street from Patterson Place to Carrboro.
- **Consider on-demand type feeder services** using smaller vehicles to improve access for adjacent neighborhoods.



Locally Preferred Alternative for the North-South BRT Corridor in Chapel Hill.

FINANCIAL IMPLICATIONS

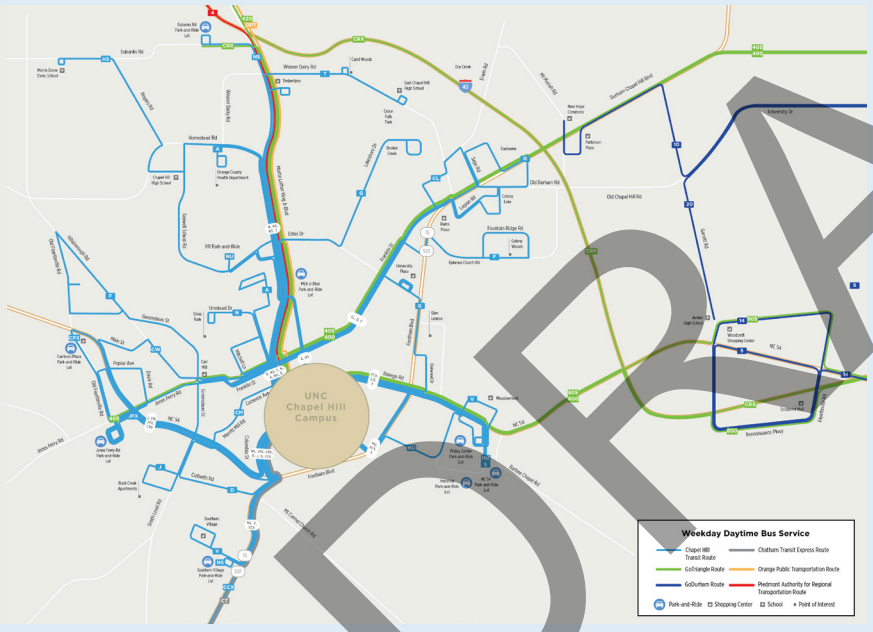
- Preliminary estimates range from $97 to $106 million (2015 dollars) in capital costs, up to 80% of which may be federally funded, and increase the total annual operating/maintenance costs to $3.4 million (2015 dollars). The project has not yet reached the 30% design phase and cost estimates may change.
- The primary goal of BRT implementation is to address future demand, not reduce costs. It is not anticipated that implementation of the North-South BRT will result in any savings to the existing system.

Regional Transit Service Coordination

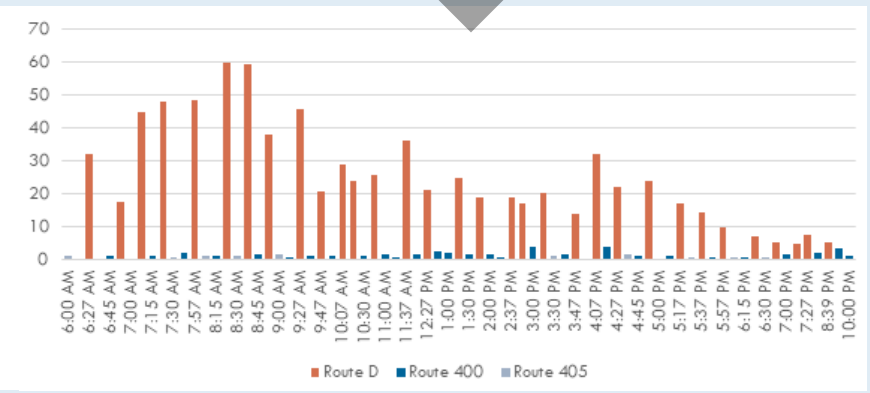
COORDINATION WITH REGIONAL PROVIDERS CREATES OPPORTUNITIES FOR IMPROVED PERFORMANCE AND CUSTOMER SATISFACTION ON THE CHT SYSTEM.

CURRENT CONDITIONS

- CHT currently operates in a service area that overlaps with other agencies, such as GoTriangle, Orange County Public Transportation (OPT), GoDurham, Piedmont Authority for Regional Transportation (PART), and Chatham Transit.
- Most complementary and supplementary services operate on major corridors, including Martin Luther King Jr. Boulevard, NC 54, US 15-501, Columbia Street, Raleigh Road, and Franklin Street. Transfer opportunities exist at Eubanks Road Park-and-Ride, UNC Hospitals, and UNC-Chapel Hill Campus.
- CHT's fare free policy makes other services less attractive to riders, even in locations where other services have extra capacity.



Regional Operators in the CHT Service Area



East Franklin Street Weekday Boardings per Trip - Inbound to Chapel Hill

OPPORTUNITIES

- **Identify and leverage shared transit corridors,** including NC 54, US 15-501, Martin Luther King Jr. Boulevard, Raleigh Road, South Road, and Columbia Street.
- **Potential for CHT service extension to reach Patterson Place and The Streets at Southpoint** shopping centers, two high ridership locations served by GoTriangle and GoDurham.
- **Maximize demand response resources** by coordinating and potentially consolidating service provision.
- **Consider partnerships with agencies providing service to underserved areas** outside of the existing service area, including Alamance and Chatham Counties.
- **Continue investigating potential for a GoTriangle fare free pilot project,** which would allow CHT to delay making costly capital expenditures by making GoTriangle service more attractive for local trips.
- **Investigate additional partnership opportunities with UNC-Chapel Hill,** including coordination for public safety functions and hospital transportation needs.
- **CHT should continue to think regionally** in the years ahead.

FINANCIAL IMPLICATIONS

- CHT's Routes D and NS already operate near capacity, with ridership expected to continue growing. To meet future demand, CHT may need to deploy additional vehicles or increase service frequency, both of which will increase capital and operating costs for the agency.

- To provide a sense of scale, improving service frequency on Route NS to operate every 6 minutes during the morning peak period would require three additional vehicles (approximately $1.5 million in capital costs) and 1,900 revenue hours (approximately $192,000 in annual operating costs). Adding one additional vehicle to Route D during the AM and PM peak periods would require an additional 1,400 revenue hours (approximately $141,000).

- GoTriangle has routes that are underutilized in the same corridors, but the fare differential means that CHT riders are unlikely to use GoTriangle service. By leveraging existing GoTriangle capacity, riders would have additional choices and greater frequency, which improves service without adding direct operating and capital expenses to CHT.

Regional Transit Initiatives

THE REGIONAL PLANS FROM THE DCHC MPO, ORANGE COUNTY, AND CHT PRIORITIZE INVESTMENTS IN REGIONAL FIXED ROUTE TRANSIT INCLUDING COMMUTER AND CONNECTOR BUS SERVICE, RAIL, AND BRT.

CURRENT CONDITIONS

- Specific projects and initiatives include the CHT North-South Corridor BRT, Durham-Orange Light Rail, a new Amtrak station in Hillsborough, a comprehensive fare analysis in Durham and Wake County, the Wake County Major Investment Study, and the Wake County Bus Plan.

- Short Range Transit Plans are in progress for GoTriangle, OPT, GoDurham, GoRaleigh, and GoCary.

OPPORTUNITIES

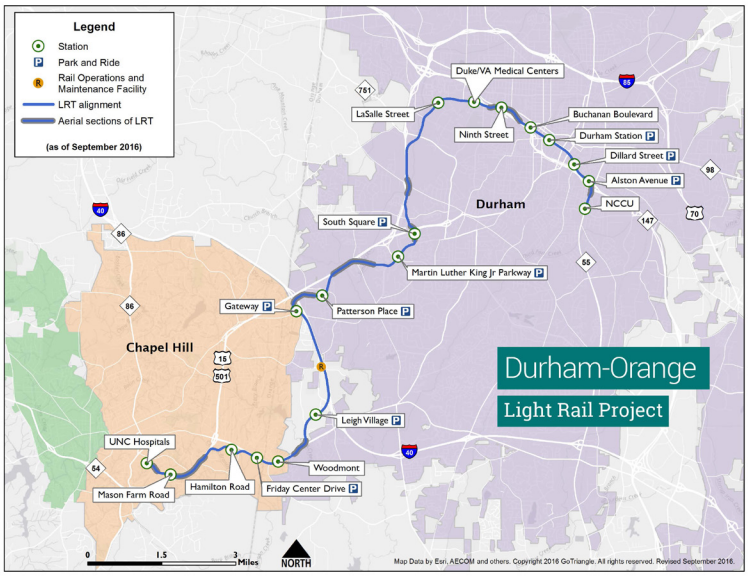
- **Light rail implementation** is expected to impact the local CHT service network to provide enhanced feeder service to the station areas.

- **Coordination around park-and-ride access and the development of transit hubs** can be used to ensure smoother transfers and improve regional accessibility.

- **Future transit services recommended as part of concurrent planning efforts** provide the opportunity for CHT, GoTriangle, GoDurham, and OPT to provide improved service in rural Orange County—for example, service along the west NC 54 corridor—and to popular destinations near the edge of the service area, like Patterson Place and the Streets at Southpoint.

FINANCIAL IMPLICATIONS

- There are no significant financial implications.



The Durham-Orange Light Rail Transit Project is an example of a prioritized investment in regional transportation.

Transportation System Planning

CONSIDERING HOW TO EFFECTIVELY PROVIDE FACILITIES FOR ALL MULTIMODAL STREET USERS WILL BE AN IMPORTANT PRIORITY MOVING FORWARD.

CURRENT CONDITIONS

- The Mobility and Connectivity Plan calls for complete streets on MLK Jr Blvd, Franklin St, Fordham Blvd, and US 15-501.
- The Chapel Hill Bike Plan calls for improved bicycle access to transit centers and reducing conflicts between bicyclists and pedestrians near transit stops.

OPPORTUNITIES

- **Implement interventions designed to enhance safety for all users,** such as transit islands. This is a particularly important consideration on corridors with a significant grade change and also slated for transit enhancements—such as future East-West BRT implementation on East Franklin Street.
- **Consider a policy to emphasize bus infrastructure on certain corridors and bicycle infrastructure on others,** creating a network of streets that emphasize specific travel modes.
- **Provide adequate bicycle storage** at transit stops near major bicycling corridors, integrating stops with UNC Tar Heel Bikes bikeshare, and planning for the potential integration of dockless bikeshare and/or electric scooters.
- **Pursue potential for additional bicycle storage options** such as off-board racks and enclosed cages, front-loading racks with capacity for three bicycles, and on-board racks on high capacity transit vehicles.

Chapel Hill Mobility and Connectivity Multimodal Network

Improvement Priorities

Improvement	Best Practices for Integrating Pedestrian and Bicycle Improvements Near Transit
Connectivity	Pedestrian walkways and bicycle infrastructure providing safe routes and access to transit stops. This includes installation of newer innovations such as transit islands to better facilitate bike and bus interaction.
Wayfinding	Signs and maps along major bicycle and pedestrian routes that identify the locations of transit stops.
Pedestrian Improvements	Adding new pedestrian crossings and sidewalk improvements around transit stops and stations.
Bicycle Storage	Providing both short term and long term bicycle storage and parking at major transit hubs. Bicycle parking should be secure, highly visible, and protected from the elements.
On-Board Bike Integration	Investing in on-board integration for bikes in the form of front-loading bike racks with capacity for three bicycles or by allowing riders to carry their bikes on-board on higher capacity transit (such as future BRT and LRT systems).
Bike Share Near Transit	Incorporating bike share stations near major transit stops.

Examples of Off- and On-Board Bicycle Storage

Examples of Bicycle Lanes and Transit Islands

AUTONOMOUS TRANSIT

- Automation will reach different types of transit on different timelines. Medium-occupancy autonomous shuttle models are already in testing.
- Overall, autonomous vehicles (AVs) are projected to increase vehicle miles traveled and associated congestion. However, autonomous transit could operate far more efficiently than personal AVs in terms of total person-movement or throughput, especially in dedicated lanes or guideways.
- Some agencies are beginning to plan now for shifts in travel demand, curbside access, procurement, and safety requirements.
- Transit agencies and cities can create the ideal operating environments for autonomous vehicles by creating separate, dedicated operating lanes—an advantage that private vehicles do not have.

FINANCIAL IMPLICATIONS

- Costs for developing bicycle infrastructure vary based on complexity of the intervention—for example, from less expensive bike lane striping to more expensive buffered bike lanes and separated multi-use paths.
- Any increased costs associated with these improvements would be capital costs and may be eligible for grant funding.

Environmental Impacts

THE TOWN OF CHAPEL HILL AND UNC-CHAPEL HILL HAVE AMBITIOUS ENVIRONMENT INITIATIVES, AND TRANSIT IS A KEY COMPONENT OF MEETING ESTABLISHED GOALS.

CURRENT CONDITIONS

- The Town of Chapel Hill Carbon Reduction Pledge calls for a 60% reduction in greenhouse gas emissions by 2050 (from 2005 levels), with a milestone of 15% reduction by 2015.
- UNC's Three Zeros Initiative takes an integrated approach to reducing its environmental footprint with the goals of zero net water usage, zero waste to landfills and zero net greenhouse gas emissions.
- In 2016, CHT eliminated approximately 10.5 million vehicle miles traveled by other modes.
- As of August 2018, CHT was awarded a grant for purchase of two electric vehicles. CHT should continue to evaluate vehicle reliability and improvements in technology to facilitate local operation, which includes considerations such as grade and hot summer temperatures.

OPPORTUNITIES

- **Trends suggest that diesel might not be the fuel of the future.** There are opportunities to improve emissions reductions and efficiencies by continuing to strategically operate a mixed fleet of vehicles.
- **Replacing older, less fuel efficient vehicles with newer vehicles** will also continue to improve emissions in CHT's fleet.
- **Investing in electric vehicles** could result in significant emissions reductions for CHT. As of 2018, CHT has placed a bid to add electric buses to their fleet, but any capital expenditure is tentative.
- **Investigating the potential for solar power generation** at CHT facility locations.

FINANCIAL IMPLICATIONS

- Costs associated with transitioning to an electric vehicle fleet include approximately $865,000 for facility conversion and an additional $300,000 per vehicle purchased, as compared to diesel. CHT would likely need to purchase and install fast-charge stations..
- After capital expenditures, electric vehicles are cheaper to operate than diesel or biofuel vehicles.

UNC Chapel Hill's Three Zeros Environmental Initiative focuses on reducing water waste, landfill contributions, and greenhouse gas emissions.

Future Development

PLANNED MIXED-USE, RESIDENTIAL, AND COMMERCIAL DEVELOPMENTS WITHIN THE CHT SERVICE AREA HAVE THE POTENTIAL TO CREATE NEW DEMAND FOR TRANSIT OR OVERWHELM THE CAPACITY OF BUSES ON EXISTING ROUTES.

CURRENT CONDITIONS

Current large-scale developments with potential impacts include:

- Carraway Village (1,692 projected transit trips).
- Obey Creek (2,500 projected transit trips).
- Glen Lennox (352 projected PM peak transit trips).
- Carolina North Campus (6,438 project transit trips in 2030).

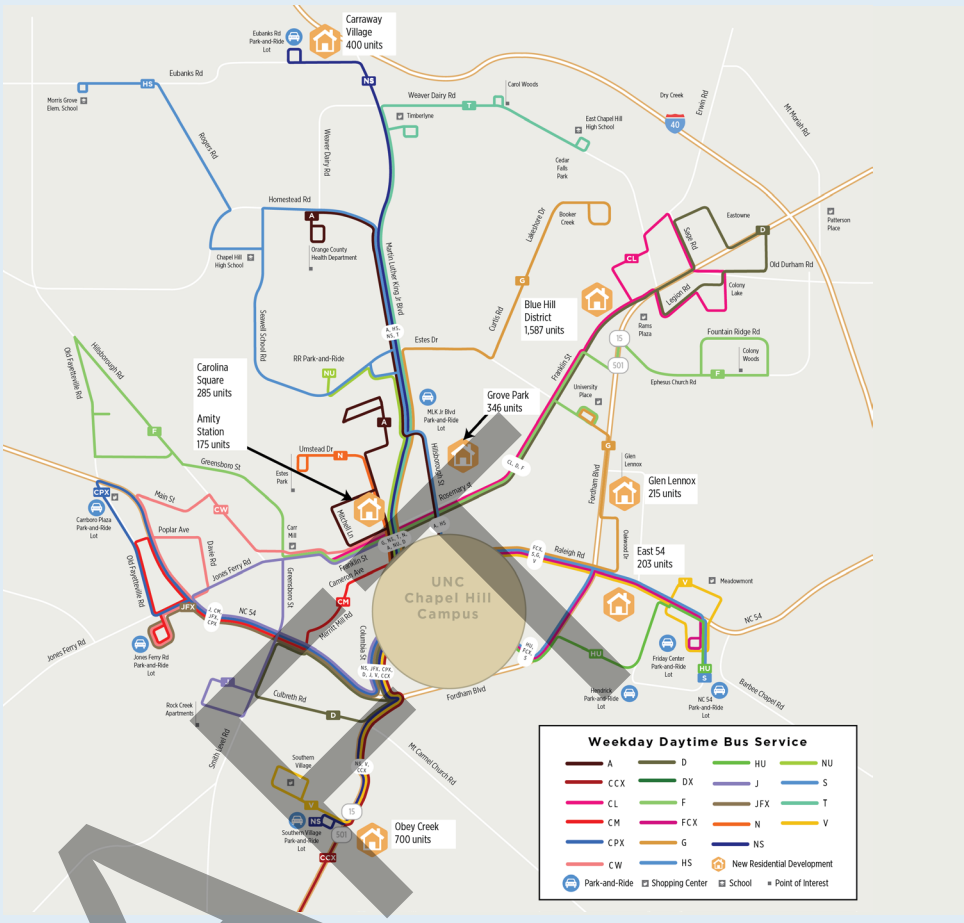
- Additional planned large-scale developments include the Blue Hill District, East 54, Chatham Park, Carolina Square, Amity Station, Grove Park, UNC Hospitals Eastowne Campus, and additional growth on UNC's main campus and at UNC Hospitals.

Carraway Village represents a large development in Chapel Hill that creates an area of future transit demand.

OPPORTUNITIES

- **Identify capacity constraints** for existing routes serving new developments. New developments on Martin Luther King Jr. Blvd (400+ units on the north portion and 700 units on the south portion) and US 15-501 (1,200+ units) will very likely require additional peak resources and buses.

- **Continue to investigate funding opportunities** for payment-in-lieu, transit improvement districts, or other methods designed to ensure new developments are paying their fair share to meet increased demand on the transit system. Changes to the existing payment-in-lieu policy to improve transit benefits require legislative approval. Opportunities for operating funding support should also be pursued.



Proposed Residential Developments and Existing Chapel Hill Transit Service

FINANCIAL IMPLICATIONS

- Increased development intensity along transit corridors is likely to increase demand for transit in the area.

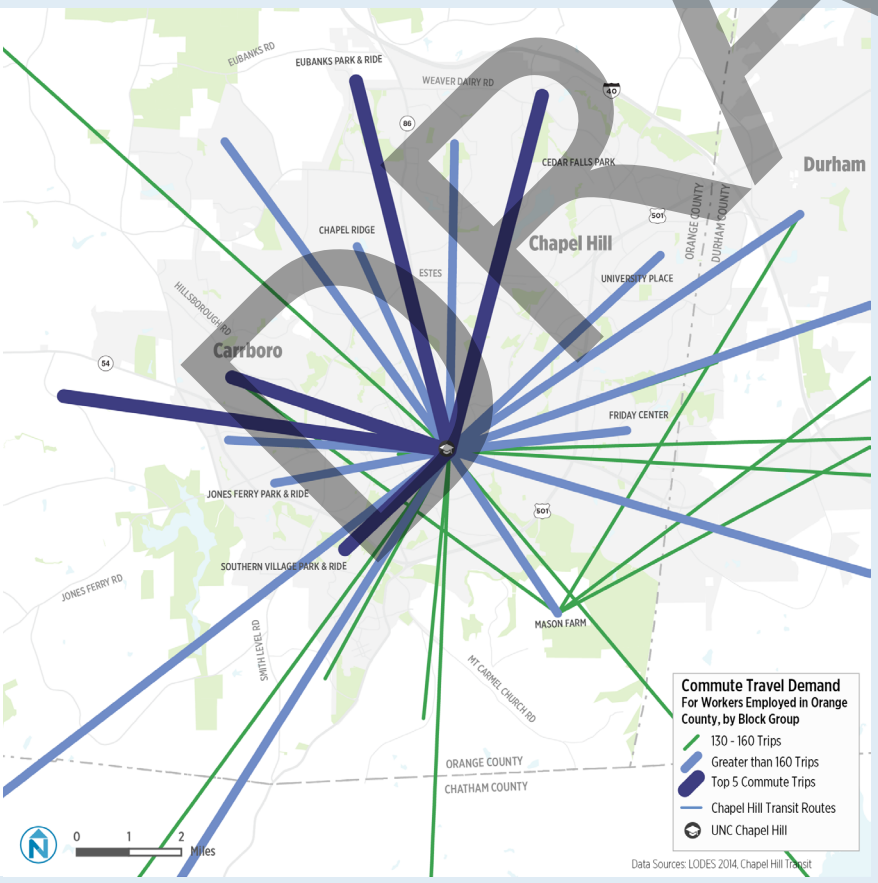
- Monitoring and forecasting demand from future developments allows CHT to make strategic investments and expenditures, rather than making reactionary changes.

Park-and-Ride Corridors

CHAPEL HILL, CARRBORO, AND UNC-CHAPEL HILL ALL HAVE GROWTH PLANS THAT DEPEND ON CHT TO MITIGATE PARKING AND TRAFFIC CONCERNS. AS TRAFFIC PATTERNS CONTINUE TO EVOLVE, ADDITIONAL PARK-AND-RIDE CAPACITY OR POLICY CHANGES MAY BE NECESSARY.

CURRENT CONDITIONS

- There are currently nine park-and-rides served by CHT and GoTriangle with plans for 700 new parking stalls to serve future light rail development.
- Current commute patterns indicate that the majority of trips into Chapel Hill originate in the north side of Chapel Hill, from the west in Carrboro and the NC 54 Corridor, and from the area surrounding the Southern Village Park-and-Ride Lot.
- Other high volume commute trips originate in Durham, University Place, Friday Center, Mason Farm, and Chatham County.
- In the short-term, CHT has sufficient park-and-ride space to meet demands.



Travel demand for trips entering the Chapel Hill-Carrboro area

Park-and-Ride Lot	Capacity	Utilization (September 2016)	Utilization Rate
Eubanks	395	175	44%
Southern Village	400	282	71%
Carrboro Plaza	145	20	14%
Jones Ferry	443	78	18%
Friday Center*	871	752	86%
NC 54 East*	512	87	17%
Hedrick*	278	36	13%
Chatham*	550	129	23%
MLK*	40	40	100%

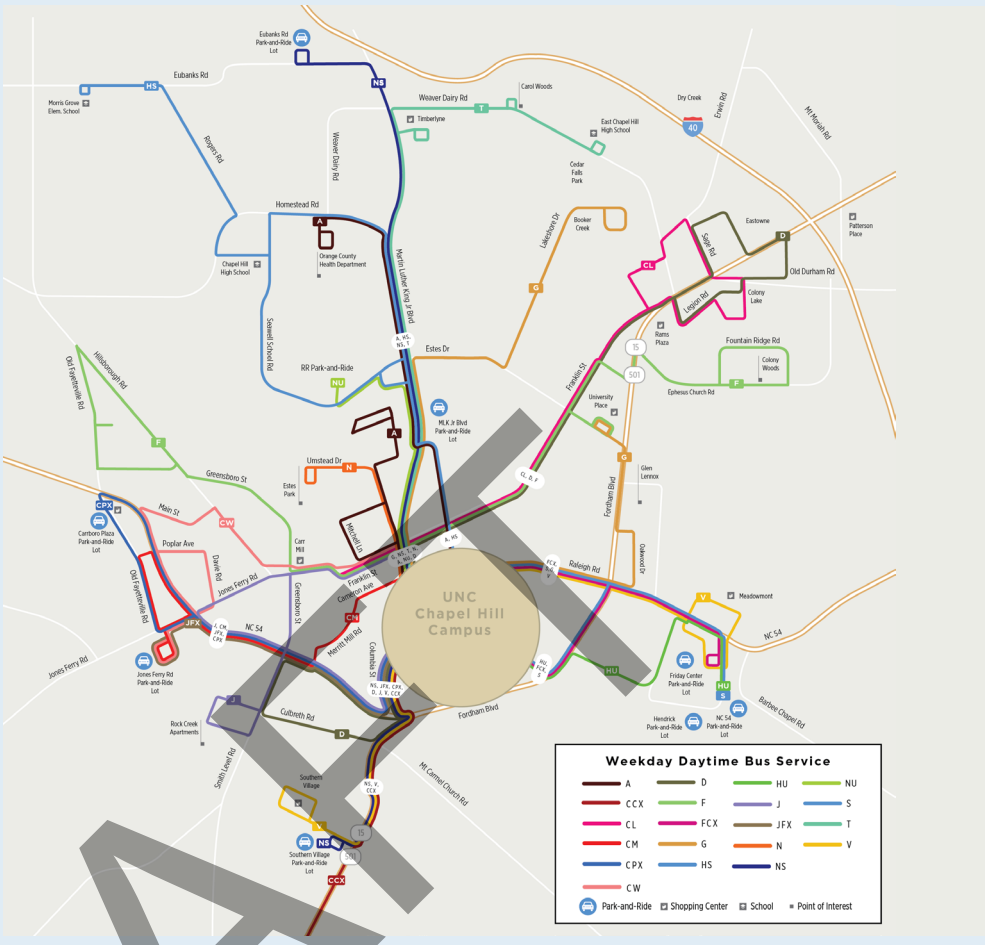
* UNC-Chapel Hill managed Park-and-Ride lot

Park-and-Ride utilization rates vary for each lot in the CHT system

OPPORTUNITIES

- **The park-and-ride system inherently comes with trade-offs in terms of service productivity, land use, and environmental impacts.** Close-in park-and-ride lots are generally more expensive to maintain due to the relatively high value of land that has strong redevelopment potential, but service costs are lower because of the short travel distances. More distant park-and-ride lots require a longer transit trip and may be less attractive to potential users but would also lead to fewer overall vehicle miles traveled.

- **The primary markets for future park-and-ride use are likely to be from Chatham, Durham, and Alamance Counties.** There is potential for a new park-and-ride in White Cross to serve the West NC 54 corridor, capturing trips from Alamance County; an additional park-and-ride lot could be considered further south in Chatham County.



Chapel Hill-Carrboro Area Park-and-Ride Lots and Existing CHT Service

- **Coordinating with other regional transit service providers** (OPT, GoTriangle, etc.) to identify locations for new park-and-ride facilities to the south and west to serve commuters from Chatham and Alamance Counties should be prioritized.

- **Significant changes in the transportation operating environment are anticipated when light rail is completed.** GoTriangle plans to develop new park-and-ride lots at Leigh Village and Gateway as part of light rail implementation, which may impact utilization at existing CHT park-and-ride lots in the eastern portion of the service area, such as Friday Center.

- **Light rail implementation provides an excellent opportunity for CHT to re-think the existing park-and-ride provision model.** Service design should be re-evaluated in the future to maximize light rail investment.

FINANCIAL IMPLICATIONS

- Illustrative operating costs were identified for service from White Cross to UNC-Chapel Hill. Depending on the level of service, developing and providing service to a park-and-ride lot in White Cross could cost anywhere between $90,000 and $530,000 annually, depending on service span and service frequency.

Transit Hubs

DEVELOPING TRANSIT HUBS IS A STRATEGY FOR REDUCING TRANSIT VEHICLES DWELLING ON STREETS AND FACILITATING TRANSFERS AT HIGH RIDERSHIP LOCATIONS.

CURRENT CONDITIONS

- Separating bus operations and stop locations from general traffic reduces conflicts with automobiles, facilitates transfers, and provides a more pedestrian-friendly transit stop.
- CHT does not currently have any transit hubs outside of their park-and-ride lots.
- The highest ridership stops in the CHT system are located in dense, congested areas of Chapel Hill; however, limited right-of-way at these locations presents a challenge for developing the infrastructure necessary for a transit hub.

Among the highest ridership stops in the CHT system, UNC Hospitals provides an opportunity to implement a transit center.

OPPORTUNITIES

- **Potential transit hub locations** include Manning Dr/East Dr (UNC Hospitals), Franklin St & Columbia St, South Rd at the UNC Student Union, and Patterson Place/Gateway Station.
- **The highest priority transit hub is at the Manning Drive/East Drive (UNC Hosptals) location,** which is currently served by 25 transit routes and 53 buses per hour in each direction. The high volume of buses will be exacerbated when the light rail station opens. It is recommended that curb and pullout space be maximized to accommodate as many stop bays as possible, as well as accommodation for layover.
- **Development at Franklin St & Columbia Street would be difficult due** to physical constraints, but this could serve as a key location for evening and night services.
- **South Road at the UNC Student Union currently has space for two buses**. While minimal space is available to develop off street facilities, there is potential for improving bus stop amenities and providing pedestrian improvements.
- **Patterson Place/Gateway Station would be a designated interchange between CHT, GoDurham, and light rail in the future.** As a potential regional transfer point, it will be necessary to consider rerouting services to this stop, which may require additional layover space to ensure efficient operations.

Existing Bus Pullout Space on Manning Drive at UNC Hospitals

Striped Bus Pullout Area and On Street Parking at Franklin Street and Columbia Street

Potential Transit Hub Locations near the UNC-Chapel Hill Campus and downtown Chapel Hill

FINANCIAL IMPLICATIONS

- Identifying and constructing transit hubs will result in a capital expenditure for the sake of improving operational efficiency.
- Inadequate layover space increases dwell times and average travel times for routes serving some of the most popular destinations in the CHT system. .

Light Rail Integration

THE REGION IS CURRENTLY IN THE MIDST OF PLANNING FOR LIGHT RAIL IMPLEMENTATION WITH AN OPENING YEAR OF 2028.

CURRENT CONDITIONS

- Light rail provides an opportunity for CHT to leverage existing services to alter route alignments and provide connections to proposed light rail stations within the CHT service area.
- The introduction of light rail service has the potential to free up dividend hours for CHT to reallocate for improvements to existing services or feeder services to improve access to the light rail system.
- The proposed light rail alignment would connect to the southeast side of Chapel Hill, with stops located near Friday Center, Hamilton Road, Mason Farm Road, UNC Hospitals, and Patterson Place. Existing CHT routes serving this area include Routes V, HU, S, FCX, and G.

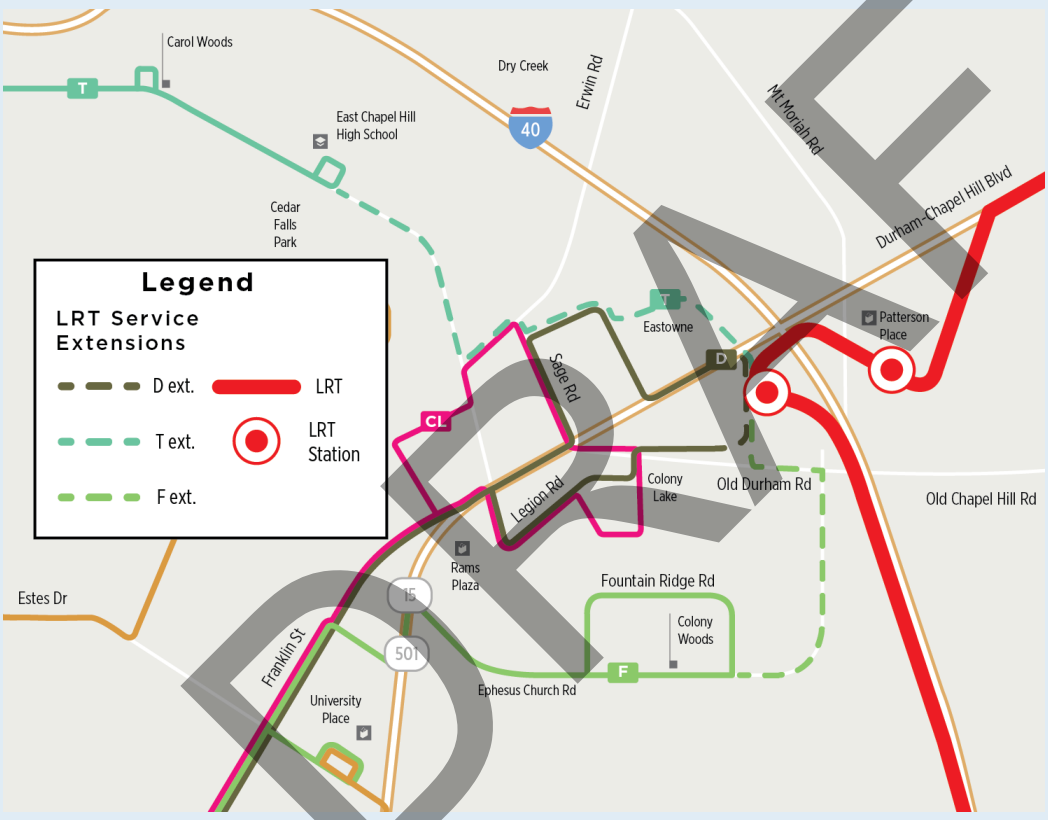
OPPORTUNITIES

- **The underlying CHT service patterns are unlikely to change significantly after light rail implementation.** Several routes, including Routes D, T, and F, may be extended from their existing alignments in order to provide access to the Gateway Station. The Friday Center Station would already be served by the existing alignments of Routes S and V. Similarly, the Mason Farm Road Station would continue to be served by the existing alignment of Route B.
- **Each of the proposed light rail stations have unique characteristics in terms of available right of way, existing stop locations, and adjacent bus alignments**; therefore the recommendations for each station are dependent on their unique local context.
- **The key stations for incorporating bus bays, transit hubs, and transfers** are Gateway station, Leigh Village Station, and UNC Hospitals Station.
- **The UNC Hospitals Station would serve more than 100 buses per hour;** as many bus bays as possible should be constructed to accommodate the heavy volumes of buses on the corridor. Developing a separated transit hub to fully capitalize on the light rail line will be challenging, and some bus routes may need to be rerouted to reduce congestion.
- **Existing Route RU and U may be insufficient to meet future travel needs on campus.** CHT should evaluate the viability of existing services to meet future demand once light rail is implemented.

The Durham-Orange Light Rail Project will require significant changes to CHT and GoTriangle bus layover policy in station areas, particularly at the UNC Hospitals station and Gateway Station.

Friday Center Station Proposed Station Alignment

UNC Hospitals Proposed Station Alignment



Proposed Light Rail alignment and service extensions on existing alignments of Routes D, T, and F

FINANCIAL IMPLICATIONS

- There are no assumptions to reduce CHT local service hours in response to light rail implementation.
- The Orange County Bus and Rail Investment Plan assumes a revenue hour "dividend" for CHT to reallocate existing bus service when light rail comes on-line. However, many of these service hours are funded by UNC and may not be reallocated directly to CHT service—for example, revenue hours could instead be used to make investments in additional pass programs. As such, additional funding for bus service may be required.

DISCUSSION ITEM October 23, 2018

4B. North South Corridor Bus Rapid Transit
Action: 1. Receive presentation and provide staff and consultant team with feedback.
2. Approve LPA update consistent with recommendation from Technical and Policy Committees.

Staff Resource: Matt Cecil, Transit Development Manager

AECOM and staff will provide a presentation on updating the Locally Preferred Alternative (LPA), for the corridor between Eubanks Road and North Drive along Martin Luther King Jr. Boulevard.

Meeting Update

The Policy Committee met on September 10th to review the recommendation from the Technical Committee for a Running Way recommendation.

Running Way Recommendation

- Technical Committee has made an LPA recommendation for the Policy Committee to review.
- The Policy Committee has endorsed the LPA recommendation from the Technical Committee to construct a dedicated curb lane for the northern segment of the NSBRT.

Public Outreach

- CHT has participated at events on UNC Campus and at UNC Hospitals
- CHT has given presentations to various interest groups in the service area
- 3 open house public input meetings are scheduled
    - 10/22 – Christ United Methodist Church from 5 PM – 7PM
    - 10/23 – Chapel Hill Public Library – 11 AM – 1 PM
    - 10/23 – Orange United Methodist Church – 5 PM – 7PM

Action Items

- Continue searching for additional local match funds
- Present Transit Funding Partners with recommendation for an LPA from the 3 options analysis
- Public outreach is underway with community meetings, neighborhood meetings, and pop up events
- Present final running way recommendation to council

Attachment

- Draft presentation.

Chapel Hill North-South BRT

Chapel Hill Transit Partners Meeting

October 23, 2018

Agenda

- **This meeting is a critical decision point**

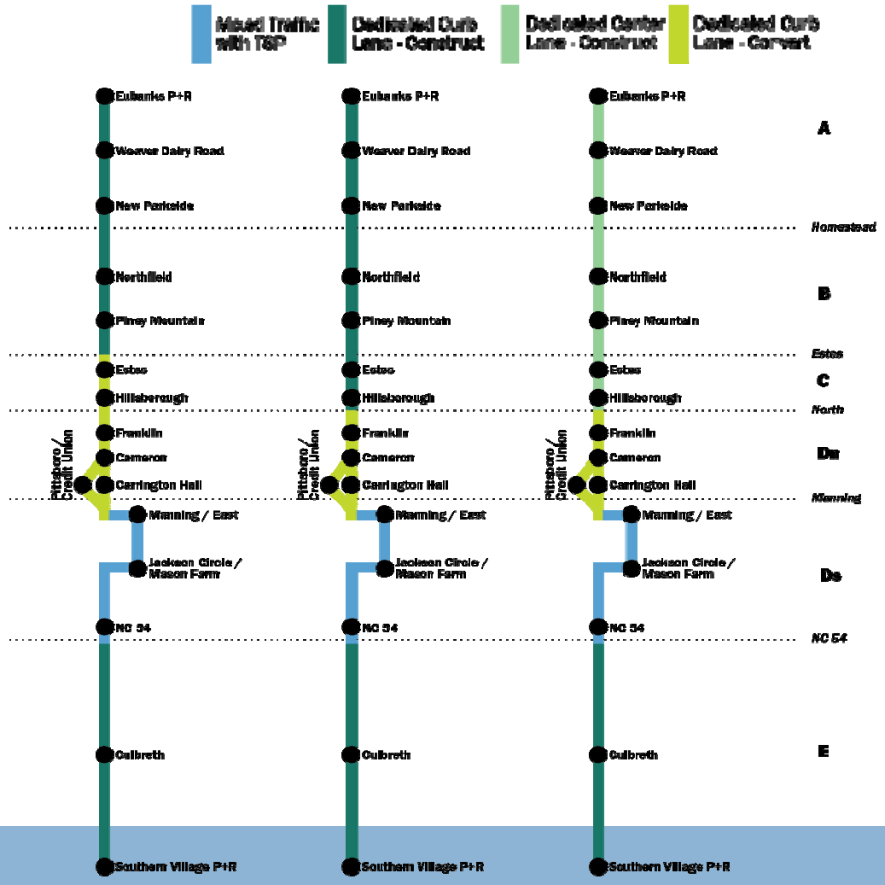
- Review of 2016 LPA
- Work To-Date and Committee Recommendations
- Pedestrian & Bicycle Facilities
- Public Engagement
- Environmental Assessment Tasks
- Next Steps

The 2016 North-South Corridor LPA

Dedicated Curb Lane - Construct a New Lane

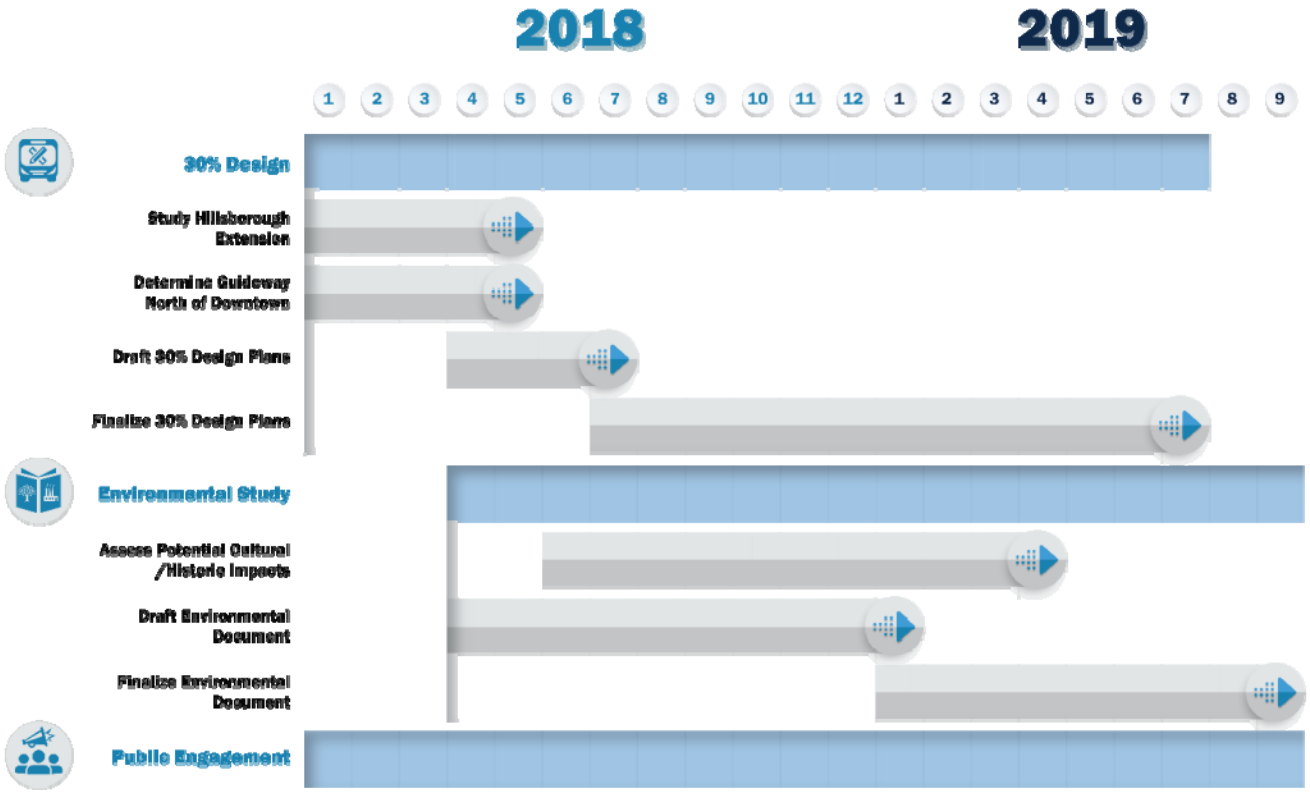
Dedicated Center Lane - Construct a New Lane

Dedicated Curb Lane - Convert Lane from Existing Use



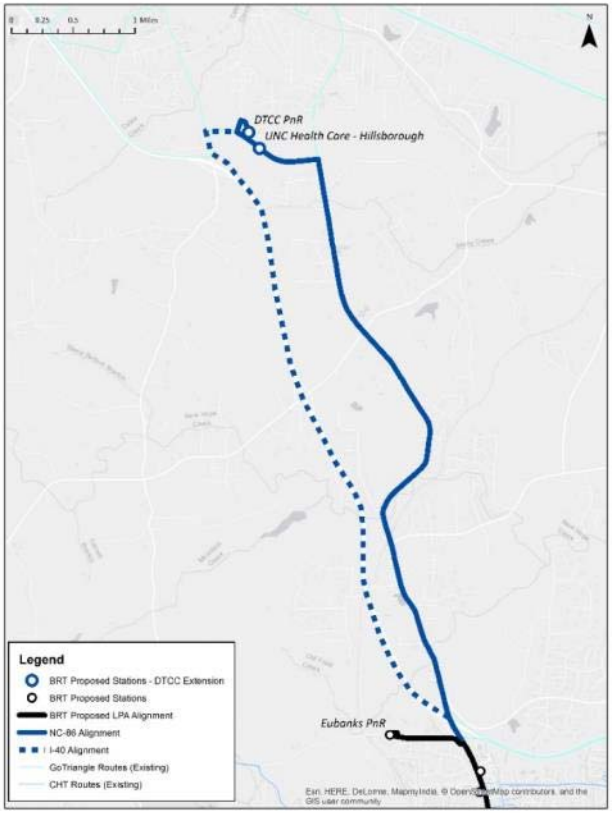
Work To-Date and Committees' Recommendations

NEPA and 30% Design Schedule



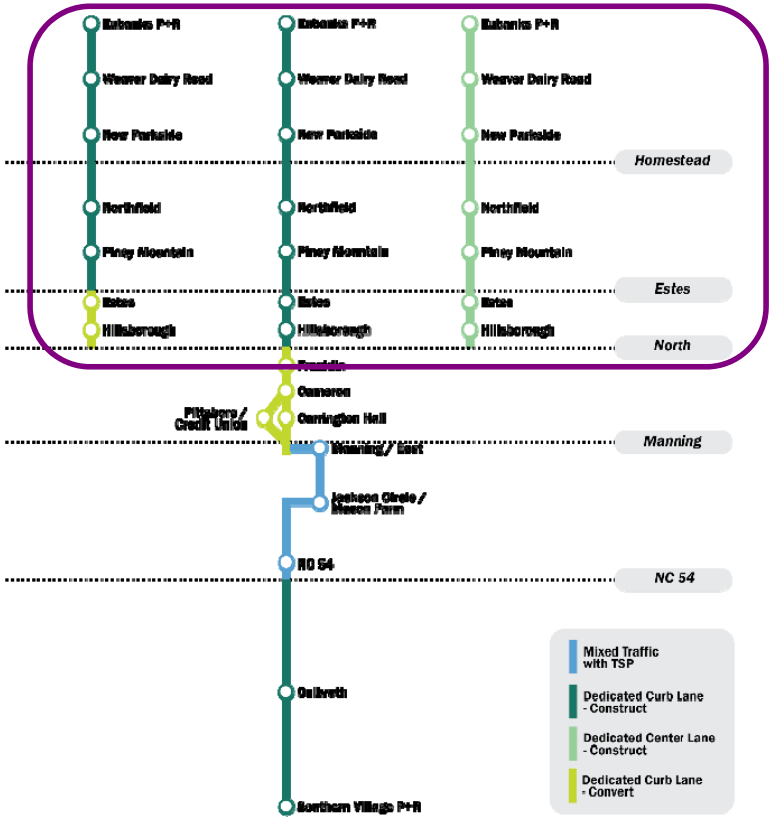
Extension to Durham Technical Community College

- 6.7-mile BRT extension from Eubanks P&R to DTCC
- 2 new BRT stops
  - UNC Healthcare – Hillsborough Campus (2 platforms)
  - DTCC Park-and-Ride (1 platform)
- Committees' Recommendations
  - Eliminate DTCC Extension
    - Ridership gain does not justify capital or operating and maintenance costs
    - Pursue opportunities to improve Route 420 as local funding becomes available
    - Maintain 2016 LPA service plan



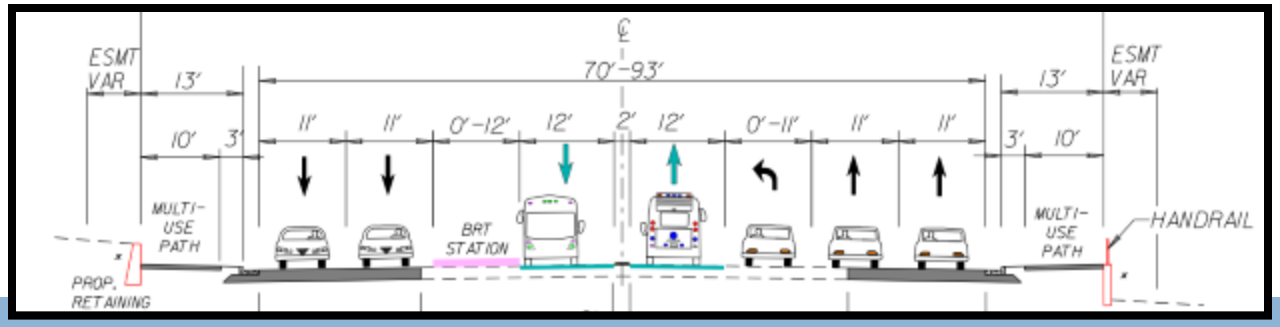
Northern Guideway Options

- North Street to Eubanks Road
- 3 segments / multiple options
- Eubanks Road: Caraway Village
- Comparison matrix
- Bike & Ped considerations
- Additional traffic analysis in PE



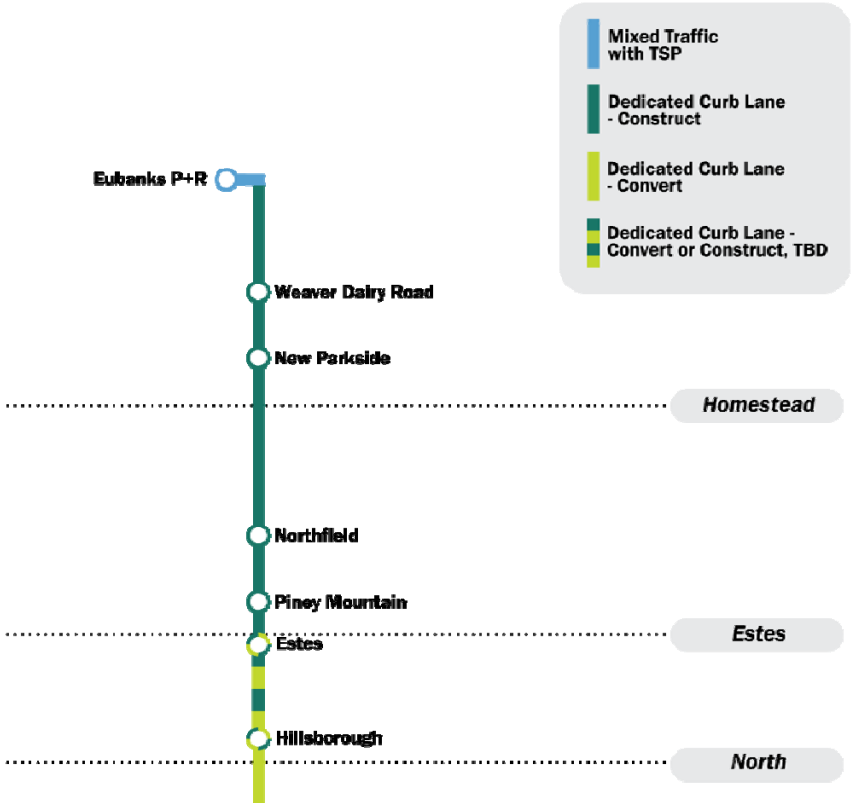
Center Running Guideway Option

- Eliminate Center Running Guideway
  - Consistent curbside guideway for the entire route
  - Less roadway widening at signalized intersections
  - Curbside used by other buses
  - Better access with center turn lane



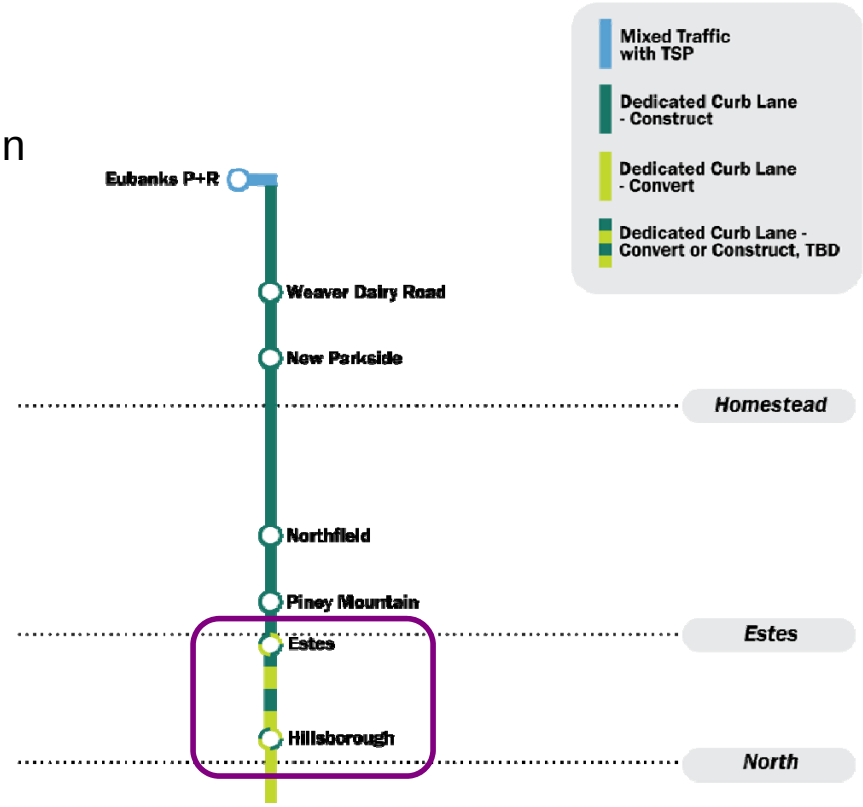
Northern Guideway Options: Recommendations

- Eubanks Road
  - Mixed Traffic
- Estes Drive to Eubanks Road
  - Construct Curbside Guideway
- Downtown to Estes Drive
  - Evaluate Convert Curbside and Construct Curbside Guideway



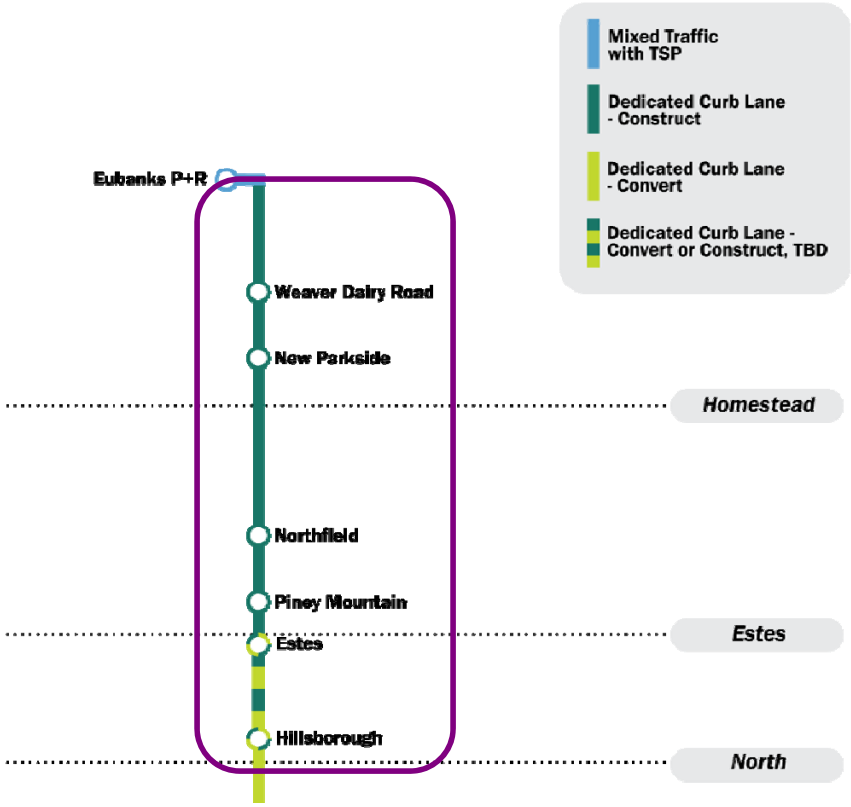
Dedicated Curb Lane – Convert Option

- Consider from Downtown to Estes
  - Reduction of one travel in each direction
  - Longer signal delays
  - Can narrow travel lanes
  - Maintains center turn lane for access
  - Shorter pedestrian crossing length
  - Lower capital cost than construct
  - Reduced ROW
  - No parking impacts
  - Multi-use path



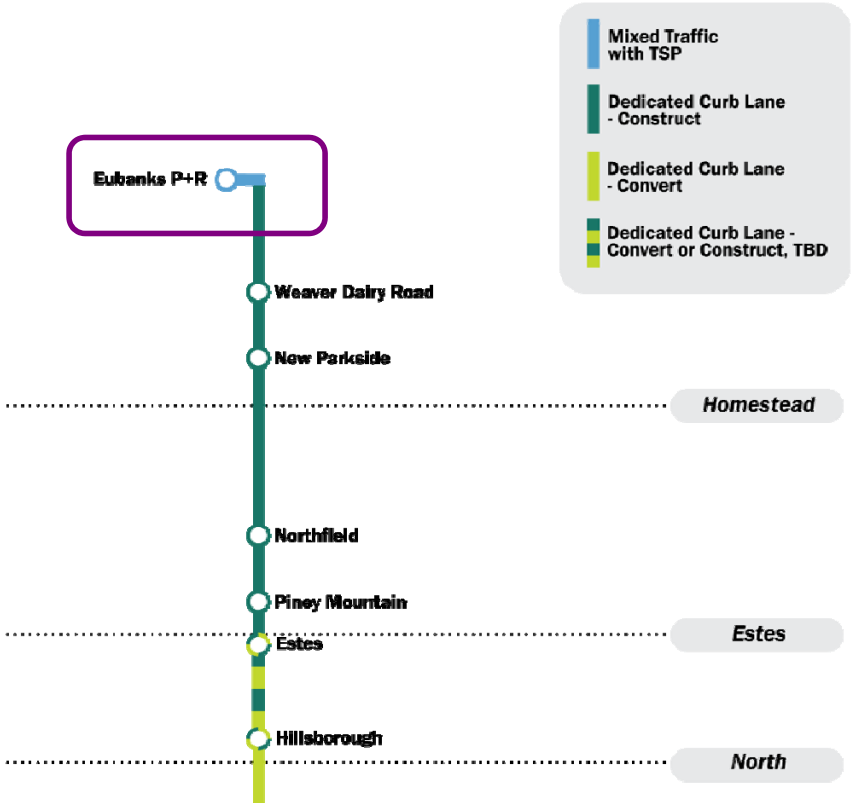
Dedicated Curb Lane – Construct Option

- Consider from Downtown to Estes
- Recommend from Estes to Eubanks
  - Widening towards median to retain outside curb & gutter
  - Center turn lane for access
  - Keep existing right turn lanes
  - Narrow travel lanes to 11’
  - Maintains current traffic capacity
  - Longer distance to cross the road
  - Intersection improvements for active transportation



Eubanks Road

- Recommend Mixed Traffic
  - From MLK, Jr. Blvd to Park & Ride lot (0.6 mi)
  - To be widened by Caraway Village developer
  - Build out traffic volume too high to convert lanes
  - BRT could use westbound right turn lane in future



Recommendations Summary

- Eliminate DTCC extension
- Eliminate Center Running guideway option
- Downtown to Estes Road
  - Construct and Convert Curbside options be evaluated in EA
- Estes Road to Eubanks Road
  - Construct Curbside be evaluated in EA
- BRT in Mixed Traffic on Eubanks Road
- Multi-use path for active transportation
  - With intersection improvements

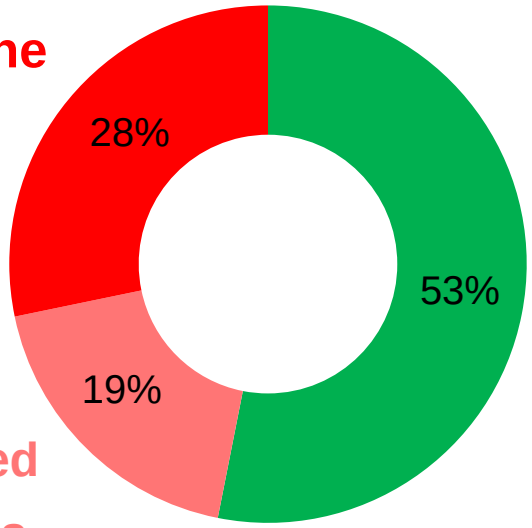
Pedestrian & Bicycle Facilities

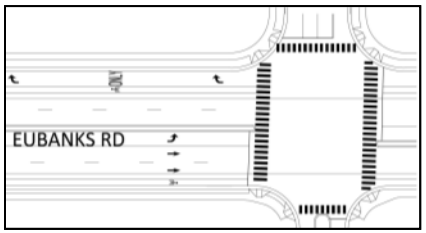
Bicycle and Pedestrian

- **Multi-use path**
  - Separates active transportation from vehicles
  - Removes (most) bicycles from roadway
  - Can narrow travel lanes to 11’
  - Maintains the most existing curb & gutter
  - Lower cost
  - Intersection improvements for safety
  - Items to be considered

Existing Bike Facilities

N-S BRT Route: Southern Village to Eubanks Park & Ride

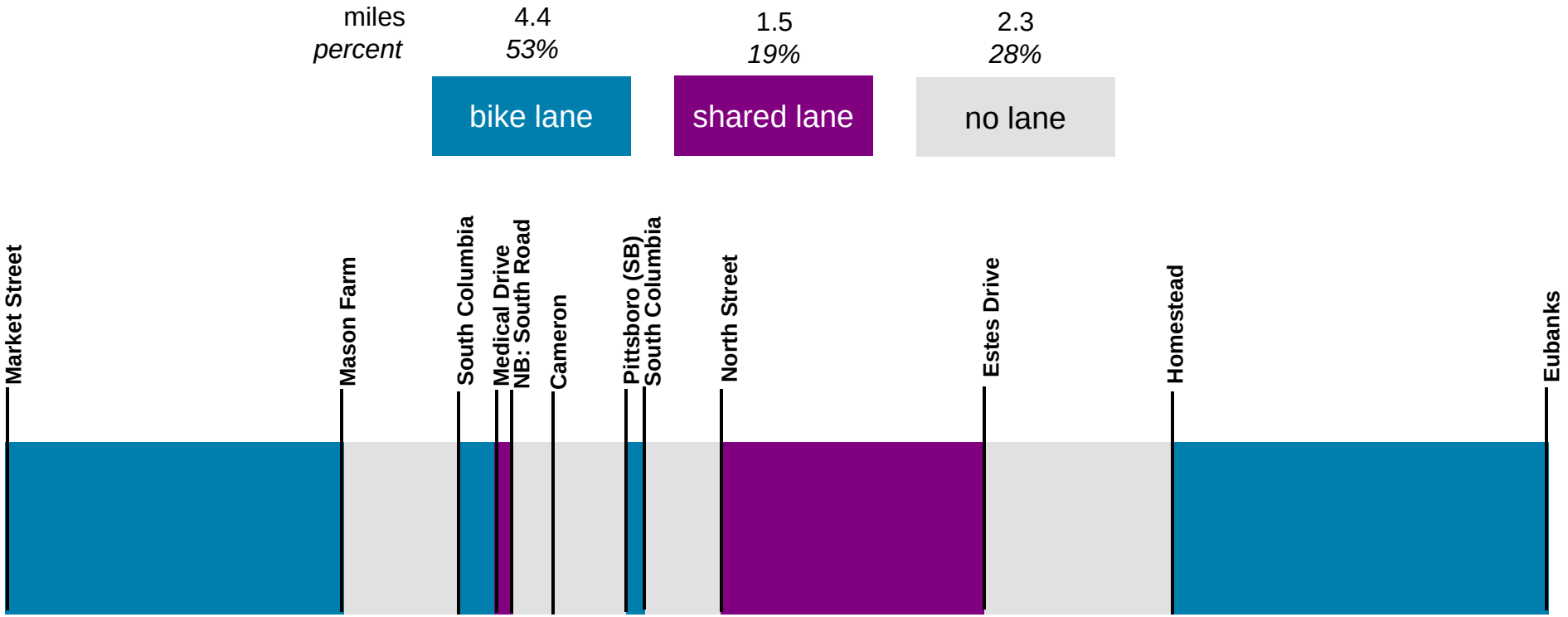




Bike Lanes proposed on Eubanks Road and Caraway Village (by Developer)

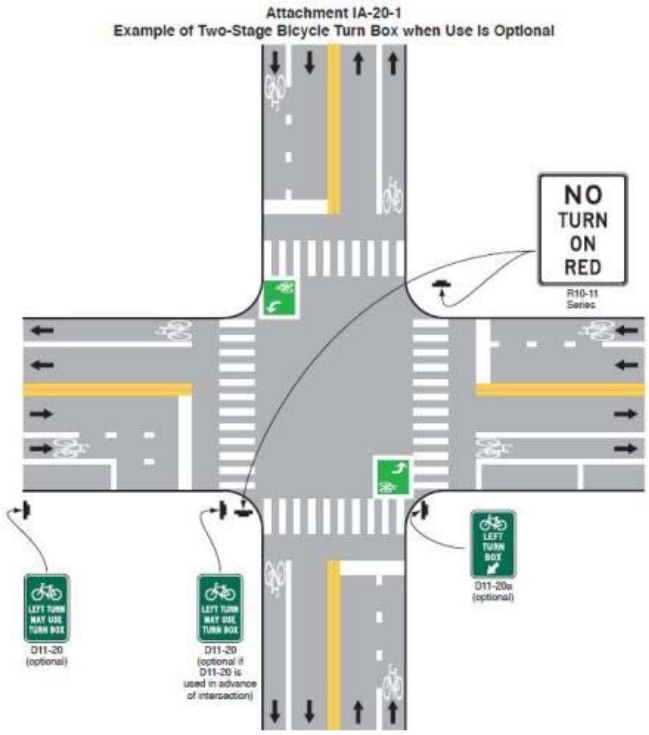
Existing Bike Facilities

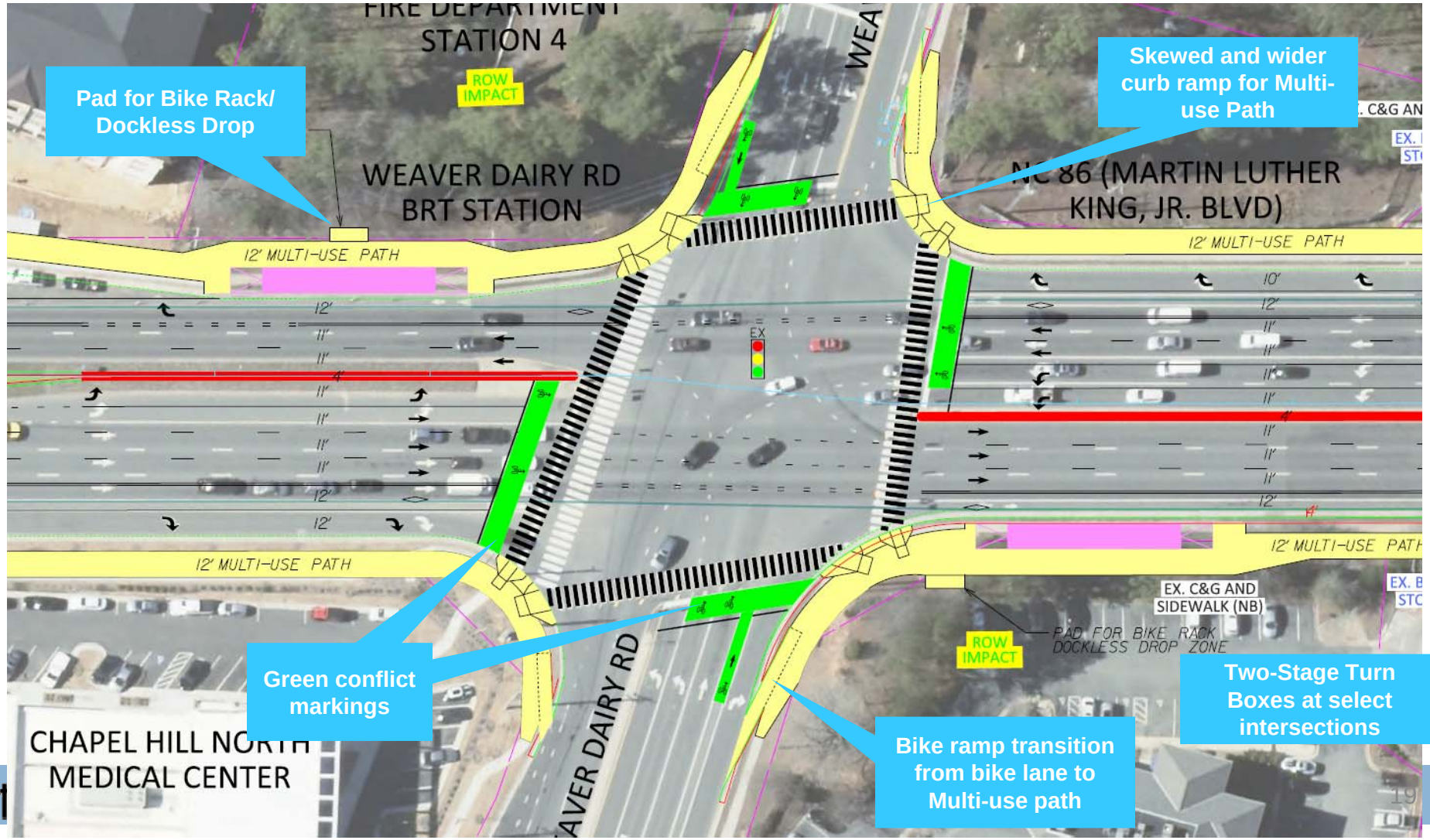
N-S BRT Route: Southern Village to Eubanks Park & Ride



Bicycle and Pedestrians Items to Consider

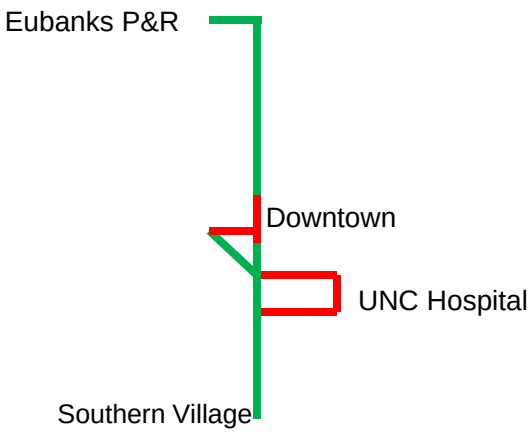
- Bike ramps
- Refuge islands
- Wide medians
- Green conflict pavement marking
- 2-way cycle track
- Separated bike path and sidewalk
- Two-stage turn box
- Pad for bike rack or dockless bike drop

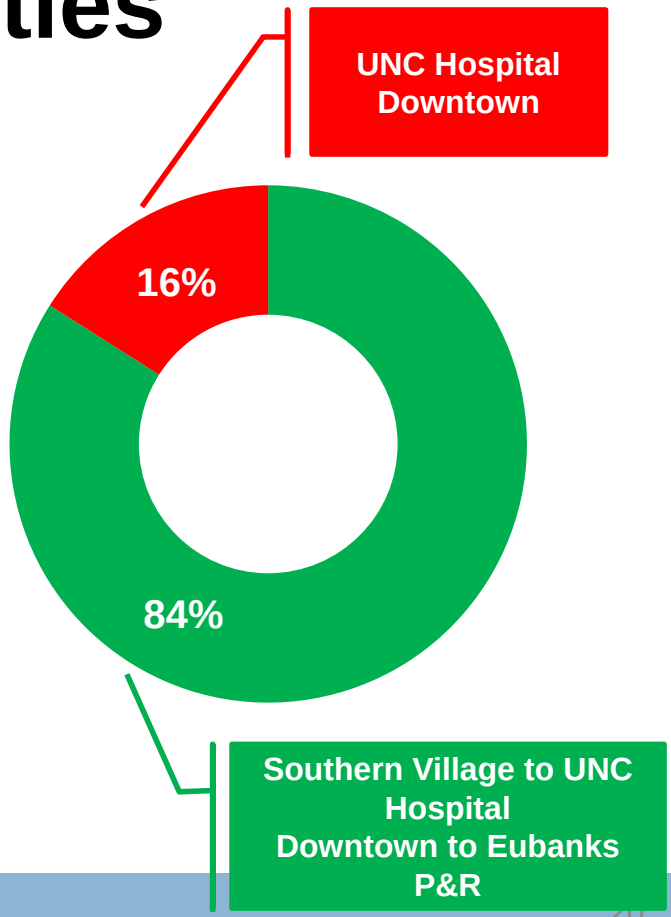



Pad for Bike Rack/ Dockless Drop
Skewed and wider curb ramp for Multi-use Path
Green conflict markings
Bike ramp transition from bike lane to Multi-use path
Two-Stage Turn Boxes at select intersections
STATION 4
ROW IMPACT
WEAVER DAIRY RD BRT STATION
12' MULTI-USE PATH
NC 86 (MARTIN LUTHER KING, JR. BLVD)
EX. C&G AND SIDEWALK (NB)
PAD FOR BIKE RACK DOCKLESS DROP ZONE
CHAPEL HILL NORTH MEDICAL CENTER
WEAVER DAIRY RD

Bike Opportunities

- Potential for 2.5 mile increase
- 6.9 of 8.2 miles = 84% of route

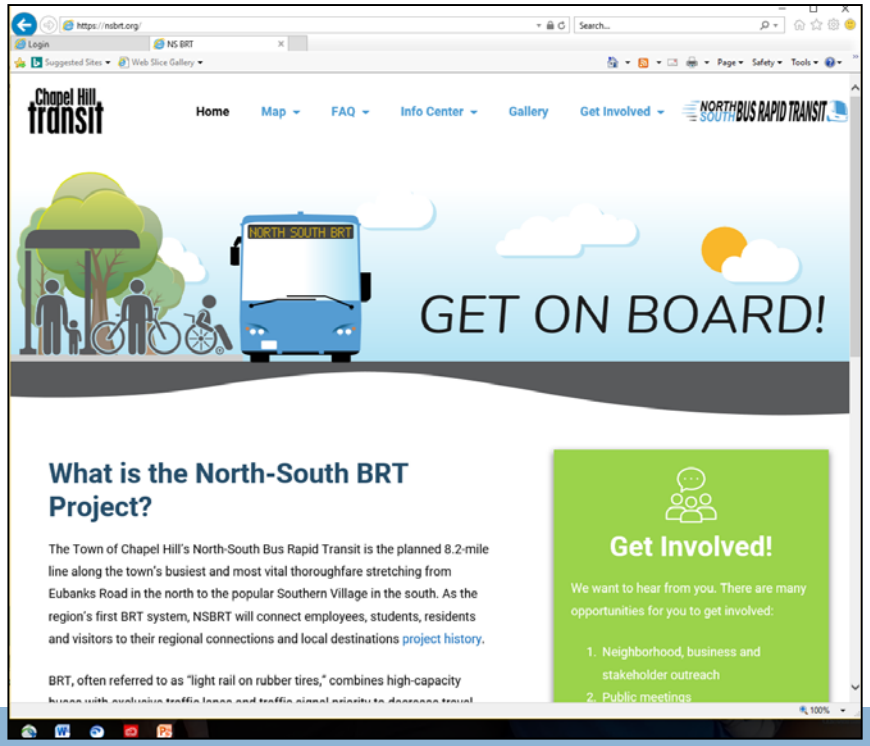




Public Engagement

Public Engagement

Media / Social Media / MetroQuest / Website Update



Public Engagement

- Key Stakeholder / Neighborhood / Local Business / University Outreach
  - Continuing outreach over the next several months
  - Includes small group and pop-up meetings

Public Engagement

- Corridor-wide open house & virtual meetings
  - October 22, 5:00 – 7:00 PM: Christ United Methodist Church (Chapel Hill)
  - October 23, 11:00 AM – 1:00 PM: Chapel Hill Public Library
  - October 23, 5:00 – 7:00 PM: Orange United Methodist Church (Chapel Hill)

Environmental Assessment Tasks

NEPA Analysis

- Lags behind design
- Design elements must be set - project footprint defined
- Key design elements that impact EA:
  - Station locations
  - Guideway design
  - Construction limits
  - Traffic and access
  - Parking

Key EA Tasks

- Annotated outline
- Section 106 coordination
- Environmental analysis
- EA document
- Public hearing/response to public comments
- FONSI

Next Steps

Chapel Hill transit

Next Steps

- **Town Council**: November 2018
- **Technical and Policy Committees**: TBD (most likely after the Town Council adopts the revised LPA)

INFORMATION ITEM October 23, 2018

5A. Bus Build and Project Updates

Staff Resource: Tim Schwarzauer, Grants Coordinator

Gillig Bus Build Update:

Provided below is the tentative bus build schedule for Transit's current Gillig order. The initial build is scheduled to go online 1/3/2019. Note: these dates are based on our current build time of 10 working days. Transit staff will continue to work with Gillig in monitoring progress and will update the Partners as new information is available:

Internal Name	Serial #	Tentative Start Date	Tentative Ship Date
Chapel Hill, NC	191857	1/3/2019	1/17/2019
Chapel Hill, NC	191858	1/7/2019	1/21/2019
Chapel Hill, NC	191859	1/8/2019	1/22/2019
Chapel Hill, NC	191860	1/9/2019	1/23/2019
Chapel Hill, NC	191861	1/10/2019	1/24/2019
Chapel Hill, NC	191862	1/11/2019	1/25/2019

ADA Bus Stop Improvements: Transit staff continue to work with the engineers at Ramey Kemp and Associates to review existing transit stops for compliance with the Americans with Disabilities Act (ADA) of 1990. These reviews will produce construction drawings and cost estimates for bringing the stops to ADA compliance as part of Chapel Hill Transit's ongoing commitment to improving customer service and access.

Chapel Hill Transit has completed the Right of Way Application process with NCDOT for the additional six bus stops. Next step is to complete encroachment agreements with private property owners. The six additional bus stops (added to contract in April) are:

- Manning Drive at Hibbard Drive
- Manning Drive at Gravely Drive
- S. Columbia Street at Mason Farm Road
- Pittsboro Street at Credit Union
- Martin Luther King Jr. Blvd at Ashley Forest
- E. Franklin Street at Coffee Shop

Jones Ferry Park and Ride Lot Repairs: Transit staff compiled a scope of work to provide a complete removal and replacement of concrete at the Jones Ferry Park and Ride Turnaround. The original turnaround has suffered significant wear and tear over the last 20 years and recently began to suffer failures in the surface and substrate materials. We intend to remove all of the existing material, substrate and fill similar to work completed at the Southern Village Park and

Ride lot in 2015. Due to a lack of response similar to the ADA project, the work will be rebid this fall with construction over the Winter Break.

CMAQ Operations Grant – Transit staff have applied for a CMAQ (Congestion Mitigation and Air Quality) grant to offset the operations cost of new weekend service called for in the Short-Range Transit Plan. If awarded, the grant will provide $641,190. NCDOT's intent is for these funds to help reduce the budget crunch resulting from reduced SMAP awards.

State Match for Bus Purchase – NCDOT awarded two state match grants for the amount of $140,000 and $136,626, respectively. These funds will help offset the local match requirement for two CMAQ grants for the purchase of six buses. Transit staff will continue to pursue additional state funding as it comes available.

INFORMATION ITEM October 23, 2018

5B. Halloween Update

Staff Resource: Nick Pittman, Transit Planning Manager
Anita Hackney, Community Outreach Manager

Overview

- During the evening of Wednesday, Oct. 31, 2018, Chapel Hill Transit will adjust some routes and schedules to accommodate the Halloween celebration on Franklin Street. The following schedule modifications will be in effect:

  - CM Route — Last bus will leave Jones Ferry Park and Ride at 7:50 p.m.
  - CW Route — Last bus will leave Pittsboro Street Credit Union at 7:10 p.m.
  - D Route will end at 7:31 p.m. Sagebrook Apartments
  - F Route will end at 7:45 p.m. Colony Woods and 7:38 p.m. Pine Grove
  - G Route will end at 7:47 p.m. Booker Creek and 7:43 p.m. University Place
  - J Route will end at 7:56 p.m. Rock Creek Apartments and 8:02 p.m. Collins Crossing
  - NS Route—Last bus will leave Eubanks Park and Ride at 7:40 p.m. and from Southern Village Park and Ride 7:45 p.m.
  - NU Route will end at 7:44 p.m. RR Lot
  - EZ Rider service will end at 7:30 p.m.

- All other routes will operate on regular routes and published schedules, although delays may occur due to increased traffic.

- Following discussions with the University, Safe Ride routes **will not** operate this year.

- We have been working with Town communications staff and our Partners to share this information with the public. We have issued press releases, along with posting information on vehicles, and Town/Transit website and social media sites.

- We will also provide transportation for public safety personnel assisting with the celebration.

INFORMATION ITEM October 23, 2018

5C. Annual Safety and Training Performance Report

Staff Resource: Mark Lowry, Safety Officer

Accidents

Over the past year, we have noticed a slight increase in vehicular accidents among our vehicles. One contributing factor is that we are currently in a cycle of employee turnover and new hire training. Through this we have identified that many of these accidents are occurring within the first 100 days of an operator's employment. To improve the rate of accidents, our Safety and Training teams are utilizing new training tactics including updated defensive driving videos, smaller class sizes and more 1-on-1 training time with our trainers.

Fixed Route: Accident Frequency Rate* (AFR) per 100,000 miles.

Miles	Total Accidents	AFR	Preventable	AFR	Non-Preventable
FY 2017 – 2,230,032	48	2.20	24	1.11	24
FY 2018 – 2,268,588	56	2.40	34	1.50	22

Demand Response: Accident Frequency Rate* (AFR) per 30,000 miles.

Miles	Total Accidents	AFR	Preventable	AFR	Non-Preventable
FY 2017 – 405,057	3	1.00	1	0.20	2
FY 2018 – 411,370	5	1.20	4	1.00	1

*Industry benchmark 3.1 total accidents, 1.3 preventable accidents

In review of all accidents it is also worth noting that based on the information provided through our on scene investigation and police reports provided to us that only five (5) people involved in these accidents required medical attention, two (2) of which were our operators.

Workers Compensation

In FY 2018, Chapel Hill Transit employees were involved in 11 on-the-job injuries. Of these 11 cases, only four (4) cases resulted in lost time at work totaling 316 days.

Action Plan – Safety Culture

Completed

- Building Camera Upgrade: following an assessment by Chapel Hill Police Department staff, Transit staff has been working with SimplexGrinnell to improve the security system

for the building and facility, including the installation of new cameras in several key locations where cameras were not installed during construction of the facility. New locations will include break room areas, hallways, tool room, parts room, building exterior, etc. We are also replacing the DVRs for the system, as the current DVRs are outdated and we are replacing several vintage cameras with new digital cameras – and going forward, any new/replacement cameras will be digital as well (which will help improve visibility when viewing footage).

- Park and Ride Cameras: Transit awarded the contract for security camera upgrade and installation for the Eubanks, Jones Ferry and Southern Village Park and Ride Lots to A3 Communications. The cameras are completely solar powered (with a two-day battery backup). The project was completed in July 2018 and funded through a State Technology Grant.
- Demand Response Defensive Driving Training
- Demand Response Staff celebrated 374 days without a preventable vehicle accident
- Maintenance Staff celebrated 515 days without a preventable vehicle accident
- Reviewed policy and procedures related to building access
- Site assessment with Chapel Hill Police
- Inspected Maintenance shop area, installed OSHA compliant eye wash stations
- Enhanced post collision retraining program
- Recognized and rewarded Operators for safe driving
- Promoted participation in regional and state bus roadeos

In the Works

- Smith System Defensive Driving refresher for all Admin, Maintenance and Fixed Route Employees
- Reviewing policies and procedures related to emergency type situations
- Reviewing high-accident areas to determine if there are ways to mitigate accidents
- Continue efforts to reduce absenteeism

MONTHLY REPORT October 23, 2018

6A. Operations

Staff Resource: Maribeth Lewis-Baker, Fixed Route Operations Manager
Travis Parker, Lead Transit Supervisor
Peter Aube, Maintenance Manager
Katy Luecken, Training Coordinator
Mark Lowry, Occupational Health and Safety Officer

Fixed Route Operations Manager – Maribeth Lewis-Baker

Fixed Route Division – August 2018

- Perfect Attendance – August 2018 – 39 operators –39.4% of the Fixed Route Operators had perfect attendance for the month
- On time Performance (OTP) – August 2018 – 80%
- August Operations/Safety Meetings – CHPD did a pedestrian awareness class for us.

Catch us at our Best – August :

On August 1, 2018, a customer sent in feedback related to Operator DeMarcus Lyons" "To Whom it May Concern: Over the past few months, my wife and I have ridden the NS bus from Southern Village to downtown in the evening regularly. Recently, we have ridden with your driver, Marcus, on many occasions. We have found Marcus to be a very safe driver, as well as very thoughtful and courteous. We want to commend him to you. He should be recognized for excellent service to transit system riders. Thank you, Robert Shreve"

On August 28, 2018, customer Victoria Tetteh contacted the Town of Chapel Hill and left a voice mail to pass along the following feedback: "I wanted to call and let you know that I had a great driver on the J Route. I believe his name is Alan. Alan went above and beyond to help another customer and I wanted to let you know about it. He is always very helpful to people and does great customer service." Kudos to Operator Alan Lamb for his dedication to providing excellent service.

Fixed Route Division – September 2018

- Perfect Attendance – September 2018 – 38 Operators or 37% of the Fixed Route Operators had perfect attendance for the month
- On time Performance (OTP) – September 2018 – 77%
- On time Performance was impacted by Hurricane Florence

- September Operations/Safety Meetings – Safety Officer Mark Lowry presented an FTA training video on security awareness and terrorism and we shared our storm related activities with staff
- We assisted the State of North Carolina for evacuee transfers to other shelters for Hurricane Florence

Catch us at our Best – September:

On September 23, 2018 – Operator Akalema Pherribo received the following compliment: "Recall you just picked me up to the Seymour Aging Center and on my way to the post office as you dropped me at my home. I am full of gratitude for your caring and friendliness to me. God bless you. I hope we shall keep in touch. Ozo-Nevo Nebo"

Demand Response – Travis Parker

August 2018 Monthly Reports
• **Total Trips - 6,497 trips**
• **On-Time Performance (OTP) – 87%**
• **Cancellations – 23.8%**
• **Missed Trips - 0**
• **Perfect Attendance – 50%**

September 2018 Monthly Reports
• **Total Trips - 5,643 trips**
• **On-Time Performance (OTP) – 85%**
• **Cancellations – 28.3%**
• **Missed Trips - 0**
• **Perfect Attendance – 38%**

• Update on progress of Formalizing the EZRAC as a Partners Subcommittee - Travis Parker Assistant Operations Manager-Demand Response and Henry DePietro Assistant Director-Administrative Services attended the EZRAC Committee meeting on October 10, 2018 where the newly appointed members were sworn in, and selected Chair and Vice Chair.

• We have received a 1,000 copies of the EZ Rider Handbook back from the printers and we have started to mail and hand out copies to our customers.

Training Coordinator – Katy Fontaine

1. Training Classes
    a. Fixed Route:
        i. June 25th: Two trainees completed training
        ii. July 30th: Four trainees in independent driving
        iii. September 24th: One trainee in route training
        iv. October 8th: One trainee in classroom training
        v. October 22nd: One trainee confirmed for class start date
    b. Demand Response:
        i. October 8th: One trainee in classroom training
    c. Future:
        i. Fixed Route: Two conditional offers made
        ii. Demand Response: Four conditional offers made
2. Projects
    a. Developing new hiring and recruitment practices
    b. Updating policies and procedures

Maintenance Manager – Peter Aube

September

- Demand response ran 36,382 miles in August
- Non-revenue vehicles ran 24,587 miles in August
- Fixed route ran 204,794 miles in August
- Maintenance performed 58 Preventive Maintenance Inspections in August (100% on-time).
- Four (4) Maintenance Employees completed the month of August with Perfect attendance
- Maintenance performed (10) road calls in August (20,479) miles per road call for fixed route
- Maintenance performed (2) road calls in August (18,191) miles per road call for demand response
- Maintenance completed (1) engine overhaul on a 2009 Gillg in August

October

- Demand response ran 30,474 miles in September
- Non-revenue vehicles ran 23,247 miles in September

- Fixed route ran 162,692 miles in September
- Maintenance performed 44 Preventive Maintenance Inspections in September (100% on-time).
- Six (6) Maintenance Employees completed the month of September with Perfect attendance
- Maintenance performed eight (8) road calls in September (20,337) miles per road call for fixed route
- Maintenance performed one (1) road call in September (30,474) miles per road call for demand response
- Maintenance completed (1) engine change on a 2009 Gillig in September

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6B. Community Outreach

Staff Resource: Anita Hackney, Community Outreach Manager

Chapel Hill Transit provides transportation services to our community partners throughout the service area. Below are some community events Chapel Hill Transit participated in during late June – mid-October.

Eric Montross Father's Day Basketball Camp

- June 15, 2018 – Campers rode RU routes to participate in basketball camp

TOCH Housing – Greenfield Grand Opening

- June 23, 2018 – Provided information table and treats for the grand opening event for Greenfield Phase 1 from 10am – 1pm.


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Covenant Place – CHT Information Workshop

- July 10, 2018 – Provided information on Demand Response services to the residents of The Covenant Place from 1pm -2pm.

Carolina Springs – CHT Information Workshop

- July 27, 2018 – Provided information on Fixed Route and Demand Response services to the residents of Carolina Springs. Provided assistance with EZ Rider certification application and process from 1pm - 3:30pm.

UNC MBA How to Ride Orientation

- August 7, 2018 – Provided transportation and how to ride information to new MBA students.

UNC Graduate Orientation Fair

- August 16, 2018 – Provided information table at the Student Resource Fair to introduce incoming graduate students to CHT at the Rams Head Rec. Center from 3:30pm – 5pm.

Chapel Hill Public Library – Banned Books Week

- August 28, 2018 – Unveiled the CHPL wrapped bus for Banned Books week.

Carrboro Music Festival Shuttles

- September 30, 2018 – Provided shuttles from Jones Ferry park and ride lot to Carrboro Music Festival from 12pm-9pm.

Orange County Transit Academy

- October 5, 2018 – Presented at the Orange County Transit Academy along with GoTriangle and OCPT providing information of CHT Demand-Response and Fixed Route services to medical providers in Orange County from 1pm -2 pm.

Town of Chapel Hill Peoples Academy - Fire

- October 6, 2018 – Provided transportation to participants for the Peoples Academy. This session was with the Chapel Hill Fire Department.

How To Ride Orientation – Chapel Hill High School

- October 8, 2018 – Provided How to Ride Orientation to CHHS – included tour of garage bus parking lot, bike demos, vehicle demo and short tour of Chapel Hill, Carrboro and UNC communities.


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Town of Chapel Hill Peoples Academy – Transit

- October 13, 2018 – Provided transportation to participants for the Peoples Academy. This session was with the Transit and Public Works Departments.


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WCHL The Hill Spot the Bus Contest

- September 10 - October 5, 2018 – "Spot The Bus" contest. Citizens took pictures of the WCHL bus ad and submitted pictures to enter the contest. The winner received $979.00.

And, the Winner is…

Congratulations to Eunice, who won $979 cash with this post from September 27th!

Upcoming Events

- UNC Employee Appreciation October 19, 2018, from 9am-2pm
- Parks and Rec. Haunted Hill Trunk or Treat October 20, 2018 from 3:30pm-7:30pm
- GoChapel Hill 2018 TMP Conference October 24, 2018

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6C. Director

Staff Resource: Brian Litchfield, Transit Director

- The Director's Report will be provided at the meeting on October 23, 2018.

CHAPEL HILL TRANSIT
Town of Chapel Hill
6900 Millhouse Road
Chapel Hill, NC 27514-2401

phone (919) 969-4900 *fax* (919) 968-2840
www.townofchapelhill.org/transit

CHAPEL HILL TRANSIT PUBLIC TRANSIT COMMITTEE

FUTURE MEETING ITEMS

October 23, 2018

October 23, 2018	
Action Items	Informational Items
Short Range Transit Plan North South BRT	Safety Update
November 27, 2018	
Action Items	Informational Items
Short Range Transit Plan North South BRT	
December, 2018 – No Meeting	
Actions Items	Informational Items

Key Meetings/Dates

MPO Board- **November 14, 2018**, 9-11AM
Committee Room, Durham City Hall

MPO Technical Committee Meeting –
November 28, 2018, 9-11AM
Committee Room, Durham City Hall