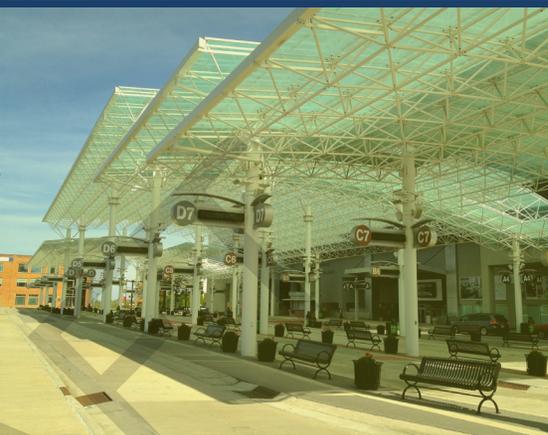


City of High Point, North Carolina

SHORT RANGE TRANSIT IMPROVEMENT PLAN



SHORT RANGE TRANSIT IMPROVEMENT PLAN

Prepared for

City of High Point
Hi-Tran

Prepared by

HDR Engineering, Inc. of the Carolinas





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Chapter 1.0

1.0 OVERVIEW

The **City of High Point Short Range Transit Plan (SRTP)** presents a five-year vision and action agenda that provides a foundational framework for the delivery of public transportation services and programs in the City of High Point. The SRTP addresses the current challenges and needs facing the City's public transportation system, the High Point Transit System, and proposes fiscally-responsible recommendations for improved public transportation services.

The plan seeks to prioritize future operating and capital investments for both fixed-route and demand-responsive transit services, and is structured to monitor progress

toward achieving the recommended actions and programs. Further, as a community planning effort, the SRTP is also intended to advance the City's long-term goals for transportation and community development in effort to establish a sustainable, multi-modal transportation system serving the City of High Point.

1.1 SRTP Goals and Objectives

During the course of the SRTP's development, several critical issues and questions were raised that required careful consideration. These questions included (but were not limited to) the following examples:

- » How can the High Point Transit System serve the most people as efficiently as possible?
- » Where are potential new markets? Where are unserved/underserved areas of the community, and where is growth occurring (both residential and employment)? Are there areas of the High Point community that are over-served by transit currently?
- » What emphasis should be placed on attracting choice riders versus improving the quality of service for current riders who have no other transportation alternatives?
- » What is the right balance between frequency, span of service and geographic coverage in service design?
- » What capital and operating requirements are necessary for High Point Transit System to achieve its operating mission and meet the community's expectations and desires for service?



High Point Transit System

High Point Transit System's mission is to provide a safe, reliable, economical, and customer-oriented public service that meets the mobility needs of the residents and visitors of the City of High Point.



High Point Transit System strives to provide the most cost-effective and efficient public transportation services as funding allows.

The High Point Transit System is an agency with both a mission and a vision. In broad terms, the agency's mission is to provide a safe, reliable, economical, and customer-oriented public service that meets the mobility needs of the residents and visitors of the City of High Point. As such, the High Point Transit System strives to provide the most cost-effective and efficient public transportation services as funding allows. As with any public transportation provider, the High Point Transit System seeks to provide practical and attractive transit services that satisfy the goals of increasing system usage, advancing regional mobility, and improving access to destinations within High Point and the greater Triad Region to further strengthen the area's livability. This mission and vision are echoed in the goals and objectives specified in several local and regional transportation plans recently adopted by the City of High Point and the High Point Metropolitan Planning Organization, among other governmental entities.

In consideration of the mission, strategic goals, objectives, and critical issues facing the High Point Transit System, the SRTP was intended to accomplish the following objectives:

1. Establish a coordinated blueprint for future public transportation services in the City of High Point.
2. Create an activity center-focused transit plan that identifies transit priority corridors and connects High Point residents with important community facilities and services.
3. Develop fiscally-responsible service recommendations that may be incorporated as part of local, regional, and long-range transportation plans for the greater Piedmont-Triad Region.

4. Outline a foundation for future service expansion by developing system level service concepts, design guidelines, and performance measurement techniques.

In consultation with High Point Transit System staff and members of the Steering Committee and Sounding Board (discussed below), specific goals for future transit service in High Point were identified. These included:

- » Establish service in the Palladium/Deep River region of High Point.
- » Improve coordination with the regional transit provider (PART) and municipal transit agencies in the near-by Triad cities of Greensboro (GTA) and Winston-Salem (WSTA).
- » Enhance service frequency, coverage, and the hours during which service is available.
- » Identify opportunities to maximize efficiencies while reducing operational costs.
- » Reinvest cost savings and new revenues into service operations and capital facilities as available.
- » Encourage the use of fixed-route service by persons eligible for non-ADA demand-responsive service.



At times, certain goals may conflict with one another. The planning approach developed and implemented for the SRTP was designed to empower project stakeholders and the public with objective analytic information to weigh the benefits and costs associated with each alternative service scenario and craft a plan that most accurately reflects the community's needs and desires for the future High Point Transit System service network.

1.2 Planning Approach and Methods

The development of the SRTP generally followed a three-phased planning approach that incorporated multiple steps in each phase. The three phases are outlined below:



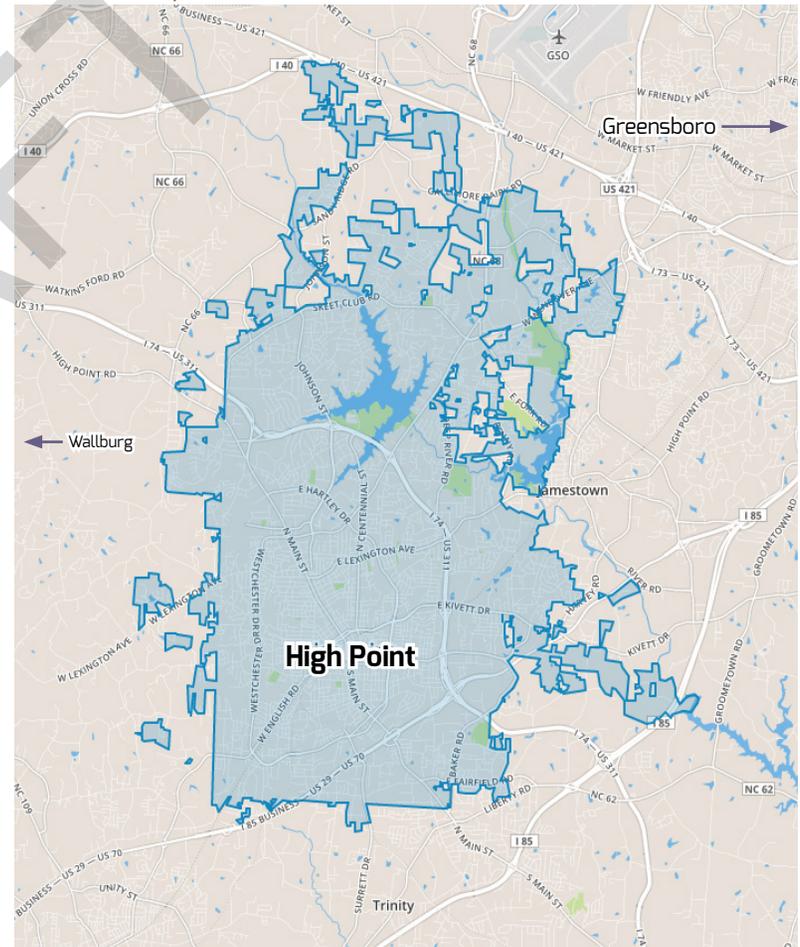
Throughout each of the planning phases identified above, public and stakeholder involvement played a critical role in the development of the SRTP.

1.2.1 The Study Area

The planning study area for the SRTP is principally the City of High Point. Some High Point Transit System fixed-route services extend beyond the City's boundary to connect key regional destinations, such as the Guilford Technical Community College campus in Jamestown, and provide links to other public transportation services in the greater Piedmont Triad region.

However, the majority of service miles operated by High Point Transit System are within the boundaries of the City of High Point.

Exhibit 1. Study Area



1.2.2 Evaluation of Existing Conditions

An initial task of the SRTP planning effort was to conduct an inventory and performance evaluation of the High Point Transit System's existing services in effort to understand the environment in which the agency operates. This process involved a review of recent trends in population and employment characteristics, assessment of population and employment densities, and analysis of the size and distribution of population groups that have a demonstrated need for public transportation services as a means of basic mobility. In addition to population characteristics, a comprehensive review of current performance data was



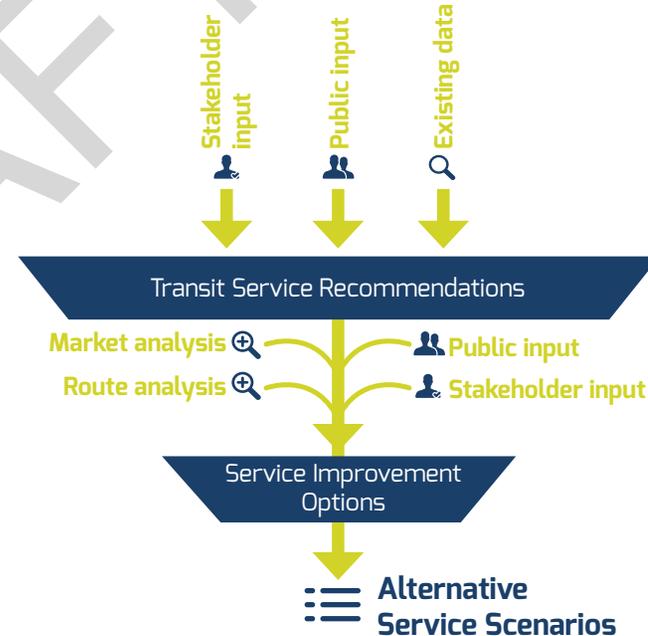
conducted on both a system-wide and individual route basis, along with a review of available stop-level boarding and alighting data. The objective was to identify under- or over-served markets in the system, distinguish new and emerging transit markets, and identify where efficiencies could be gained. The existing conditions work also included a peer review that involved researching similarly sized transit agencies to understand how the High Point Transit System compares with these agencies relative to strengths and weaknesses in operation. A series of technical memos, statistical analyses, and PowerPoint presentations were produced during the study. These documents included¹:

- » Initial Findings Report
- » Peer Review
- » On-Board Rider Survey

1.2.3 Development of Alternative Service Scenarios

Based on the input received from project stakeholders and the public at-large, and with direction from the project Steering Committee and High Point Transit System staff, the project team was tasked with the development of a series of recommendations that could be implemented over the course of the SRTP's lifecycle to position the High Point Transit System to provide the best and most efficient transit service possible.

Input and analysis collected through the market analysis, stakeholder and public input and route level analysis led to the development of service improvement options. The project team worked closely with High Point Transit System staff to develop and evaluate a variety of alternative service scenarios that offered a new approach to the organization of the High Point Transit System's current fixed-route bus service.



Creation of a Five-Year Action Plan

Following the extensive evaluation of alternative service scenarios, a preferred service scenario was identified that best matched the community's expressed desires for the future transit network service High Point. This service scenario forms the basis of the investment recommendations made in the SRTP with regard to transit services operated and facility needs.

1.3 Public and Agency Involvement

To ensure the goals and recommendations of the SRTP reflect the desires and interests of the citizens of High Point, considerable effort was made to incorporate the input of public officials, representatives of key civic organizations, businesses, public agencies, and the public at-large. Ample opportunities to provide comment on the planning process and findings were provided.

Outreach efforts included development of a project website and contacts database, interviews with project stakeholders representing government agencies, businesses, and civic organizations, on-board surveys of current riders, presentations at public meetings and events, meetings

with High Point Transit System staff and drivers, and public comment opportunities on the SRTP document. A listing of the outreach activities undertaken as part of the SRTP are shown in Appendix A.

1.3.1 Steering Committee and Sounding Board

The work completed during the course of this study was guided by a project Steering Committee composed of local elected officials and representatives of participating public agencies and civic organizations. The project Steering Committee provided policy guidance was comprised of the individuals identified in Exhibit 2.

Exhibit 2. Steering Committee Members

| Steering Committee Member | Affiliation |
|--|---|
|  The Honorable Becky Smothers | City of High Point Council (Chairperson) |
|  The Honorable Britt Moore | City of High Point Council |
|  Keith Lipscomb | Guilford County Workforce Development Board |
|  Angela McGill | City of High Point Housing Authority (Executive Director) |
|  Bob Callicut | Carolina Bank |

Staff support was provided by the following individuals:

| Support Staff | Department |
|---|--|
|  Angela Wynes | City of High Point (High Point Transit System Transit Manager) |
|  Mark McDonald, PE | City of High Point (Transportation Director) |
|  Randy McCaslin | City of High Point (Assistant City Manager) |

In addition to the Steering Committee, a project Sounding Board was established to represent a broader array of community perspectives and stakeholders. The Sounding Board, chaired by The Honorable Judy Mendenhall of the City Council, was comprised of a cross-section of stakeholders including representatives from the High Point City Council (The Honorable Jeff Golden), the High Point Chamber of Commerce, Guilford Technical Community College, High Point University, and various social service agencies such as housing and workforce development.

The Sounding Board also included community advocacy groups, public health and welfare organizations, and community members interested

in transit issues. During the course of the STRP planning process, joint meetings of the Steering Committee and Sounding Board were convened to represent the collective interests of the residents of High Point.

1.3.2 Consultant Team

The consulting team for this study was led by HDR of the Carolinas, Inc. with assistance from the firms of TJR Advisors, AJM Consulting, and Simon Resources. The following were the principal team members on this project:

Exhibit 3. Members of the Project Team

| Consultant Staff | Affiliation and Role |
|---|--|
|  Kirk Stull, PE | HDR Engineering, Inc. (Project Manager) |
|  Alec More, AICP | HDR Engineering, Inc. (Principal Planner) |
|  Cavan Noone | HDR Engineering, Inc. (Transit Planner) |
|  Kelly Spitzley | HDR Engineering, Inc. (Graphic Design) |
|  Hannah Baweja | HDR Engineering, Inc. (Transit Planner) |
|  Krista VanAuken | HDR Engineering, Inc. (Public Involvement) |
|  Theodore Reich | TJR Advisors (Transit Planner) |
|  Andrew Mundew | AJM Consulting (Traveler Survey) |
|  Karen Simon | Simon Resources (Public Involvement) |
|  Amy Hubbard | Simon Resources (Public Involvement) |

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1.4 Report Organization

The SRTP is organized into six chapters.

Chapter 1:

This chapter introduces the SRTP document.

Chapter 2:

The evaluation of existing conditions begins with an overview of the High Point Transit System and existing transit services in the second chapter of the SRTP. This chapter provides a comprehensive overview of the High Point Transit System's governance structure, the agency's mission, vision, goals, and objectives, and discusses specific features of the operating program such as fixed facilities, vehicle fleet characteristics, and sources of agency funds for capital projects and operations.

Chapter 3:

The third chapter builds on the agency overview by addressing current service performance, discussing transit markets served, challenges confronted and emerging opportunities, and system needs.

Chapter 4:

Chapter Four of this plan discusses the alternative service scenarios considered and the process used in the development of each service scenario.

Chapter 5:

Chapter Five outlines the recommendations for future fixed-route services and programmatic changes for demand-responsive transportation services.

Chapter 6:

Finally, Chapter Six addresses the capital needs and costs associated with implementation of the SRTP.

The recommendations and specific projects, initiatives, or programs identified in this plan are intended as both an action agenda and as milestones for progress. Short-term recommendations are more specific in their details, while longer-term recommendations are more general. While the SRTP outlines a future vision for transit services in High



The goal of the SRTP is to have a coherent set of short-term actions that collectively build toward an enhanced future system, making the optimal use of available resources under fiscally constrained conditions.

Point, it is intentionally designed to allow flexibility in the implementation of the recommendations made, given the inherent uncertainty in community growth and available funding over the plan's timeframe. The goal is to have a coherent set of short-term actions that collectively build toward an enhanced future system, making the optimal use of available resources under fiscally constrained conditions.

In addition to the SRTP final report, a series of technical memos and presentations were produced during the course of the study. As discussed, the final report contains the most relevant findings from the earlier analyses, but does not reproduce any document in its entirety. In certain cases, reports are included as an appendix to the plan.

¹ This document contains the most relevant findings from analyses completed as part of this project, but does not reproduce any document in its entirety.



Chapter 2.0

2.0 HIGH POINT TRANSIT SYSTEM AND EXISTING SERVICES

2.1 Overview of High Point Transit System

A division of the transportation department of the City of High Point, the High Point Transit System is the city's primary public transportation system provider, offering transit service to a city with population base of approximately 104,000¹. The population represents a diversified community including local residents, commuters, and college students. With connections to regional transit systems including the Piedmont Authority for Regional Transportation (PART) and Greensboro Transit Authority (GTA), High Point Transit System serves approximately 3,800 weekday riders. High Point Transit System currently operates 13 fixed-route bus routes, along with ADA-compliant paratransit service for persons with disabilities, and non-ADA demand-responsive transportation services. Primary destinations currently served by High Point Transit System include major shopping centers and residential neighborhoods, High Point University, the Jamestown and High Point campuses of Guilford Technical Community College, and downtown High Point.

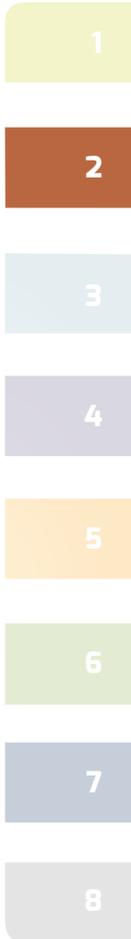
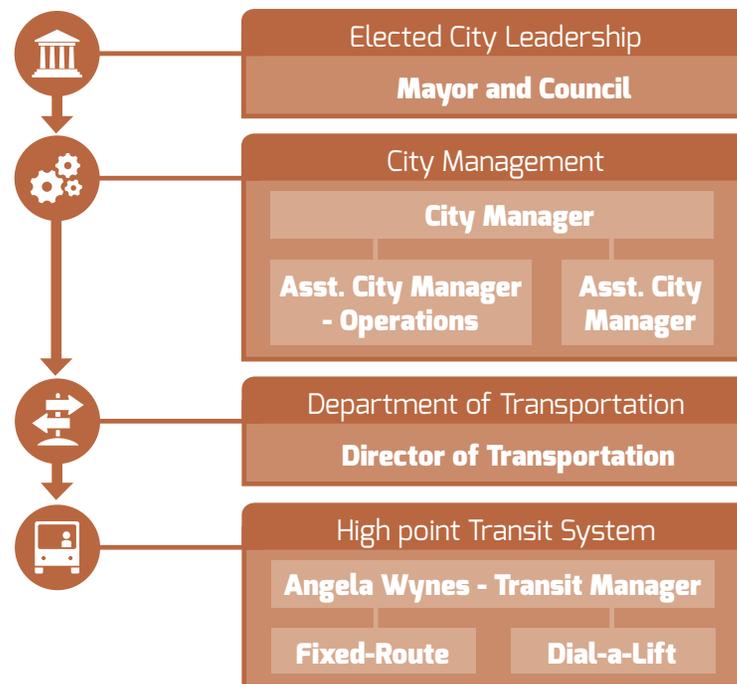
Governance Structure

High Point Transit System is governed by the Mayor and City Council of High Point. The City of High Point is a charter city with a Mayor-Council form of government. The City Council is composed of one mayor, two at-large members and six ward members. Unlike some transit departments in North Carolina, High Point Transit System does not have a separate advisory board that makes operating, marketing, or other decisions regarding the provision of transit service. Thus, all of the decision-making rests with staff and

ultimately the City Council. The City Council is responsible for approving the transit system's annual operating budget. Typically, the City Council meets twice monthly and is responsible for policy and financial oversight, as well as setting the strategic direction for the High Point Transit System.

In addition to the elected officials, a City Manager is responsible for the day-to-day administration of city functions and services. The City Manager's Office reviews and approves policy and program initiatives; oversees departmental programs and budgets; and makes recommendations on all matters to the Mayor and City Council among other activities. Advising the

Exhibit 4. High Point Transit System Organizational Chart



City Manager and elected leadership are a set of departmental directors who monitor staff to ensure services are being provided in a sound, efficient and effective manner. Day-to-day management of High Point Transit System is carried out by the City's Transit Manager, who is subsequently assisted by an Assistant Transit Manager and agency staff.

Organizational Structure and Staffing

High Point Transit System is a division of the City's Department of Transportation, one of nine such divisions. There are 45 positions in the division. The Transit Manager serves as the executive director of the transit system, and is responsible for the day-to-day program administration, service planning, capital project development, programming/grants and marketing. The operations, maintenance, and daily service delivery is handled by City of High Point employees, all of whom work for High Point Transit System. The administrative section has four positions, Dial-a-Lift has eight positions, fixed-route has 27 positions, and maintenance has six positions. Figure 2-1 shows the organization chart. In previous years, the City of High Point contracted for the operation of transit service, but several years ago all operations were moved in-house and all employees are City employees.

Capital and Operating Funding Sources

The High Point Transit System operates on an annual budget of approximately \$4-\$5 million (after fares and other revenues are accounted for). The majority of operating funds cover expenses including driver wages, fuel costs, routine vehicle maintenance, and agency administration costs. Funds for capital improvements are used for the purchase of new transit fleet vehicles, stop infrastructure, or building improvements to High Point Transit System facilities.

Funding for High Point Transit System comes from a combination of federal, state, and local sources. Federal funds are provided by the Federal Transit Administration

Exhibit 5. Operation and Capital Funding Sources

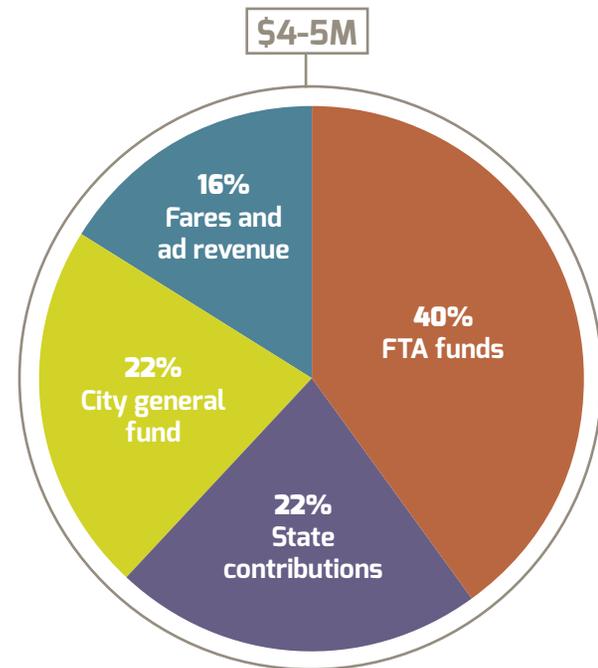


Exhibit 6. Capital Improvements Funding Sources



Future High Point Transit System goals

- » Provide a safe service
- » Meet and exceed customer expectations
- » Correspond better with working hours
- » Meet existing and future demand
- » Improve transit service reliability

(FTA), distributed on a formula basis, and account for approximately 40% of all operating costs. In addition to federal funds, State of North Carolina contributions are made to the city for the ongoing operation of High Point Transit System, accounting for approximately 22%. Funds appropriated from the City of High Point general fund also contribute approximately 22% to the operating cost of High Point Transit System services.

Collectively, federal, state, and local funds contribute approximately 84% of the service operating costs. The remaining 16% of operating costs are covered through a combination of passenger fares and advertising revenues². The City of High Point funds High Point Transit System through the City's general fund, and as such High Point Transit System has no dedicated funding source other than fares, contracts, and advertisement revenues.

With regard to capital funding, nearly 80% of capital expenditures are made using federal funds, either directly appropriated or passed through various state or local agencies. Approximately 12% of High Point Transit System's capital funds are made possible by appropriations from the City of High Point, with the remaining 8% coming from state funds.

2.2 Agency Mission, Vision, and Goals

The mission statement of High Point Transit System is focused on the immediate purpose and benefits of public transportation service in the City of High Point: "To provide safe, reliable transportation at a fair cost to all citizens of High Point through the fixed route High Point Transit System and door-to-door demand responsive Dial-A-Lift systems." A primary purpose of the SRTP is to outline a future transit system that will enable High Point Transit System to achieve its stated mission to a greater extent than is possible today.

In order to provide a strategic framework for the evaluation of existing transit services, and to chart a course for future improvements that meet the array of community interests specified, the project team worked closely with High Point Transit System staff and members of both the Steering Committee and Sounding Board to identify key themes and add a vision statement, goals and performance measures. During initial meetings of the Steering Committee and Sounding Board, participants were asked to articulate their vision and aspirational goals for the future High Point Transit System.

- » Provide a safe public transportation service to the community
- » Meet and exceed customer expectations for transit service quality and delivery
- » Offer a transit service that better corresponds with working hours
- » Align service investments to meet existing and future demand
- » Improved transit service reliability

At a time when the demand for public services continues to increase and available financial resources are limited, investments must be made on many fronts in order to make this vision a reality.

2.3 Overview of Existing Services

Fixed-Route System

Fixed-route bus service constitutes the largest element of the High Point Transit System service network. As noted, High Point Transit System operates 13 fixed-routes traveling mostly within the City of High Point, with two routes providing service to select stops in the neighboring communities of Jamestown and Archdale.

Collectively, these routes combine to offer roughly 950,000 annual unlinked passenger trips³, more than 33,000 annual vehicle revenue hours⁴, and almost 470,000 annual revenue miles⁵.

A basic route typology structure is used to classify fixed-route services as either local or limited stop service. Of the 13 fixed-routes in the network, 11 are considered local routes and two are classified as limited stop routes. Local services are those bus routes that operate throughout daylight hours, providing multiple stops along the way, while limited stop service can provide service throughout a day or during specific times of day (e.g. peak travel periods), and serves stops spaced at greater distances.

Exhibit 7 identifies the fixed-routes in the High Point transit System, the primary travel corridors served, the service classification, and recent performance.


Exhibit 7. Fixed-Route Services by Service Type and Weekday Ridership

| Route | Corridor Served | Service Type | Annual Weekday Ridership (FY13) |
|-------|-----------------------|--------------|---------------------------------|
| 10 | North Main St | Local | 126,447 |
| 11 | South Main St | Local | 185,546 |
| 12 | West Green Dr | Local | 31,242 |
| 13 | Montlieu Ave | Local | 74,519 |
| 14 | Westchester Dr | Local | 51,252 |
| 151 | Centennial St | Local | 3,083 |
| 16 | Leonard Ave | Local | 94,103 |
| 17 | Washington Dr | Local | 60,886 |
| 18 | East Green Dr | Local | 90,739 |
| 19 | English Rd | Local | 39,429 |
| 20 | Kearns Ave | Local | 49,727 |
| 21 | Industrial Park Flyer | Limited Stop | 3,282 |
| 25 | GTCC/Jamestown | Limited Stop | 52,834 |

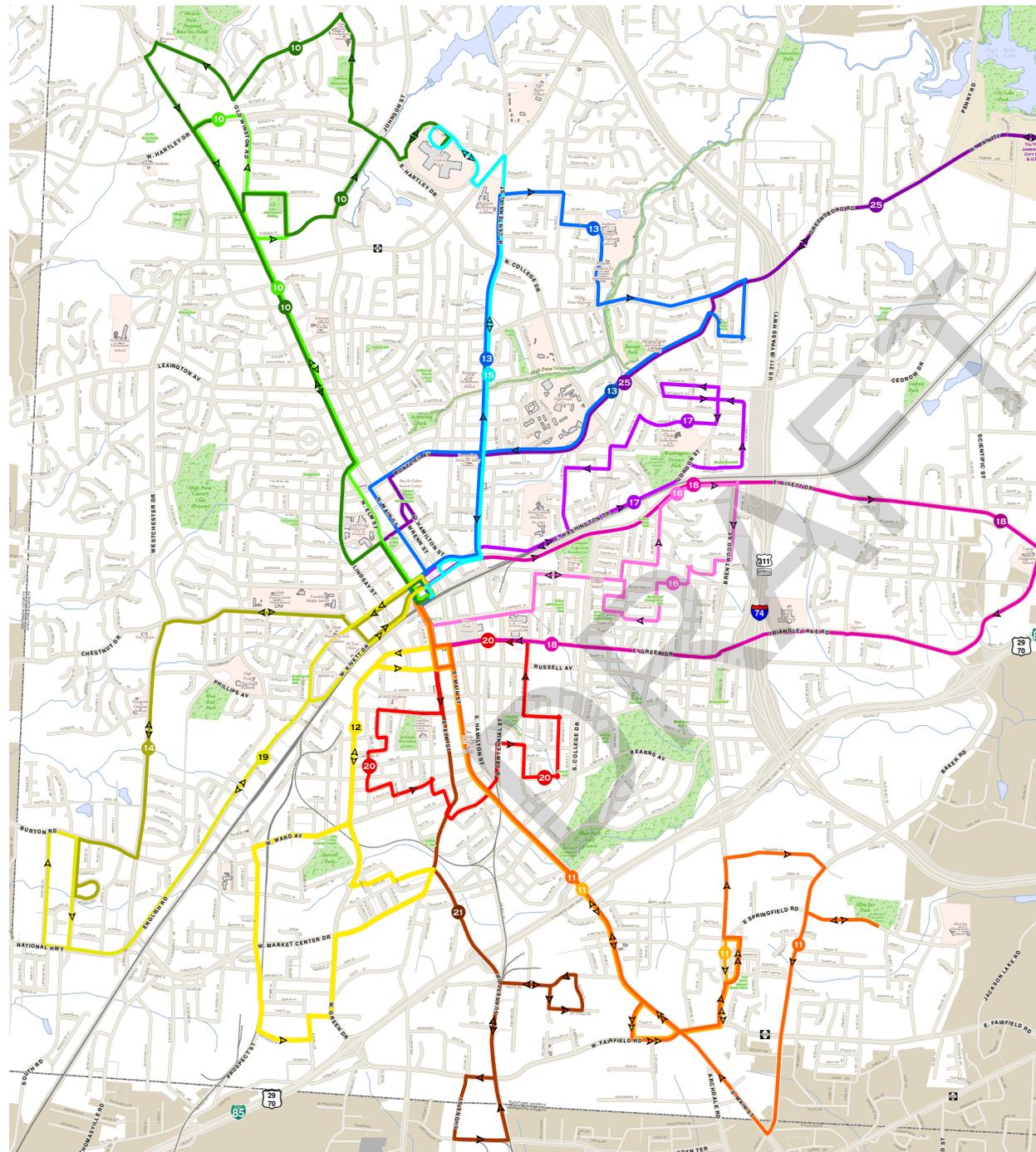
Fixed-Route Challenge

A critical challenge facing the fixed-route service area is the relative lack of sidewalks along streets currently served by the bus network. Passengers must often walk in the street to reach a bus stop or between the bus stop and their destination. Often, bus stops are simply signified by a simple sign on the roadside, and while some stops have basic aluminum seating, most stops do not have concrete waiting areas.

The High Point Transit System fixed-route network operates as a radial timed-transfer network, meaning that all routes begin and end their service runs at a common origin. Route patterns are specifically designed to “pulse” from the origin and service return points. The nexus for all routes is the Broad Avenue Terminal in downtown High Point adjacent to the Amtrak station.

All bus routes converge at this location twice during the hour. With the exception of the Route 10, all routes leave the terminal at 15 and 45 minutes past the hour. Routes operate in either a clock-wise or counter-clock-wise direction, but there are no routes that provide bi-directional service⁶.

Exhibit 8. High Point Transit System Map



All routes in the system operate as interlined pairs; that is, buses arrive at the terminal as one route and depart the terminal as another route

The interlined pairs are:

- » Routes 10 & 11 (weekdays and Saturday)
- » Routes 12 & 13 (weekdays only)
- » Routes 13 & 15 (Saturdays only)
- » Routes 14 & 18 (weekdays and Saturday)
- » Routes 16 & 17 (weekdays and Saturday)
- » Routes 19 & 20 (weekdays and Saturday)

- ROUTE 10: NORTH MAIN STREET
- ROUTE 10: NORTH MAIN STREET (SATURDAY)
- ROUTE 11: SOUTH MAIN STREET
- ROUTE 11: SOUTH MAIN STREET (SATURDAY)
- ROUTE 12: WEST GREEN DRIVE
- ROUTE 13: MONTLIEU AVENUE
- ROUTE 14: WESTCHESTER DRIVE
- ROUTE 15: EASTCHESTER DRIVE
- ROUTE 16: LEONARD AVENUE
- ROUTE 17: WASHINGTON DRIVE
- ROUTE 18: EAST GREEN DRIVE
- ROUTE 19: ENGLISH ROAD
- ROUTE 20: KEARNS AVENUE
- ROUTE 21: INDUSTRIAL PARK FLYER
- ROUTE 25: JAMESTOWN-GTCC

Source: highpointnc.gov/hi-tran

On Saturdays, two pulses occur, with the “A” group routes departing the terminal at 15 past the hour, and a “B” group departing at 45 past the hour. The groups are broken down as follows:

- » “A” group: routes 10, 14, 15, 17, and 20
- » “B” group: routes 11, 13, 16, 18, and 19

Most routes have one bus assigned to provide the service. The exceptions are routes 10 and 11, which share three buses between them. On Saturdays, each interlined pair shares one bus. This service structure enables the High Point Transit System to maximize area coverage while minimizing operating costs.

In addition to local routes, the High Point Transit System provides two limited stop services: Routes 21 and 25. Route 21 provides one round trip in the morning and a second round trip in the evening between the Broad Avenue Terminal and the industrial area off of Surrett Drive. Although there are few designated stops, the bus also makes flag stops. The second limited stop service, Route 25, provides service to the Guilford Technical Community College (GTCC) main campus in Jamestown. The schedule is oriented to heavy class times, and there are limited designated stops between the terminal and the campus.

As noted previously, Route 21 is limited to just one round trip each during the AM and PM peak periods. Route 25 offers more frequent service, with hourly headways in the AM peak and an average 90 minute frequency during the midday and PM peak periods (headways vary from one hour to two hours during these periods).

Fixed-Route Service Coverage Area

The service coverage area of the fixed-route network is considered to be one-quarter mile on either side of each route, or approximately a 5-minute walk. The typical local route provides between six and eight stops per mile. In some instances, bus stops seem more frequently spaced, while in other cases, stops are located further apart.

U.S. Census data from the 2010 decennial Census and 2014 American Community Survey (ACS) data were used to assess the approximate number of persons within easy walking distance of High Point Transit System fixed-route services. Assuming an even population distribution, nearly XX persons, or XX% of the city population, live within a one-quarter mile radius of local fixed-route services. Another XX people (XX% of the total city population) live within one-half of one mile from a local bus route (equivalent to a 10-minute walk).

However, a critical challenge facing the service area is the relative lack of sidewalks along streets currently served by the bus network. Passengers must often walk in the street to reach a bus stop or between the bus stop and their destination. Often, bus stops are simply signified

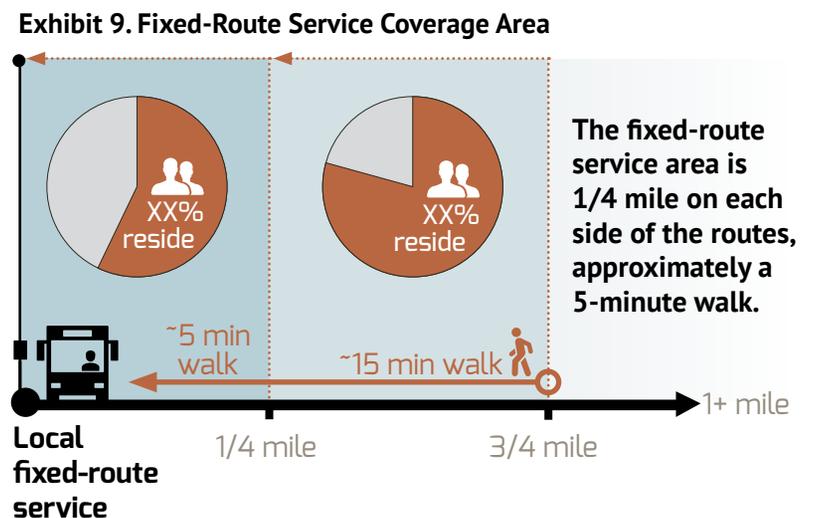


Exhibit 10. Fixed-Route System Service Characteristics

| Route | Weekday Peak Frequency | Weekday Off-Peak Frequency | Saturday Frequency | Weekday Span | Saturday Span | Places Served |
|---|------------------------------------|----------------------------|--------------------|--|---------------|---|
| Route 10 (North Main St) | 30 min | 30 min | 60 min | 6:00AM-6:15PM | 9:15AM-4:45PM | High Point Regional Health Systems; Oak Hollow Mall; WalMart North; High Point Parks and Recreation Office; High Point Public Library |
| Route 11 (S Main St) | 30 min | 30 min | 60 min | 5:45AM-6:30PM | 9:45AM-5:15PM | GTCC-High Point; WalMart South; YMCA |
| Route 12 (W Green Dr) ¹ | 30 min | 60 min | N/A | 5:45AM-5:45PM | N/A | South High Point; Oak Hill Elementary |
| Route 13 (Montlieu Ave) | 30 min | 60 min | 60 min | 5:45AM-5:45PM | 9:45AM-5:15PM | High Point University; Montlieu Elementary; Andrews High School; Eastgate Shopping Center; High Point Museum; Roy Culler Sr. Center |
| Route 14 (Westchester Rd) | 30 min | 60 min | 60 min | 5:45AM-6:15PM | 9:15AM-4:45PM | Juanita Hills Apartments; High Point Central High School; Westchester Commons; Employment Security Commission |
| Route 15 (Oak Hollow Mall) ² | N/A | N/A | 60 min | N/A | 9:15AM-4:45PM | Wesleyan Arms Nursing Home; Oak Hollow Mall; High Point Museum |
| Route 16 (Leonard Ave) | 30 min | 30 min | 60 min | 5:45AM-6:15PM | 9:45AM-5:15PM | Guilford County Health Dept.; Spring Valley Apts.; Brentwood Crossing Apts.; Baldwin's Chapel Elementary; High Point City Hall; Guilford County Courthouse; High Point Police Dept. |
| Route 17 (Washington) | 30 min | 60 min | 60 min | 5:45AM-6:15PM | 9:15AM-4:45PM | Daniel Brooks Apts.; J.C. Morgan Housing; Parkview Elementary; Griffin Middle School; Washington Terrace Park |
| Route 18 (E Green Dr) | 30 min | 30 min | 60 min | 5:45AM-6:15PM | 8:45AM-5:15PM | Guilford County Health Dept.; Astor Dowdy Apts.; Union Hill Elementary; East Town Shopping Center; High Point City Hall; Guilford County Courthouse; |
| Route 19 (English) | 30 min | 60 min | 60 min | 5:45AM-5:45PM | 8:45AM-5:15PM | Juanita Hills Apts.; West End Ministries; Leslie's House |
| Route 20 (Kearns Ave) | 30 min | 60 min | 60 min | 5:45AM-5:45PM | 9:15AM-4:45PM | Guilford County Health Dept.; Astor Dowdy Apts.; Housing Authority; Blair Park Southside Rec. Center; Fairview Elementary; High Point City Hall; Post Office |
| Route 21 (Industrial Park) ^{1,3} | 1 morning trip 1 afternoon trip | | N/A | Morning: 6:45AM-6:45AM, Afternoon: 3:45PM-4:15PM | N/A | |
| Route 25 (GTCC-Jamestown) ¹ | 60 min | 60 min | N/A | 7:15AM-5:15PM | N/A | GTCC-Jamestown; High Point University; Montlieu Ave. Elementary; Ragsdale High School; Eastgate Shopping Center; Evergreens Senior Care; Jamestown City Hall; Jamestown Post Office |

Source: City of High Point, Department of Transportation, High Point Transit System, 2014

¹ Weekday service only, ² Saturday service only, ³ Route 21 makes only 2 daily weekday trips

by a simple sign on the roadside, and while some stops have basic aluminum seating, most stops do not have concrete waiting areas. Stops at some popular destinations, such as the WalMart South shopping center near the intersection of South Main Street and Fairfield Road, do have a sheltered waiting area with sidewalk space and trash receptacles.

Fixed-Route Frequency and Span of Service

The High Point Transit System's fixed-route services range from peak-period-only commuter routes to all-day routes with frequent peak-period service and reduced-frequency off-peak period service. Exhibit 10 lists all High Point Transit System fixed-routes by service category and basic operating characteristic information.

Demand Responsive Service

In addition to the fixed route service, High Point Transit System provides federally-required ADA paratransit service for riders who are mentally or physically unable to use the regular fixed-route bus service provided. Under ADA, High Point Transit System is required to offer complementary paratransit services for eligible individuals who begin and end their trip within a three-quarter-mile distance of a fixed-route during the normal operating hours of the fixed-route system.

ADA regulations also limit the fares for complementary paratransit service at not more than twice the adult cash fare for fixed-route service. Additionally, High Point Transit System also provides non-ADA demand-responsive service for age-eligible individuals. Non-ADA demand-responsive service is not restricted to the three-quarter-mile distance, and is offered city-wide.

Both demand-responsive services offer curb-to-curb transportation for eligible High Point residents (visitors must demonstrate proof of eligibility for service). High Point Transit System's demand responsive service is an origin-to-destination advanced reservation

transportation service, with an operating schedule that mirrors that of the fixed-route service. There are six cut-away bus vehicles in the fleet. The service must begin and end in the defined service area. If a trip starts or ends outside the High Point Transit System service area, passengers must find a safe place within the service area to be picked up or dropped off to be eligible for the service.

The provision of demand responsive service is a challenge as service requests continue to increase and the number of ADA-eligible riders continues to grow in High Point. Additionally, demand responsive service is provided at nearly three times the equivalent cost of local fixed route bus service in the High Point Transit System service area. According to High Point Transit System data, demand-responsive ridership grew by XX%, a stark contrast from the fixed-route ridership which only grew XX% during the same time period. These findings may be generally correlated with the maturing of the population as the "baby-boomer" generation reaches retirement ages. A stated goal of the SRTP is to identify recommendations for improving the accessibility and use of fixed-route services by persons who may be eligible for demand-responsive service, but capable of using the fixed-route service.

Chapter five presents recommendations for service modifications and operating policies for demand-responsive service.

Other Service Providers

In addition to High Point Transit System, two other transit services operate in portions of High Point or connect with High Point Transit System routes. The Piedmont Authority for Regional Transportation (PART) provides fixed-route express bus service between the communities of High Point, Winston-Salem, and Greensboro. PART services operate on North Main Street, Centennial Street, and Eastchester Drive, linking downtown High Point with activity centers in neighboring communities. Additionally, PART provides deviated fixed-route circulator service in the Palladium commercial district. The Piedmont Parkway area is served by Shuttle Route 23, with connections to the other shuttles and the PART express service at the PART Regional Hub located on South Regional Road. Routes operate every half-hour during the peak period and hourly during the off-peak on weekdays only and will deviate off route upon request.

PART also offers two express services within High Point. Route 3 (High Point Express) provides express service between the Broad Avenue Terminal and the PART Regional Hub. A stop is made en route at Oak Hollow Mall. Service is provided every half-hour during peaks and hourly during midday on weekdays only. PART also offers Route 5 (NC Amtrak Connector) that provides a connection between the Amtrak station in High Point with downtown Winston-Salem. While the service is timed to meet the Amtrak Carolinian and Piedmont trains, the service is open to non-train riders as well. Intermediate stops are made in High Point at the High Point Regional Medical Center and North High Point Park & Ride off North Main Street. In addition to the interaction between High Point Transit System service and PART, services also interact with the Greensboro Transit Authority's (GTA) Route 11, serving High Point Road to the GTCC-Jamestown campus.

Intercity rail service is also available and provided by Amtrak. The Piedmont and Carolinian trains offer three daily trips in each direction connecting High Point to Charlotte and Raleigh and other cities in-between. Trains have an approximate five-hour headway with one morning, one midday, and one evening trip. The North Carolina Department of Transportation (NCDOT) provides funding for these trains and is planning on increasing service to five round trips (four on the Piedmont and one on the Carolinian) by 2017. The nearest intercity bus service, offered by Greyhound, is available in Greensboro.

2.4 Facilities and Vehicle Fleet Characteristics

Broad Avenue Terminal

From the perspective of the passenger, the single most important facility in the High Point Transit System is the Broad Avenue Terminal. This facility is located near Main Street just across from the Amtrak station on land owned by the North Carolina Railroad. Renovated in 2012/2013, the Broad Avenue Terminal features indoor, climate-controlled waiting areas, enhanced customer information and signage, comfortable seating, restrooms, and vending concessions. A first-class facility such as the Broad Avenue Terminal makes a huge difference in the public perception of the transit and makes the system more attractive to choice riders.

From the operator's perspective, the facility features ten bus bays beneath an attractive wooden canopy structure with outdoor seating and trash receptacles. A separate lay-by area is located alongside West Broad Avenue.

This auxiliary facility is uncovered, can hold up to five 30-foot buses, and can be used for temporary drop-off parking. The Amtrak station is located directly across the tracks from the Broad Avenue Terminal, and is connected via an overhead pedestrian walkway.

Despite the facility's renovation, future challenges face the facility's usefulness. This facility is currently at capacity. Only 10 buses can be under the canopy at one time. The 12 routes are able to use the facility because the Route 10 does not pulse with the other routes, and Routes 21 and 25 do not come into the facility at the same time. Should more routes be added to the system, the only way they could match up with the pulse would be to use the uncovered lay-by bays on West Broad Avenue.

Primary Stop Locations

From available stop level ridership information, primary passenger boarding and alighting activity locations are identified throughout the system. The top location, unsurprisingly, is the Broad Avenue Terminal. With over 1,500 weekday boardings and alightings at this location, approximately 42% of all trip ends occur at this location in the High Point Transit System. Trip ends, defined as either a boarding or alighting location, are considered to give a clearer picture of how much of the system ridership is due to a particular location. The next highest locations featured a considerable drop-off in activity, though each accounted for 2% or more of the total weekday trip ends. Collectively, these four locations accounted for 12% of the trip ends. These locations and their corresponding activity levels are summarized in Exhibit 11 below.

Exhibit 11: Primary Boarding and Alighting Locations

| Location | Boardings | Percent of Total Boardings | Alightings | Percent of Total Alightings |
|--------------------------------|-----------|----------------------------|------------|-----------------------------|
| GTCC - High Point | 225 | 3% | 175 | 5% |
| GTCC - Jamestown | 225 | 3% | 150 | 3% |
| Guilford County Complex | 100 | 3% | 100 | 3% |
| WalMart (South Main) | 100 | 2% | 100 | 2% |

Source: City of High Point, Department of Transportation, High Point Transit System, 2014

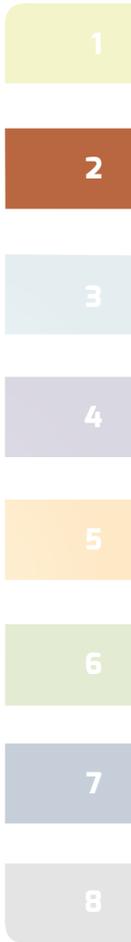


Exhibit 12: Other High Performing Boarding/Alighting Locations

| Location | Boardings | Percent of Total Boardings | Alightings | Percent of Total Alightings |
|--|-----------|----------------------------|------------|-----------------------------|
| Downtown High Point¹ | 50 | 2% | 65 | 2% |
| HP Regional Hospital | 45 | 1% | 51 | 1% |
| Juanita Hills Public Housing | 40 | 1% | 43 | 1% |
| Daniel Brooks Public Housing | 55 | 2% | 33 | 1% |
| WalMart North | 100 | 2% | 30 | 1% |

Source: City of High Point, Department of Transportation, High Point Transit System, 2014

¹Excluding the Broad Avenue Terminal

Collectively, these four locations accounted for 12 percent of the trip ends. These locations and their corresponding activity levels are summarized in Exhibit 11.

Another group of five locations each account for approximately 1-2% of the trip ends. Collectively, these locations account for 7% of all trip ends and are summarized in Exhibit 12 above.

Considered collectively, the Broad Avenue Terminal and the other top nine locations accounted for almost 61% of all trip ends. On Saturday, the Broad Avenue Terminal continues to be the major location of passenger activity, with approximately 450 boardings and 425 alightings accounting for roughly 875 trip ends. This amounts to 42% of all Saturday trip ends. Outside of the Broad Avenue Terminal, there are few similarities between boarding and alighting activity on weekdays and Saturdays.

Operations & Maintenance Facility

High Point Transit System’s operations and maintenance facility (O&M facility) is located at 716 West Kivett Drive, approximately one half-mile from the Broad Avenue Terminal in downtown High Point. Entrances to the O&M facility are located off West Kivett Drive and



Chestnut Drive. There are four bays at this facility: two in-ground lifts, one above ground lift, and one tire bay. All vehicle refueling is conducted at the O&M facility, and transit vehicle maintenance and washing are also performed at this facility.

Immediately adjacent to the maintenance facility is the administrative and operations control building. This building houses administrative office spaces, dispatch and security monitoring center, operator break room space, restrooms, conference room facilities, and the operations and call center for demand-responsive services. There is additional room available to expand the O&M facility as needed.

Vehicle Fleet Characteristics

High Point Transit System's fleet consists of 16 buses measuring 30 feet, one 40-foot bus, six cut-away vans, and six support vehicles. Buses are diesel fueled and vans are gasoline powered. Each bus is equipped with a bicycle rack that holds two bicycles apiece.

The average fleet age is 8.7 years for the buses and 2.6 years for the vans. This gives the 30-foot buses another year or so of life and indicates the vans are at the halfway point of their useful life. Fifteen of the buses are scheduled to be replaced in FY 2016, one in 2019, and one in 2022. Three of the vans are scheduled for replacement in 2015 and the other three in 2020.

Both limited service routes meet up with the local route pulse at the Broad Avenue Terminal on weekdays, but no service is provided on Saturdays. Given Route 21's limited schedule, the two routes are able to share one bus. Each weekday morning, the bus makes the first Route 21 run before beginning Route 25 operations, and is able to provide the afternoon trip in-between Route 25 runs to GTCC.

High Point Transit System's vehicles are generally purchased through a combination of funding from federal Section 5309 earmarks or Section 5307 Urbanized Area Formula funding, along with state and local funds typically accounting for the required 20% match.

2.5 Fare Structure

The adult one ride fare for fixed-route service is \$1.00. Up to three children under 43 inches in height may ride for free with each fare-paying adult. The High Point Transit System offers a single \$10.00 fare card that may be purchased at the Broad Avenue Terminal. Intra-system transfers are free with proof of a paid fare. Transfers to and from other transit systems connecting with High Point Transit System services require the purchase of a fare from the other provider.

As coordination of partnering with other service agencies, it would benefit the passengers to have the ability to transfer between services without the need to purchase a second fare. The High Point Transit System works with PART and accepts the Regional Value Cards. Exhibit 13 outlines the current fare table.

Exhibit 13. Current Fare Structure

| Fare Type | Fare |
|--|---------|
| Base local ride cash fare | \$1.00 |
| Senior Citizen fare | \$0.50 |
| Disabled person fare | \$0.50 |
| Medicare Cardholder | \$0.50 |
| Children 43" or shorter - limit 3 per paying adult | Free |
| All Transfers | Free |
| Regular Fare Ticket (10-Ride Pass) | \$10.00 |
| Half Fare Ticket (5-Ride Pass) | \$5.00 |
| Regular Fare 30-Day Pass | \$40.00 |
| Reduced Fare 30-Day Pass | \$20.00 |

Source: City of High Point, Department of Transportation, High Point Transit System, 2014

Passengers may also use PART Express tickets and Regional Value passes, but not PART Express single ride tickets, 10-ride tickets, monthly passes or transfers.

¹Based on the 2010 U.S. Census. Population projections for 2013 suggest a total population of 107,000 persons.

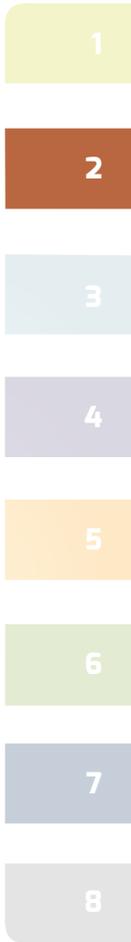
²High Point Transit System policy currently does not permit in vehicle or exterior advertising with the exception of public service announcements.

³Unlinked passenger trips are defined as one single trip made on one transit vehicle, and does not include a transfer between routes. A person who transfers to a second vehicle has thereby taken two unlinked passenger trips.

⁴Revenue hours are defined as the number of scheduled hours of service available to passengers for transport on the routes, equivalent to one transit vehicle traveling in one hour in revenue service, excluding deadhead hours but including recovery/layover time.

⁵Revenue miles are defined as the miles operated by vehicles available for passenger service.

⁶Routes 10 and 11 do provide some bi-directional service as these routes operate at 30 minute frequency all day, and are the most utilized services in the High Point Transit System.



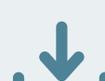


Chapter 3.0

High Point Quick Facts

Exhibit 14. Population Growth, 1980-2010



-  **1.7% population growth rate per year (average)**
-  **2.5 persons per household**
-  **\$44K median household income**
-  **20% below poverty level**
-  **2x the state average for using public transportation to commute to work**

3.0 TRANSIT MARKET ANALYSIS AND NEEDS ASSESSMENT

Understanding the strengths and weaknesses of the existing transit network is an important step toward identifying opportunities for improvement and associated needs. A transit market analysis and needs assessment incorporates a rich mixture of quantitative and qualitative data and information that better enable decisions on modifications to the future service network. The principal tasks that contributed to the market analysis and needs assessment included the following:

- » **Transit Market Analysis** – This analysis is based on a detailed review of population and employment distribution and trends, densities and growth rates, economic development, and travel patterns.
- » **Public and Stakeholder Input** – This effort includes gathering the opinions, priorities and preferences expressed by stakeholders, High Point Transit System drivers and staff, current system riders, and members of the general public.
- » **Peer Review** – An important comparison tool, a peer review helps assess High Point Transit’s current system and service performance as compared with other similarly sized and positioned transit agencies.
- » **On-Board Rider Survey** – An on-board survey of riders helps develop a profile of current riders, their preferences for service, and

- » **Service Performance Assessment** – A detailed examination of High Point Transit’s individual routes and overall service performance in terms of productivity and how riders are currently using the routes can be invaluable when evaluating potential changes to the system or individual services, and how these changes could impact current ridership trends.

The findings of the market analysis and needs assessment are presented below and organized by each of these five tasks specified above. A final section summarizes the findings and implications of the analysis for the SRTP.

3.1 Transit Market Analysis

Hi tran primarily serves the urbanized area of the City of High Point, with some service to neighboring communities of Jamestown and Archdale. The greater region, that includes Greensboro, continues to grow. As growth occurs, the demand for transit service changes. Currently, the demand for transit is highest in urbanized High Point; a trend that is both historically true and one that will likely continue. However, this is in part due to the fact that the structure of Hi tran’s current service predominantly focuses on the urbanized centers of High Point. Rapid employment growth is occurring in the northeast portion of High Point between the central urbanized area and Greensboro, known as the Palladium/Deep River district. This district is a popular jobs center in High Point with

an increasing number of service industry and administrative jobs. More detail on this district is provided below.

The market analysis analyzed a variety of demographic, socioeconomic, and available travel pattern data, including a trend analysis on the changes in population and employment in High Point and the surrounding communities, and analysis of the size and spatial distribution of population groups with a greater need for transit services.

Demographic Profile

An important first step in evaluating the market demand and potential for expanded transit service within High Point is the preparation of a detailed demographic profile. Population demographics serve as an important indicator of both potential demand for transit and the type of service needed. For example, a city with a stable but aging population may require more demand-responsive transportation services tailored to the individual needs of passengers during specific times of day.

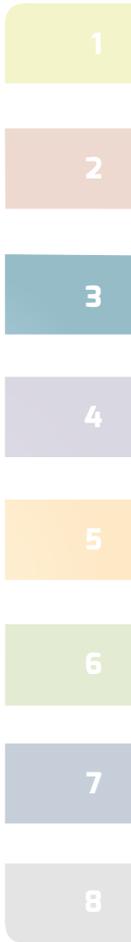
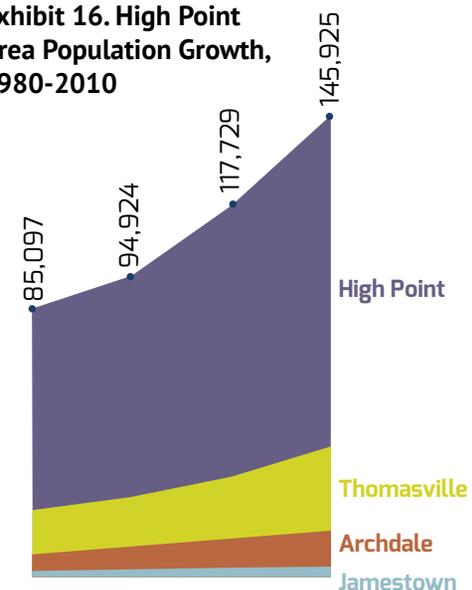
Comparatively, a city with a growing younger population may desire a variety of mobility choices, and prioritize expedient service over coverage. In essence, tradeoffs exist in planning and prioritizing public service investments such as transit, and it is therefore vital to establish a baseline community profile to make informed decisions. The purpose of

Exhibit 15. Population Growth, 1980-2010

| Location | 1980 | 1990 | 2000 | 2010 | Percent Change 1980-2010 | Annual Percent Growth Rate |
|-------------------------|-----------|-----------|-----------|-----------|--------------------------|----------------------------|
| High Point | 63,479 | 69,496 | 85,839 | 104,371 | 64.4% | 1.7% |
| Archdale | 5,326 | 6,913 | 9,014 | 11,415 | 114.3% | 2.6% |
| Jamestown | 2,148 | 2,600 | 3,088 | 3,382 | 57.4% | 1.5% |
| Thomasville | 14,144 | 15,915 | 19,788 | 26,757 | 89.2% | 2.1% |
| Guilford County | 317,154 | 347,420 | 421,048 | 488,406 | 54.0% | 1.4% |
| State of North Carolina | 5,881,766 | 6,628,637 | 8,049,313 | 9,535,471 | 62.1% | 1.6% |

Source: U.S. Census Bureau, 2014

Exhibit 16. High Point Area Population Growth, 1980-2010



this profile is to gain a better understanding of the existing demographic conditions and characteristics of the city and its populous.

As the City of High Point and greater Piedmont Triad region continue to grow, understanding population demographics and trends will be essential when identifying actions necessary to expand service and mobility options. Thus, relevant demographic data for the city was collected and is summarized herein. The analysis principally uses U.S. Census Bureau data, including decennial Census data from the 2010 Census and American Community Survey (ACS) – a revolving survey of households conducted annually – to identify current trends and population characteristics.

Population Growth Trends and Income Characteristics

The last few decades have marked a period of immense growth in Guilford County and the City of High Point. While substantial growth continued in the first five years of the new millennia, the national and regional financial downturn of 2007-2009 tempered the pace of growth in the City and County. However, the population growth trends exhibited over the past 10 years are fairly consistent with the growth trends over the past 30 years.

Based on the 2010 U.S. Census, the study area population was 104,371 persons, comprising approximately 21.4 percent of the Guilford County population. While the study

area for the SRTP is the City of High Point, smaller adjacent municipalities have been suggested as potential locations for future Hi tran service. Exhibit 16 shows the changes in population for High Point and these other municipalities from 1980 to 2010, as reported by the U.S. Census Bureau.

As evidenced in Exhibit 15, High Point has added 41,000 residents since 1980—a growth rate of 64%. Compounded annually, this equates to a population growth rate of 1.7% each year. Though growing at a slower annual rate than neighboring Archdale and Thomasville (2.6% and 2.1% respectively), High Point’s population growth outpaced that of Guilford County (1.4%), which grew by over 170,000 residents during the same time period. The City’s growth over the past 30 years has generally mirrored the State’s growth rate more closely, albeit slightly stronger.

In addition to decennial Census data, the ACS provides survey data on population characteristics that was used to supplement the decennial Census data reported herein.

The ACS provides communities with more current data in the years between the decennial Censuses. Along with total population, another metric of population growth is the growth in households.

According to ACS data, a total of 40,038 households were identified in High Point between 2008 and 2012, with an

Exhibit 17. Comparative Household Statistics, 2008-2012

| Location | Total Households | Persons per Household | Median Household Income | Per Capita Income | Persons Below Poverty Level |
|--------------------------------|------------------|-----------------------|-------------------------|-------------------|-----------------------------|
| High Point | 40,038 | 2.54 | \$44,367 | \$22,729 | 20.4% |
| Archdale | 4,378 | 2.60 | \$51,332 | \$24,202 | 9.6% |
| Jamestown | 1,405 | 2.41 | \$81,250 | \$43,204 | 10.8% |
| Thomasville | 10,681 | 2.51 | \$34,253 | \$17,628 | 29.2% |
| Guilford County | 193,890 | 2.45 | \$46,223 | \$26,384 | 16.9% |
| State of North Carolina | 3,693,221 | 2.51 | \$46,450 | \$25,285 | 16.8% |

Source: U.S. Census Bureau, American Community Survey, 2008-2012

average household size of 2.54 persons. The median household income was reported at just above \$44,000, with a per capita income of half that amount (\$22,000). Interestingly, the percent of persons living below the poverty level was nearly 4 percentage points above both Guilford County and the State. Exhibit 17 summarizes these statistics.

A review of ACS five-year estimates for the period from 2008-2012 indicate that High Point's demographics vary from the State of North Carolina in several regards including:

- » Approximately 59.1% of High Point residents own their home, as compared to 67.1% of residents in North Carolina. Roughly 28.0% percent of housing units in High Point are in multi-unit structures, as compared to 17.1% of housing units in North Carolina. The median value of owner-occupied housing units in High Point is \$145,900, as compared to \$153,600 for the State.
- » There is a higher proportion of households with persons living alone (30%) in High Point compared with 26% in North Carolina.
- » A greater proportion of High Point citizens (29.3%) had four year Bachelor's Degrees or higher as compared with 26.8% of residents statewide among residents 25 years and older.
- » More residents were foreign born in High Point – 12% as compared to 7% statewide.
- » Fewer residents speak English only – 86% compared with 89% statewide; and more of the non-English speakers speak English “less than very well” – 8% compared with 5% statewide.
- » High Point has a younger population as compared to the State; the median age in High Point is 35.3 years compared with 37.3 statewide, and 12.0% of the population is 65 or older compared with 12.9% statewide.
- » The use of public transportation for commuting to work as the primary mode of travel in High Point is double that of the State average – 2% compared with 1%.

Several of these findings help inform how future transit service may be developed and delivered in the City. Specifically, the presence of younger populations, lower incomes, a higher proportion of rental properties, and multi-unit housing are indicators of a greater propensity toward transit use.

Providing an attractive service designed for the needs of area residents can be highly successful.

Employment Characteristics

Consideration of the community's existing employment characteristics can indicate the type of service that may be most attractive to the City. Some jobs require access to private transportation regularly, while other jobs often result in persons traveling from one point to another for the duration of their work day. The ability to offer a transit service that quickly transports persons who typically drive and park at their destination for a work day creates an attractive and cost efficient travel option.

According to the High Point Economic Development Corporation, the largest employers in the City in 2012 are shown in Exhibit 18. While some of these employers have multiple locations, the employment numbers reflect only those employees in High Point.

Note that this list reflects “full-time equivalent” numbers for High Point-based employees as of December, 2012. Although Walmart chose not to participate in this survey, it reported 591 employees on 2012 City business license forms for its two locations, but the equivalent full time employee number is not known.

The identification of employers and types of industries City and regional residents are employed in is indicative of the transportation service they will most need. For example, several of the businesses and industries listed above are customer service oriented jobs. These types of jobs often work in shifts that start at different times throughout day. Thus, persons in these jobs will require a transportation service that corresponds to the varying start and end times of their shifts.

Comparatively, for persons employed in the healthcare, sciences, or social service fields, a transportation service that expediently gets persons between home and work locations during peak travel periods will be most attractive.

Exhibit 18. Major Employers in High Point

| Employer | Industry | Employees ¹ |
|---------------------------------------|---|------------------------|
| Bank of America | Finance/ Customer Service | 2,283 |
| Ralph Lauren | Distribution/ Customer Service | 2,062 |
| High Point Regional Health System | Healthcare | 1,858 |
| Guilford County Schools | Public Education | 1,692 |
| City of High Point | Local Government | 1,350 |
| Thomas Built Buses/ Daimler Trucks | Bus Manufacturer | 1,294 |
| Cornerstone Healthcare | Healthcare | 1,246 |
| High Point University | Secondary Education | 1,105 |
| Aetna | Insurance/ Customer Service | 805 |
| Solstas Lab Partners | Medical Laboratory Services | 779 |
| TE Connectivity | Electronics Manufacturing / Distribution | 733 |
| Advanced Home Care | Healthcare | 623 |
| Banner Pharmacaps | Pharmaceutical Manufacturing | 583 |
| Expert Global Solutions | Customer Service | 550 |
| New Breed Logistics | Distribution Networks / Logistics IT | 544 |

Source: City of High Point, 2013 (www.highpointnc.gov/edc/temp/employ.cfm)
¹ Full Time Employees

Community Destinations and Emerging Growth Areas

In addition to the employers identified above, major commercial destinations or activity centers are also an essential component in determining a community’s primary corridors and travel patterns.

Understanding the geographic distribution of community destinations and activity centers helps in the development of transit services that will transport High Point residents from their home or other origin to where they most want to go within the City. Besides the employers noted above, additional community destinations include:

- » Guilford Technical Community College (GTCC) locations (both in Jamestown and High Point)
- » The two Walmart locations, one on South Main and the other on North Main
- » High Point Regional Hospital
- » The Piedmont Parkway/Palladium area in the triangle formed by NC 68, I-40, and Wendover Road
- » High Point University (student enrollment of approximately 3,000)

Oak Hollow Mall would traditionally be considered a major destination and activity center, but this center is now poorly occupied and has been purchased by High Point University. It remains unclear whether the facility will continue to be used as a retail shopping center or repurposed for other uses. However, until such a time as activity or employment levels warrant, it is not considered a major destination or activity center at the time of the SRTP’s development and publication.

An emerging growth center in the City is the Deep River/Palladium area of northeast High Point near the junction of Interstate 40 and state route 68. This area is rapidly growing as regional job center within the greater Piedmont Triad region, and already displays the employment densities capable of supporting transit service. While land uses are

Exhibit 19. 2011 LEHD Inflow-Outflow Graphic (All Workers)

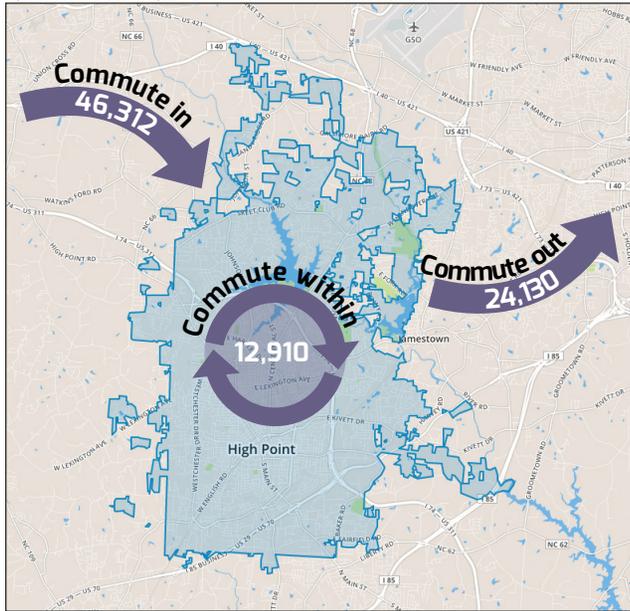
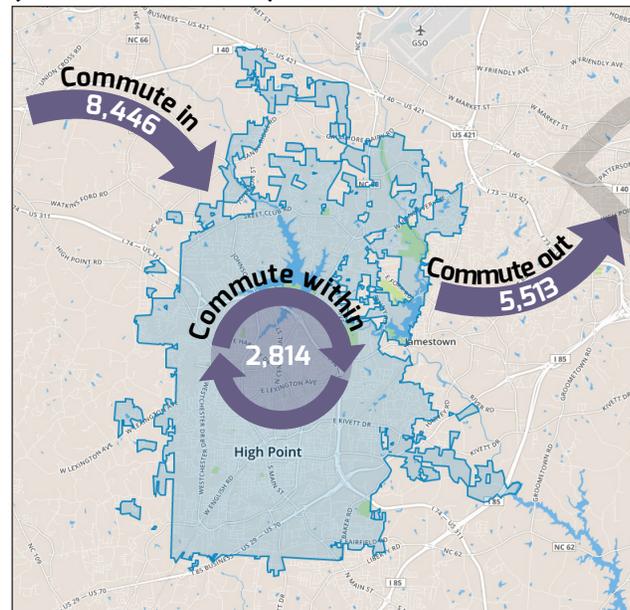


Exhibit 20. 2011 LEHD Inflow-Outflow Graphic (Low-Income Workers)



Source: US Census Bureau, Longitudinal Employer-Household Dynamic Program, 2013

still somewhat discontinuous, this area of High Point is increasingly seen as needing a transit connection, especially as further development is forecasted and anticipated.

Commuting Patterns

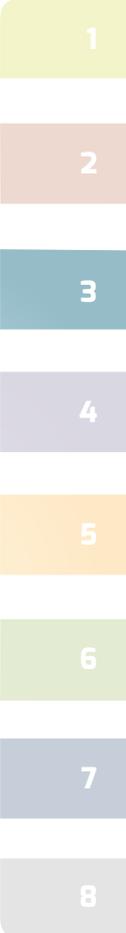
The Census Bureau's Longitudinal Employer-Household Dynamics (LEHD) program provides a rich set of data and a detailed view of the commuting patterns of an area's workforce. This data is based upon employer surveys submitted from a variety of regional, state, and federal agencies, and includes information from each states unemployment insurance databases. The data includes information from private and public employers. The federal government is now included in the data, except for agencies that are redacted for security reasons.

The LEHD data are particularly helpful when conducting an assessment of commute-to-work travel patterns to help determine both the potential market for transit and a base level of operating characteristics for services. The LEHD program provides information on worker characteristics including income, age, and industry type, and can show concentrations of workers, commute and labor shed travel patterns. This provides a powerful new tool for examining basic origin-destination flows that may be used to develop an understanding of potential markets for transportation service improvements without requiring a formal travel forecast using a regional travel demand model.

Exhibit 19 shows the inflow-outflow for employment in the City of High Point. In 2011 (the latest available data), a total of 59,222 people were employed within the boundaries of High Point. Of that amount, 22% (12,910) were High Point residents, with the remaining 78% (46,312 persons) of employees commuting from outside of High Point. The number of employed High Point residents totaled 37,040 in 2011. A majority of these residents (65%, or 24,130 persons) commuted to work outside of High Point, with the remaining 35% (12,910 persons) working within the city limits.

Two conclusions can be drawn from this data, both of which show the interrelationship between High Point and the surrounding area. First, High Point is a net source of jobs to the area, with twice as many people commuting into High Point for work as there are leaving the City for work elsewhere in the region. Secondly, twice as many High Point residents leave the City for work as there are residents who stay within the City to work.

From a transit perspective, several important conclusions may be drawn. First, as a service that operates principally within the City of High Point, cross-city employees who reside in High Point but work in other parts of the Piedmont Triad region are unlikely to use Hi tran because the local transit service stays within the City limits. However, what the inflow-outflow analysis does indicate is the need for strong transit connections between Hi tran, PART, and Greensboro Transit Authority (GTA).



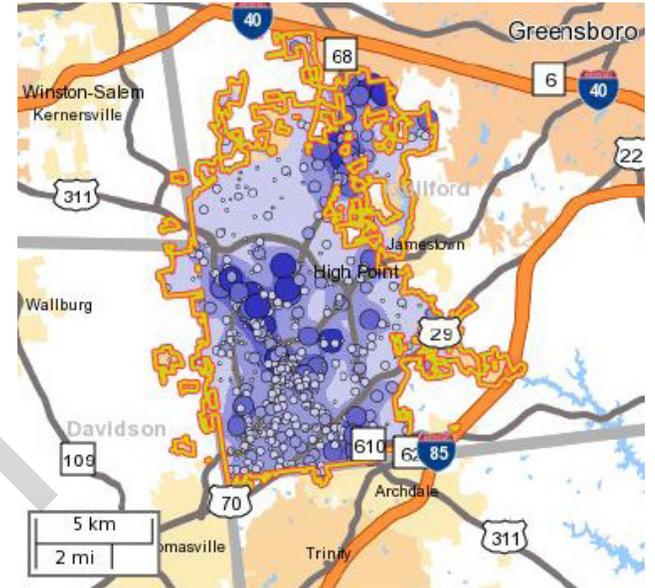
The LEHD database permits the selection of workers by pre-set income level. The lowest income level is \$1,250 per month (\$15,000 annually) or less. This level was analyzed to determine the inflow-outflow patterns of low-income workers in High Point and surrounding areas. This analysis yielded several interesting findings including:

- » Low income jobs in High Point totaled approximately 11,260 (or 19% of the labor market)
- » A majority of these jobs (75%) are occupied by non-residents
- » Although nearly a quarter (22%) of employed High Point residents work in low paying jobs, only 34% work within the City limits, with the remaining 66% commuting to these jobs in other communities

Exhibit 20 shows the inflow-outflow pattern for these workers who due to their income level are more likely to be dependent upon transit than the general population.

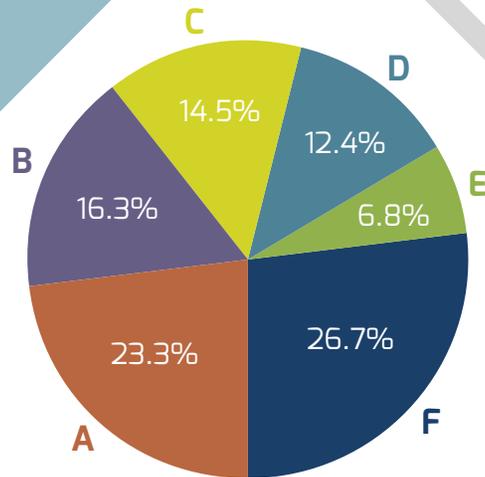
The low-income inflow-outflow analysis is more balanced than the flow for all jobs, but High Point still attracts more low-income workers into the City as compared to the number of low-income workers who leave for jobs elsewhere in the region. A troubling finding is that nearly twice as many residents have to leave the City limits to find low-income employment than are employed within the City.

Exhibit 21. Low-Income Job Location



Source: US Census Bureau, Longitudinal Employer-Household Dynamic Program, 2013

Exhibit 22. Low-Income Jobs by NAICS Sector, 2011



| ID | NAICS Sector | Employees | Percent |
|--------------|--|---------------|---------------|
| A | Accommodation and Food Services | 2,618 | 23.3% |
| B | Health Care and Social Assistance | 1,841 | 16.3% |
| C | Retail Trade | 1,637 | 14.5% |
| D | Administration & Support, Waste Management & Remediation | 1,397 | 12.4% |
| E | Manufacturing | 770 | 6.8% |
| F | Other Sectors | 2,997 | 26.7% |
| Total | | 11,260 | 100.0% |

Source: US Census Bureau, Longitudinal Employer-Household Dynamic Program, 2013

Exhibit 21 shows the location of the low-income jobs within High Point. These are the jobs within the City limits filled by both residents and non-residents alike. For the purpose of this analysis, low-income jobs are those in which workers earn \$1,250 or less per month. The larger and darker circles depict higher concentrations of low-income jobs. As depicted in the graphic to the right, low-income jobs are congregated in several clusters within High Point including:

- » The North Main corridor
- » Oak Hollow Mall
- » The City/County government complexes and High Point Housing Authority
- » The Deep River/Palladium area and the Piedmont Parkway area
- » The Walmart/Kmart shopping area on South Main Street and the retail/medical area off south Westchester

With the exception of the Deep River/Palladium and Piedmont Parkway areas, all of these areas are served by Hi tran routes. The Deep River/Palladium and Piedmont Parkway areas represent a notable gap in the Hi tran service coverage area. This job center sits immediately at the confluence of several major transportation routes, with a high volume of daily traffic. As an emerging employment area, it will be important to connect this area with downtown High Point.

Exhibit 23. 2011 Job Locations of Low-Income Residents

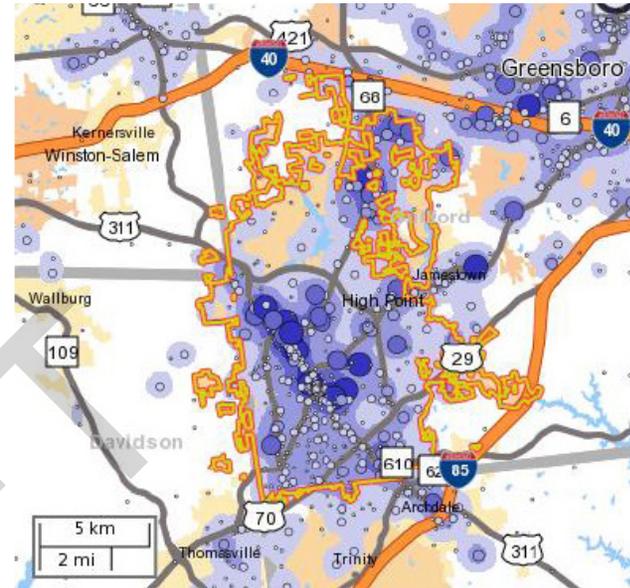
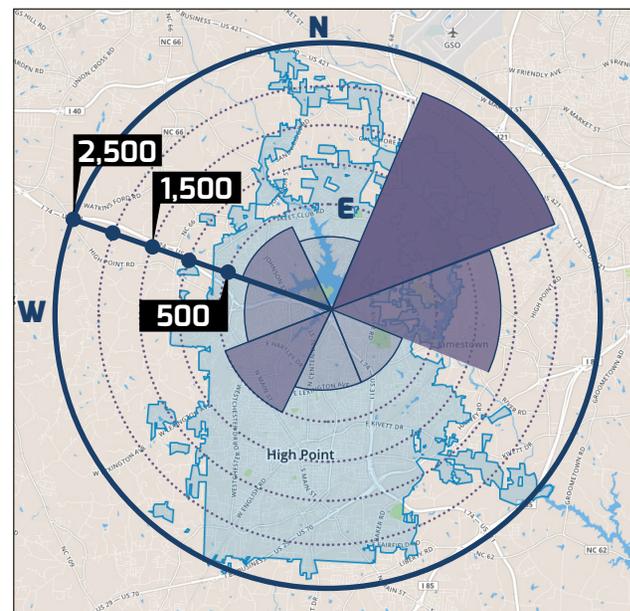


Exhibit 24. Job Counts by Distance/Direction in 2011 (\$1,250 per month or less)

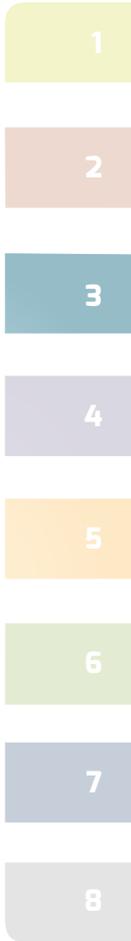


Source: US Census Bureau, Longitudinal Employer-Household Dynamic Program, 2013



Improving transit for commuters

Twice as many people commute into High Point than out, and two-thirds of all commuters who reside in High Point live and work outside of the City, indicating a need for strong transit connections between Hi tran, PART, and Greensboro Transit Authority (GTA).



Further analysis of employment characteristics in High Point and the surrounding region revealed that the low-income workforce is heavily concentrated into the five industrial sectors summarized in Exhibit 22

These sectors closely match up with the locations of the low-income jobs, most of which are located where hotels, restaurants, retail centers, health care, and social services are located. As mentioned previously, 22% (8,327) of employed High Point residents work in low-paying jobs, both within the city limits and beyond. Exhibit 21 depicts the location of their workplace.

The Exhibit 23 shows the specific location and concentration of jobs, while Exhibit 24 is more abstract and includes information on the distance workers travel, indicated by the shading. The darker green is a commute of less than 10 miles while the yellow is a commute of more than 50 miles.

The job locations mostly mirror the locations of the low-income jobs within High Point, but a few other clusters are also notable. The heaviest clusters are centered around GTCC-Jamestown and the Greensboro Auto Auction location north of I-40. Other high concentration locations include Archdale and some retail centers northeast of GTCC-Jamestown.



Public Input Process Findings

While there is strong appreciation and support for the services offered by High Point Transit System, there were frustrations regarding the amount of service provided, the indirectness of travel, lengthy travel times, and limited stop infrastructure.

Transit Supportive Areas

As noted, the most important factor contributing to transit utilization is the density of population and employment at trip origins and ends. “Transit-supportive areas” are identified by the density of the population and employment within a specified geographic area, typically a Census unit such as a tract or block group. The higher the density, the more intensive the transit service that can be supported. The Transit Capacity and Quality of Service Manual suggests that a density of at least 3 housing units per gross acre, or a density of at least 4 jobs per acre are necessary to support at least hourly bus service. An equivalent combination of housing and jobs would have the same effect.

While population and employment density are two important statistical measures considered in transit planning, they contribute to “transit-supportive areas.” Transit-supportive areas are those areas with the greatest potential for use of transit services; they are areas with a critical mass of population and/or employment, and land uses and development patterns that constitute the urban physical character to attract and generate trips. These areas are broadly-defined as mixed-use, walkable districts that incorporate a variety of transportation modes from walking to bicycling, transit, and automobiles.

A key ingredient in transit’s success is the ability for persons to easily access the service and walk to destinations after exiting the bus. A pedestrian network is an essential part of service design. In general, transit-supportive areas are those that provide safe and comfortable places for persons to walk to and wait for a bus. Providing comfortable passenger waiting areas was one of the most consistently cited improvements recommended by passengers in on-board travel survey (discussed further in Section 3.4).

Several routes in High Point currently serve streets without sidewalks. While the City has taken great efforts to extend the sidewalk network, travel survey respondents and members of both the Steering Committee and Sounding Board expressed concerns with riders waiting or walking

Exhibit 24. Public and Stakeholder Involvement Efforts



along busy streets without sidewalks, and identified the lack of sidewalks as critical challenge facing bus utilization.

Generally, transit industry research suggests that persons who can walk to different land uses in under ten minutes are more likely to utilize those sites, including retail establishments, parks, and community facilities. Placing daily goods and services, as well as recreational destinations, within walking distance of residences increases the incentive to use alternative modes, such as transit.

Finally, zoning plays an important role in the creation of transit-supportive spaces. Traditional zoning codes are designed to separate land uses. Zoning and development codes often set density thresholds, specify minimum lot sizes, and usually outline regulatory restrictions (e.g. height controls) and minimum parking requirements. Today, more cities are embracing mixed-uses that traditional zoning laws often precluded, recognizing the social, economic, environmental, and transportation-related benefits provided. To overcome traditional zoning code requirements, cities often create special use districts, overlay zones, or enact other policy tools to promote dense, compact, walkable, and urban-design friendly spaces and places. These codes often place an emphasis on the use of transit or other non-motorized modes to discourage the use of automobiles and create pedestrian-friendly environments.

3.2 Public and Stakeholder Input

The perspective and priorities of members of the public, existing transit riders, area stakeholders, and operators of the High Point Transit System fixed-routes and demand-responsive services are an important part of understanding the needs and opportunities for service improvements.

As part of the existing conditions and assessment, outreach activities included workshops with the project Steering Committee and Sounding Board members, as well as a transit system operator and staff workshop. An on-board rider survey was conducted with members of the public and current riders (discussed in Section 3.4), complimented by a public open house and comment period during which all members of the public could comment directly on the proposed service options and policies under consideration for adoption as part of the SRTP.

Steering Committee and Sounding Board Workshops

The project team conducted two planning workshops with the Steering Committee and Sounding Board members to review proposed routing structure changes for the High Point Transit System.

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The first of these workshops was focused on the identification of goals, values, and developing an understanding of the service development planning process. Members of both committees were asked to provide comments on their perceptions of the current High Point Transit System and given the opportunity to illustrate their vision(s) for the future fixed-route service network on large maps of the existing street network.

The second workshop presented a consolidated view of the goals, values, various viewpoints and visions expressed by Steering Committee and Sounding Board members at the first workshop. At times, the project team had to weigh between conflicting comments when considering service changes. Conflicting comments were resolved by reviewing the comments with respect to the stated goals and vision for service currently and in the future.

Operator Workshop

Input from drivers and staff was gathered during a workshop with operators in late 2013. The purpose and the process of the S RTP was presented during this workshop that included drivers, maintenance employees, and others involved in transit system operations. Drivers and staff were asked to identify issues they experienced during revenue

service, what were the challenges and unmet needs with the current service, and what opportunities they saw to enhance the productivity of the current system. High Point Transit System staff were to illustrate maps and routing patterns they felt should be considered for the future system. The exercises conducted during this workshop proved very valuable during the route development and analysis process.

Public Open House and Comment Period

Members of the riding and non-riding public, along with specific project stakeholders representing local institutions, civic organizations, businesses, and population groups all play an important role in ensuring that plan recommendations reflect community values and preferences for transit service.

TO BE UPDATED FOLLOWING THE OPEN HOUSE AND COMMENTS RECEIVED

Findings

Overall, there is strong appreciation and support for the services offered by High Point Transit System. Members of the public, the committees established, and transit system staff understand the challenges confronting the agency and the complexity of planning and operating service. Most participants in the outreach activities expressed a desire for High Point Transit to succeed, and feel the agency plays an important role in the City of High Point's daily mobility.

Still, while support and appreciation for the High Point Transit System services is strong, current riders and members of the committee representing different user groups expressed frustrations with transit services. In general there was a uniform sentiment that the High Point Transit System's existing bus and demand-responsive services were inadequate with respect to the amount of service provided, the indirectness of travel, lengthy travel times, and limited stop infrastructure. Many individuals, civic organizations and institutions would like to work



Measuring service performance

To measure each route's overall productivity and efficiency, we considered:

- | | |
|----------|----------------|
| Costs | Trips per hour |
| Revenues | Trips per mile |
| Service | Ridership |

more closely with High Point Transit to improve transit services and help design a system that more closely meets their specific needs but also the community at-large.

3.3 Peer Review

As part of the SRTP process, an analysis of peer agencies was conducted to compare High Point Transit's services and overall performance with a peer group of ten similarly sized and positioned transit agencies in the Mid-Atlantic and southern United States.

The peer review is a useful tool to understand what High Point Transit could learn from peer agencies on how to improve service. The full peer review is available as a separate technical memo in Appendix C. Highlighted findings include the following:

- » **In general, High Point Transit is a productive and cost effective system for the services operated.** High Point Transit generally outperforms its agency peers in service productivity measures and cost effectiveness measures, from both a system wide and bus-only perspective. Consistent with the system analysis, the findings demonstrate High Point Transit has done a good job overall at operating an efficient and effective system.
- » **Overall, operating efficiency is excellent for the fixed-route and demand-responsive operations.** Both service types compare favorably with peer operating cost per passenger and subsidy per passenger ratios. As evidenced by favorable passenger per capita ratios, community utilization of the service is generally above the peer average indicating good support for the service. Compared with the peers, the fixed route operation ranks at or higher in productivity (passengers per revenue hour, passengers per revenue mile) with the demand-responsive operation in line with the peers.
- » **On a per capita basis, High Point residents use transit more as compared to the peer group.** The annual number of unlinked transit trips per capita in High Point is higher as compared to the peer group average. This finding at least partially reflects the fact that there is relatively less transit service (in terms of miles per capita) in High Point as compared to many of the peer cities. It may also be the case that High Point Transit serves more transit-dependent riders as compared to peers who may capture a larger proportion of choice riders.

- » **High Point Transit has a slightly higher operating cost per capita than the peer average.** As evidenced by favorable passenger per capita ratios, community utilization of the service is generally above the peer average indicating good support for the service. Despite being slightly above the peer average for operating cost per capita, community investment in transit (in terms of operating and capital costs per capita) is in line with the peer group.
- » **High Point has a higher proportion of persons who use demand-responsive services than do the peer group.** As demand-responsive service is more costly and less productive by comparison to fixed-route operations, this imbalance warrants an investigating into how best to encourage those persons who use demand-responsive services but are capable of using fixed-route services to take local bus service.

In summary, High Point runs a solid system as compared to regional peers. Addressing demand-responsive productivity by possibly shifting riders and resources to fixed-route operations (or flexible route operations) is an area worthy of consideration. Further, understanding demand-responsive service's decrease in riders per revenue hour can help determine if there are systemic issues that need attention.

3.4 On-Board Rider Survey

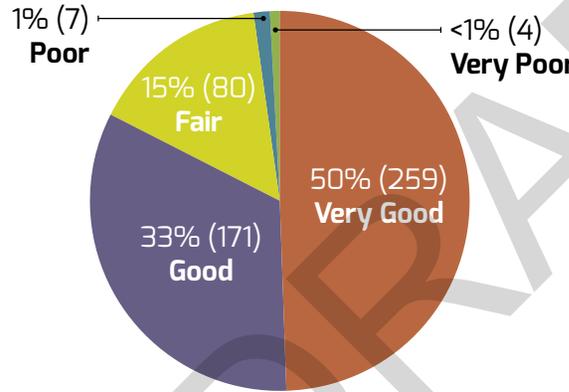
The best method for understanding service performance, quality, and effectiveness of existing High Point Transit System services is by asking those persons who use the system. To collect feedback from the public, the SRTP included a survey of High Point Transit System passengers which was administered on board fixed-route buses and demand-responsive vehicles in September 2013. The survey was conducted by directly interviewing bus passengers during their trips. Among other things, this survey asked riders about potential service improvements. The complete survey results are presented in Appendix D.

A total of 585 surveys were collected for the fixed-route survey representing most routes in the system, with a total of 57 surveys collected from demand-responsive system users¹. Survey forms were made available in English and Spanish. The survey asked questions regarding riders' trip characteristics, ridership habits, demographic information, and recommendations for improvements. Riders were asked to indicate their level of overall satisfaction with current services, and what their preferred

improvements would be. Note that not all respondents provided answers to every question in the survey, therefore the number of responses to each question differs from the total number of survey respondents.

Generally, system users gave the High Point Transit System positive reviews with respect to their level of satisfaction with current services, with “Very Good” and “Good” being the top responses received. These types of reviews suggest that consistency in the delivery of service with regard to any service modifications should be considered carefully.

Exhibit 25. Level of Overall Satisfaction with Current Transit Service(s)



Source: High Point Transit System On-Board Rider Survey, September, 2013

Riders were also asked about system needs, and asked to prioritize their preferences for system and service improvements. Exhibits 26 and 27 discuss these preferences. First, riders were asked to prioritize service improvements from a list provided of frequent service improvements most transit riders seek (Exhibit 26).

As a follow up to this question, the survey asked riders to identify their most preferred improvement, selecting only one of the improvements from the same list (Exhibit 27).

Exhibit 26. Needed Service Improvements

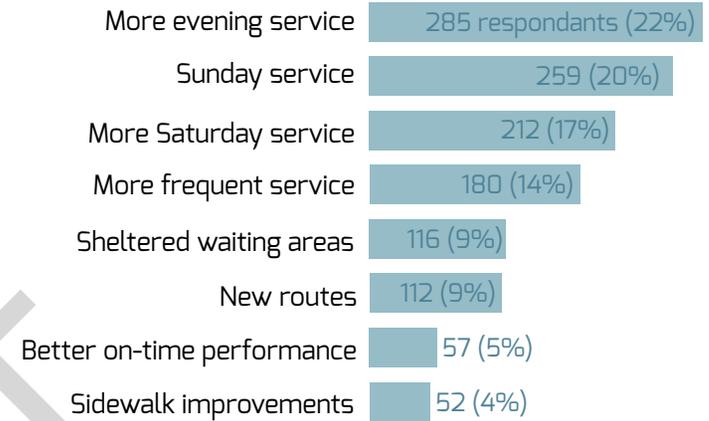
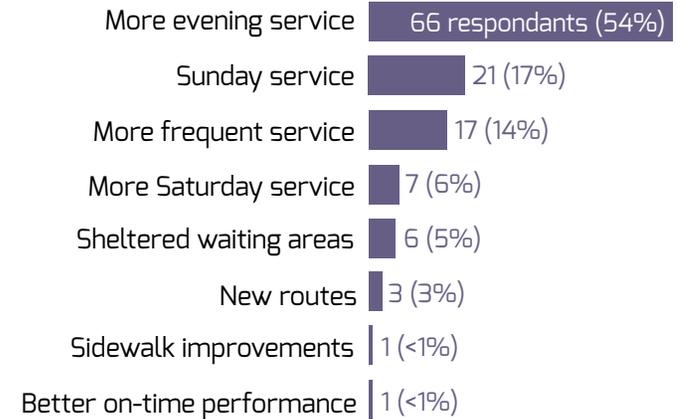


Exhibit 27. Prioritized Service Improvements



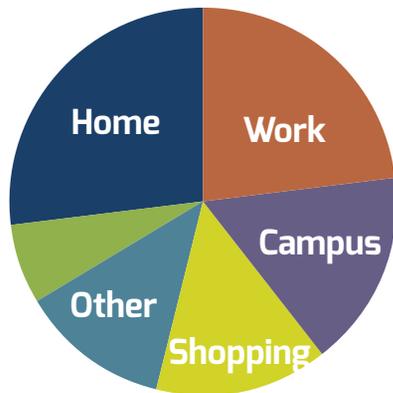
Sources: High Point Transit System On-Board Rider Survey, September, 2013

The survey asked participants to provide general information on their origins and destinations. Over two-thirds of respondents (68%) indicated they were coming from home, with the next largest percentage coming from work (12%). In terms of destinations, the largest share of respondents indicated they were going to work (27%).

Besides home and work, the next most common origin and destination was “College/University” with 5% of origins

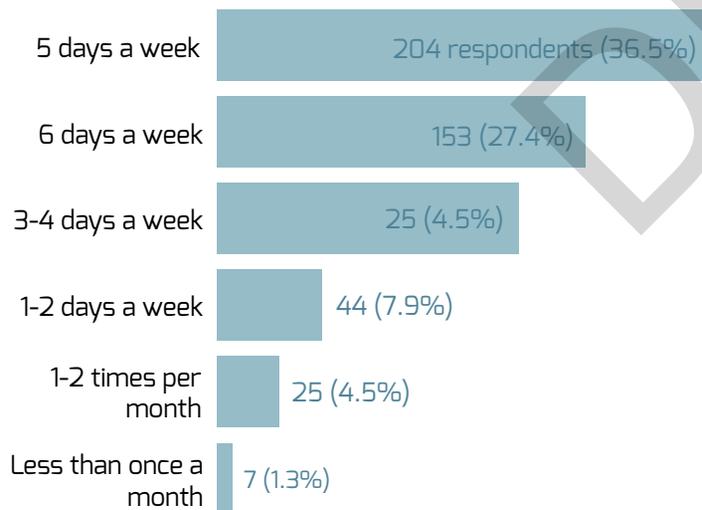
and 16% of destinations. “Other” and “Shopping” trips recorded larger percentages of origins and destinations, particularly on the destination end.

Exhibit 25. Origin/Destination Distribution



Riders were asked how frequently they use High Point Transit System services. As illustrated in Exhibit 28, most of the riders use the service five to six days a week. These results indicate the reliance on the bus system as their source of travel. Also noteworthy was the percentage of responses (65%) that said the bus was their only option.

Exhibit 28. Frequency of Hi-Tran Use among Current Riders

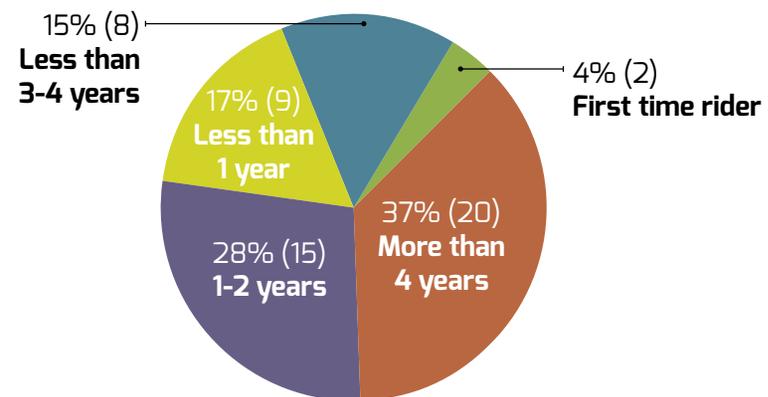


Source: High Point Transit System On-Board Rider Survey, September, 2013

In addition to how frequently they use High Point Transit System services, riders were also asked how long they have been using the bus service. Over half of the responses (54%) indicated they have been using the High Point Transit System for at least three years. Approximately one-quarter of respondents were relatively new to the system and riding the bus for less than one year. A general “rule-of-thumb” is that it costs five times as much to replace a customer as it does to keep an existing customer. Therefore it’s imperative to maintain efforts to keep existing riders.

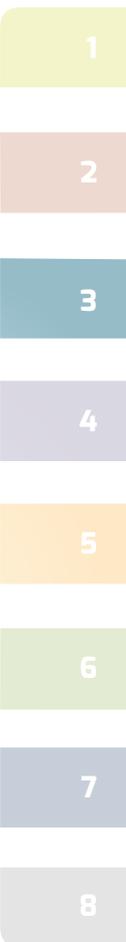
To gain an understanding of who uses the bus, riders were asked questions regarding their race/ethnicity and household income, and their reasons for using fixed-route services. The race/ethnicity of High Point Transit System users is over three-quarters Black/African American. As with most transit systems, the household income level for the majority of users is under \$15,000 annually. In High Point’s case, that number is fairly significant with 74% of responses indicating their household income is less than \$15,000. In contrast, less than 1% of responses indicated that their household income was greater than \$50,000. The High Point Transit System is already serving the needs of this market, and should continue to do so. Those needs can likely be addressed most by adding frequency on key routes such as North and South Main Streets, and Leonard Avenue. This will give them better and more frequent access to jobs and schools and improve their quality-of-life and transportation.

Exhibit 29. Frequency of Dial-a-Lift Use among Current Riders



Source: High Point Transit System On-Board Rider Survey, September, 2013

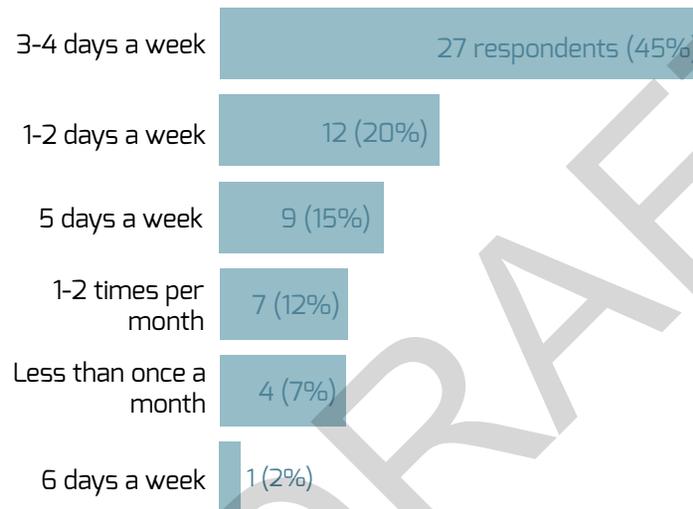
As noted, an on-board survey was also administered to demand-responsive service users to understand the service performance of demand-



responsive services from their perspective, to identify needs and opportunities, and

Among those surveyed and responses received to survey questions, nearly half of survey respondents indicated they use Dial-a-Lift services three to four days per week (Exhibit 30), and a majority of respondents indicated they had been using demand-responsive services for more than four years (Exhibit 29).

Exhibit 30. Length of Time Using Dial-a-Lift



The on-board survey questioned Dial-a-Lift users on why they used the service and the purpose of their trip. Among respondents, a majority stated that the Dial-a-Lift van was their only travel option (nearly 47%); interestingly, while 39% of respondents indicated they did not have access to a private automobile at home, 34% of respondents said they had access to at least one vehicle, and 21% of respondents said they lived in homes where at least two cars were available.

When asked how they might make the same trip if Dial-a-Lift services were unavailable, a majority of respondents said they would seek a ride with someone else, but just over 20% of respondents said they would use fixed-route bus service to travel between their origin and destination.

When asked about service performance, a majority of respondents said that service was either Very Good or Good for total travel time between origins and destinations, and for on-time performance. Respondents also indicated that call waiting times when placing reservations were reasonable, a sign that most requests for service are responded to promptly. Over 90% of respondents said they felt safe and secure in Dial-a-Lift vehicles, and the vehicles were clean and in drivers courteous. Regarding hours of operation, most survey respondents indicated the hours of operation as being Very Good or Good.

When asked what service improvements are needed, responses were somewhat light, and inconclusive. Exhibits 31 and 32 display the expressed service improvements desired by survey respondents for Dial-a-Lift service, and prioritized service improvements.

Exhibit 31. Needed Service Improvements

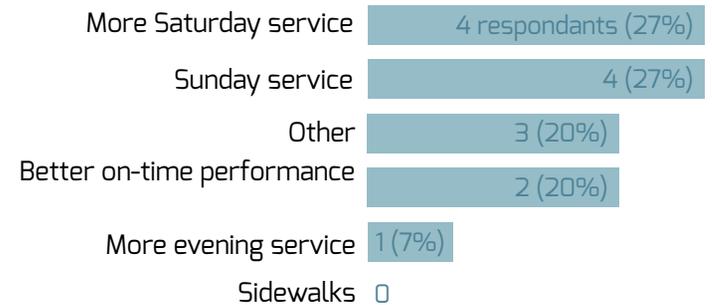
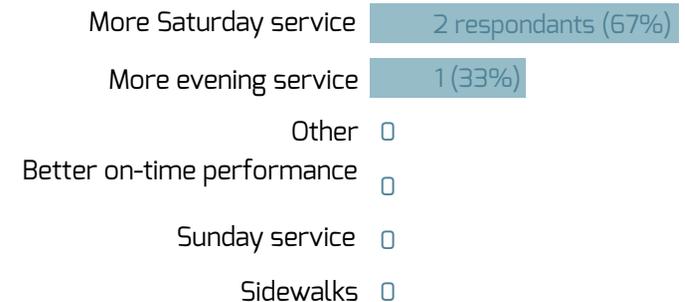


Exhibit 32. Prioritized Dial-a-Lift Service Improvements



Source: High Point Transit System On-Board Rider Survey, September, 2013

Demographically, Dial-a-Lift users are generally over the age of 65, however, persons most age cohorts are currently using the service. While 42% of survey respondents indicating being over the age of 65, 40% of respondents self-identified their age as being between 35 and 64. A strong majority of survey respondents (63%) were women. When asked whether the respondent required the use of a mobility aide or travel assistance, 18% of respondents indicated they used a wheelchair and only 1 respondent was accompanied by a travel assistant.

Balancing Needs and Desires

A common question in transit planning is “What are the greatest unmet needs?” The answer to this question depends on who is asked. For residents living outside the urban core of a city, the typical answer is for commuter-oriented transit services that provide expedient service to downtown or other job centers. For residents living closer to the urban core, the answer is typically longer hours of service and more frequent service on the local bus routes.

In High Point, the responses from the travel survey of fixed-route riders are indicative of the classic service planning challenge: survey respondents desire more frequency, longer service spans, and better geographic coverage. All three of these elements directly compete with one another. Therefore, trade-offs between these competing priorities exist, and service planning must attempt to find balance between each priority.

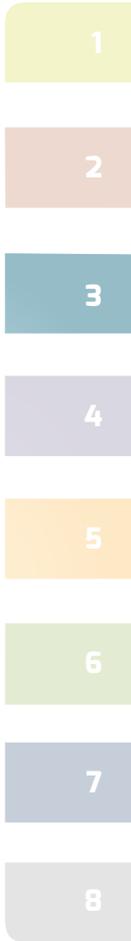
For years, the High Point Transit System has been steadily building ridership by offering 30-minute service on almost all of its routes. Despite the recent downward trend in fixed-route ridership, overall ridership has continued to increase by comparison with the early and mid-2000’s. In the transit industry, 30-minute service is considered to be unattractive to choice riders, while 15-minute service during the peak periods is considered a significant threshold to making transit competitive with driving. This threshold mainly relates to the amount of time people are willing to wait if they just miss a bus. It is clear however, that as funds are available, the frequency of some system routes should be increased during the peak travel periods, and slowly other system routes could be increased as demand warrants. Increasing frequency can help boost ridership, but also requires additional fleet vehicles and operators, thus increasing operating costs. Frequency increases during the peak period on North and South Main Street are anticipated to have the greatest

return on ridership, but should also be considered on Route 16 with service into the dense neighborhoods of east-central High Point, as funds are available.

Considering the survey results broadly, expanding the hours of service on routes is likely to be the next most cost-effective investment to generate ridership growth in the immediate future. Service offered from 14-16 hours per day (such as 6:00 a.m. to 10:00 p.m.) is considered to be the minimum needed to attract choice riders, and public reception to providing service later into the evening hours has been positive, particularly for student populations or other shift workers who need safe transportation later at night. In addition to more evening service, Sunday service has also been expressed as a community desire. While extending the span of service also increases operating costs, it would not incur additional capital costs (e.g. fleet vehicles). However, it would be necessary to examine operator contracts and operator schedules to determine whether operators would need to be paid overtime rates during the extended hours of service.

Extending service to new places is critical to the mission of the High Point Transit System as a local service provider, but is somewhat less likely to be as cost-effective (in terms of cost per new rider) than boosting service on existing routes. Peak-period express services linking outlying areas with the urban core are typically the most cost-effective means of starting service to outlying city areas such as the Palladium/Deep River region. Beginning a new service to an outlying area will take time to mature, and service adjustments will likely be necessary in order to adjust the service to best reach its full potential. By starting with a peak-period only type service, this allows service planners to optimize the route during the heaviest travel times to best understand needs and demands for service, and plan for extended service in the off-peak periods.

Additional connections, such as crosstown routes, would greatly expand the travel options of current riders in High Point, and help expedite transit travel times. The current configuration of the High Point Transit System network requires all routes to return to a centralized point, the Broad Avenue Terminal, to transfer across routes. By providing a crosstown service that syncs (as best it can) with multiple routes, this enables all passengers to reduce their travel time across the City by providing connections outside of downtown. A service identified as part of this plan is for a crosstown route on Lexington Avenue, linking with Routes 10, 13, and 25. A southern crosstown route should also be considered in the future.



It should be noted that a higher level of service on the core system will make the future routes to outlying areas such as the Palladium/Deep River region will be more attractive when they are implemented, by allowing for better access throughout the regional core through transfers in the downtown. In sum, better frequencies, spans of service, and days of service offered in the existing core service area will bring the most ridership for the least cost, due to the residential and commercial density in this area, while expansion to outer areas can help expand the future market for public transportation.

3.5 Service Performance Assessment

The SRTP also conducted a performance analysis of the High Point Transit System's productivity as a mechanism to broadly gauge the fixed-route system's productivity and efficiency. The performance of all High Point Transit System routes was evaluated to identify the successfulness of the service and identify routes that need to be examined for productivity improvements. The analysis considered service inputs (costs), outputs (revenue, service, hours, and miles) and consumption (ridership and farebox revenues). Performance data was then expressed in terms of three performance indicators commonly used in the transit industry. It

is important to note that this evaluation considered weekdays and Saturdays separately. The factors considered included the following:

1. Passenger Trips/Hour
2. Passenger Trips/Mile
3. Operating Cost/Passenger Trip
4. Farebox Recovery Ratio

Overall Performance Ranking

Routes were separated into quartiles to identify the top 25%, the middle 50%, and the bottom 25%. This commonly-used industry practice helps to identify those routes that are performing well above the determined average, routes that perform well overall and above average, routes that are performing well overall but below average, and routes that perform well below the determined average. In general, routes that perform around the average (the middle 50%) are considered to be operating as anticipated, although some modifications may be made to help improve performance. It is the routes operating in the bottom quartile that should be considered candidates for corrective action(s)².

Based upon this analysis, the top 25% of the routes in the system are:

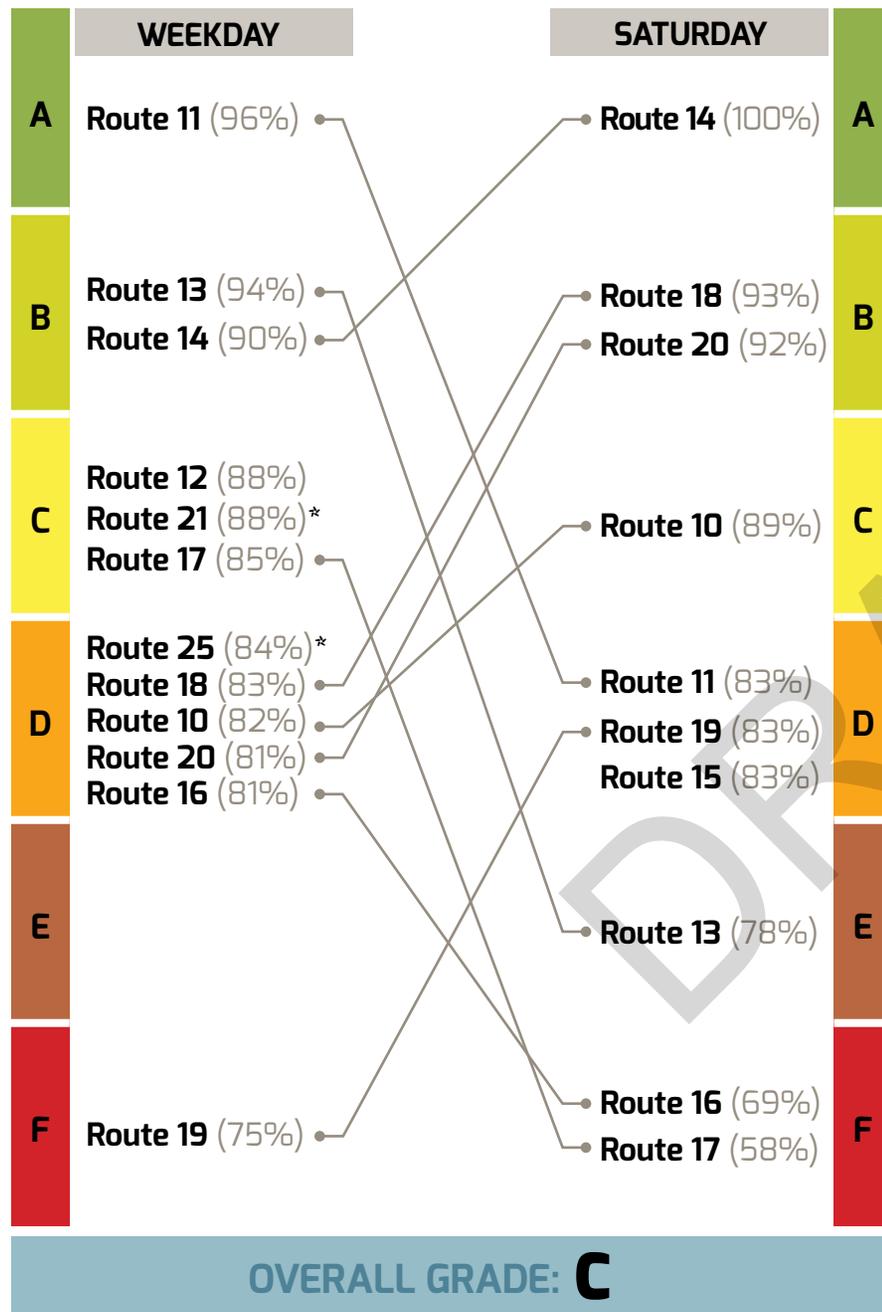
- » **Route 10 - Saturday**
- » **Route 11 - Saturday**
- » **Route 11 - weekday**
- » **Route 18 - weekday**
- » **Route 16 - Saturday**
- » **Route 13 - weekday**

Overall, it is unsurprising to see the routes listed above as the most productive routes in the High Point Transit System. These routes serve the most dense areas of High Point both in terms of population and employment density, serve primary activity centers and major trip generators/attractors, and the areas of the city that are most transit supportive.

While the top two performing routes are not surprising, it is interesting to note that the Saturday service outperforms weekday service. In the case of both Route 10 and Route 11, passengers per hour and passengers per mile are both at the top of all routes in the system. Route 11 also performs well on weekdays, but weekday service on Route 10 falls into the second quartile. The bottom 25% of the routes are:

- » **Route 21 - weekday**
- » **Route 12 - weekday**
- » **Route 19 - Saturday**

Exhibit 32: Hi-Tran Bus Route On-Time Performance



Sources: City of High Point, Department of Transportation, Transit Division, 2013 & TCQSM, 2013

*limited stop route

» **Route 19 - weekday**

» **Route 15 - Saturday**

Two of the routes in the bottom 25% of the system—the routes 12 and the 21—operate on weekdays only. These are the lowest performing routes in the system and have suffered from the closure of several employers in the former industrial area of the city between South Main and English Road. The closures have also negatively affected the Route 19, both on weekdays and Saturday. Finally, Route 15 only operates on Saturday and has been adversely affected by the drop in occupancy at the Oak Hollow Mall.

On-Time Performance

The boarding and alighting count conducted for this S RTP allowed for a comprehensive analysis of the on-time performance of the routes in the system. To determine a system's on-time performance, many agencies will use a sample of routes and timepoints that may or may not have been randomly selected. For the High Point Transit System, the boarding and alighting count provided a 100% sample of how well the system did on the survey day.

In the transit industry, the most common definition of "on-time" allows for a bus to depart a timepoint between zero minutes early and five minutes late. Departing a timepoint early is considered unacceptable in transit operations because the passenger arriving on time, despite being punctual, will be forced to wait for the next bus, thereby leading to frustration and dissatisfaction with the service. A 5-minute late window permits some variation for unusual circumstances while still allowing the passenger to get to their destination at approximately the time they expect.

Just as some flexibility in the definition of on-time is permitted, it is also reasonable to expect that less than 100% of transit trips will be on time. The Transit Capacity and Quality of Service Manual recommends that at least 80% (LOS D) of the trips be on-time. This measurement should be examined along the length of the route and not just at the terminal stop since riders are using each timepoint along the way as a guide for when to catch the bus.

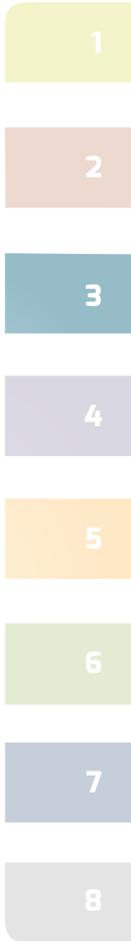


Exhibit 33: Weekday Vehicle Revenue Miles and Revenue Hours

| ROUTE | BOARDINGS PER REVENUE MILE ¹ | WEEKDAY REVENUE MILES | COMPOSITE RANKING |
|---------------------------|---|-----------------------|-------------------|
| 11 S. Main Street | 2.7 | 271.32 | 1 |
| 16 Leonard Avenue | 2.4 | 146.79 | 2 |
| 18 E. Green Dr | 2.3 | 147.16 | 3 |
| 17 Washington Dr | 2.1 | 106.71 | 4 |
| 20 Kearns Ave | 2.1 | 88.14 | 4 |
| 13 Montlieu Ave | 2.0 | 135.86 | 5 |
| 10 N. Main Street | 1.9 | 269.5 | 6 |
| 25 GTCC/Jamestown | 1.8 | 120.10 | 7 |
| 14 Westchester | 1.3 | 142.08 | 8 |
| 15 Eastchester (S) | 1.1 | 53.07 | 9 |
| 19 English Rd | 1.0 | 137.45 | 10 |
| 12 W. Green Dr | 0.9 | 132.2 | 11 |
| 21 Industrial Park | 0.7 | 16.09 | 12 |

Sources: City of High Point, Department of Transportation, Transit Division, 2013
¹Based on weekday average boardings by route (refer to Table 6 – Average Daily Riders)

The boarding and alighting count recorded the actual departure time of every bus trip at each timepoint along the way. The results indicate that 11 of the 12 weekday routes achieved a passing grade when considering both directions of the route. Of the 10 Saturday routes, only seven earned a passing grade. The routes and their subsequent on-time performance grades are summarized in Figure 3-8.

The detailed information collected on each trip provides some insight into why certain routes had poor on-time performance. The primary reason for the poor performance was because of buses arriving or departing early from timepoints.

It is important to note that buses are not penalized for arriving early at the terminal timepoint outbound or inbound since few riders are opposed to getting to their destination early. If all early trips were eliminated, every weekday route would have earned an LOS grade of A except for Routes 14 and 18, which would have earned an LOS of B and D respectively.

Thus, only Route 18 has a problem with too little running time, but it still has a (barely) passing grade. On Saturday, no routes ran late; all of the on-time shortcomings were due to buses running early.

Vehicle Revenue Miles and Boardings per Revenue Mile

Two additional performance measures that are traditionally used to assess the effectiveness of transit service are vehicle revenue miles and boardings per revenue mile. Boardings per revenue mile is a measure of productivity in transporting riders on various routes. Exhibit 33 provides a review of average weekday revenue miles and revenue hours operated by route. Routes 17 and 20 both had similar boardings per revenue mile, resulting in an equivalent composite ranking.

With just under 3 boardings per revenue mile, South Main Street is clearly the most productive route in the High Point Transit System, but other routes are also performing fairly well. Route 16 serves densely populated areas of the city, and with 2.4 boardings per revenue mile, has decent productivity. Conversely, routes such as Route 21 and Route 12 may be candidates for route enhancements or modifications to improve performance, or ultimately may need to be eliminated and resources reallocated to existing or new service, or facilities.

The complete boarding and alighting count for the High Point Transit System represented the SRTP's largest data gathering effort. Boarding and

alighting counts are the most intensive data gathering effort a system can conduct since it requires a counter to be on the bus during all hours of operation on a single day.

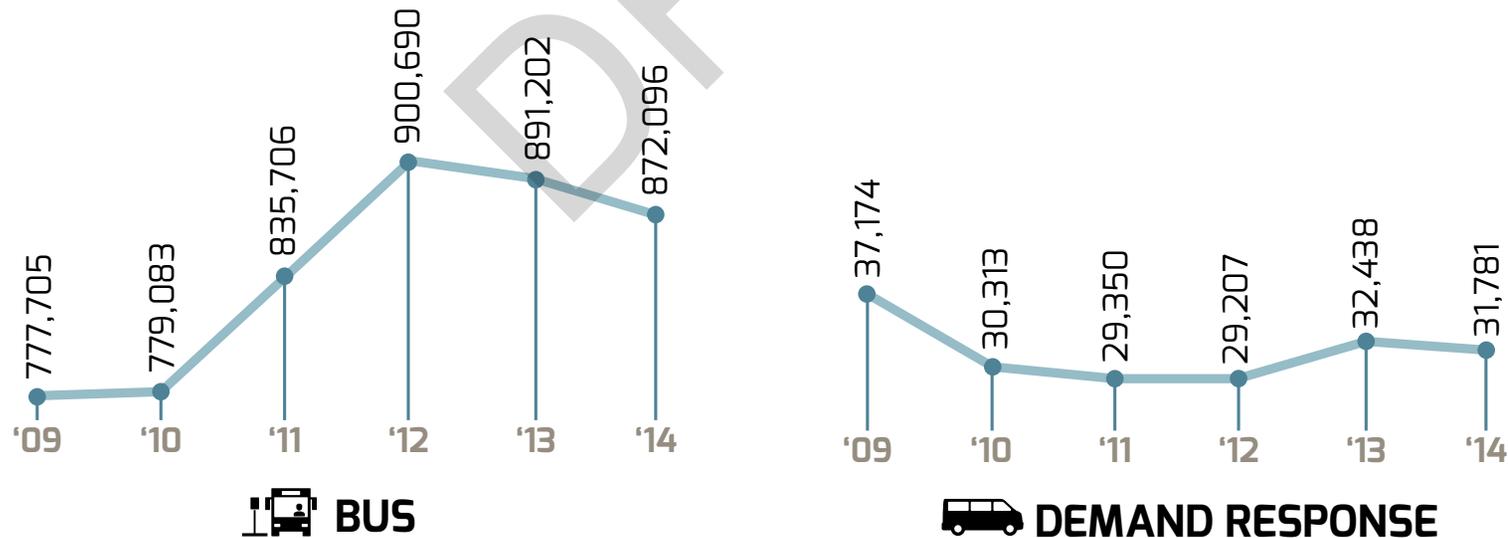
Most transit systems conduct these counts on an infrequent basis due to the labor effort required. The boarding and alighting counts were conducted during the week of September 18, 2013. During the count, the checkers recorded all boardings and alightings for each stop on a trip-by-trip basis. The running time for the routes was also recorded by noting the time for each trip as it passed a timepoint. The following sections detail the ridership findings of the check.

Annual and Daily Ridership Trends

Daily ridership, defined as total boardings, was recorded for each route. Alighting information was also recorded to identify active destination locations. The National Transit Database (NTD) allows for the tracking of various measures over time. Exhibit 34 shows the trends in High Point Transit ridership between 2010 and 2014, provided by NTD.

Overall, bus ridership has grown at a compounded annual growth rate of 4 percent, which is double the population growth rate from 2000 to 2010. The demand-response ridership has fallen considerably, which from

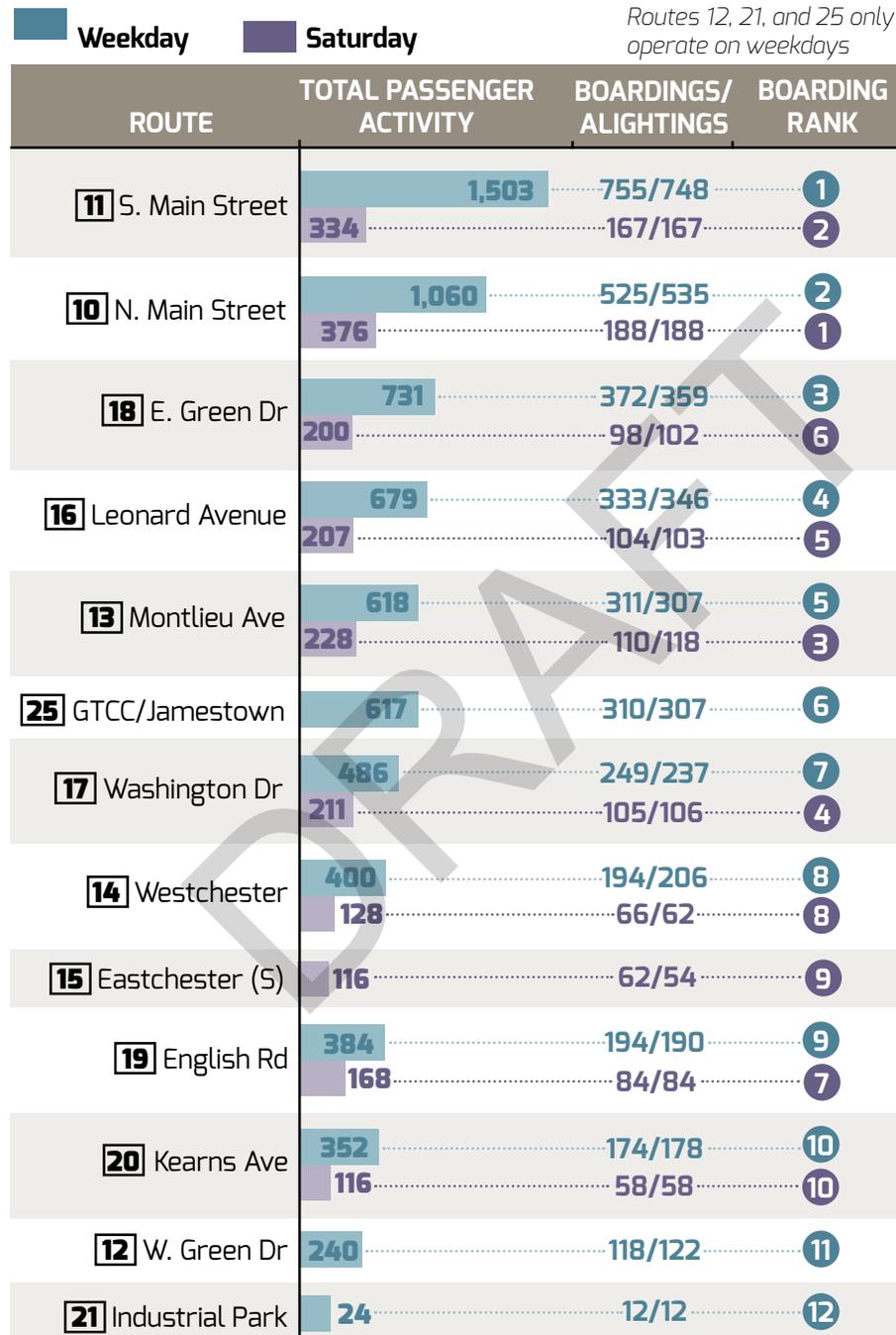
Exhibit 34: Historic Boarding Totals by Day of Week and Mode, 2007-2011



Source: National Transit Database, 2012

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Exhibit 35: Average Weekday and Saturday Transit Ridership, 2013



Source: City of High Point, Department of Transportation, Transit Division, 2013

a cost perspective is beneficial since this service is expensive on a cost per rider basis. Exhibit 33 shows the route-by-route results of the total count.

On Saturday, the total recorded ridership was 1,042, and the average Saturday ridership for FY2013 was 1,088 +/- 181 (17%). On a system-wide basis, the Saturday recorded ridership was within the expected range.

For individual routes, Route 11 was below its expected range, while Routes 13 and 19 were above their expected range. Exhibit 35 displays Saturday ridership levels.

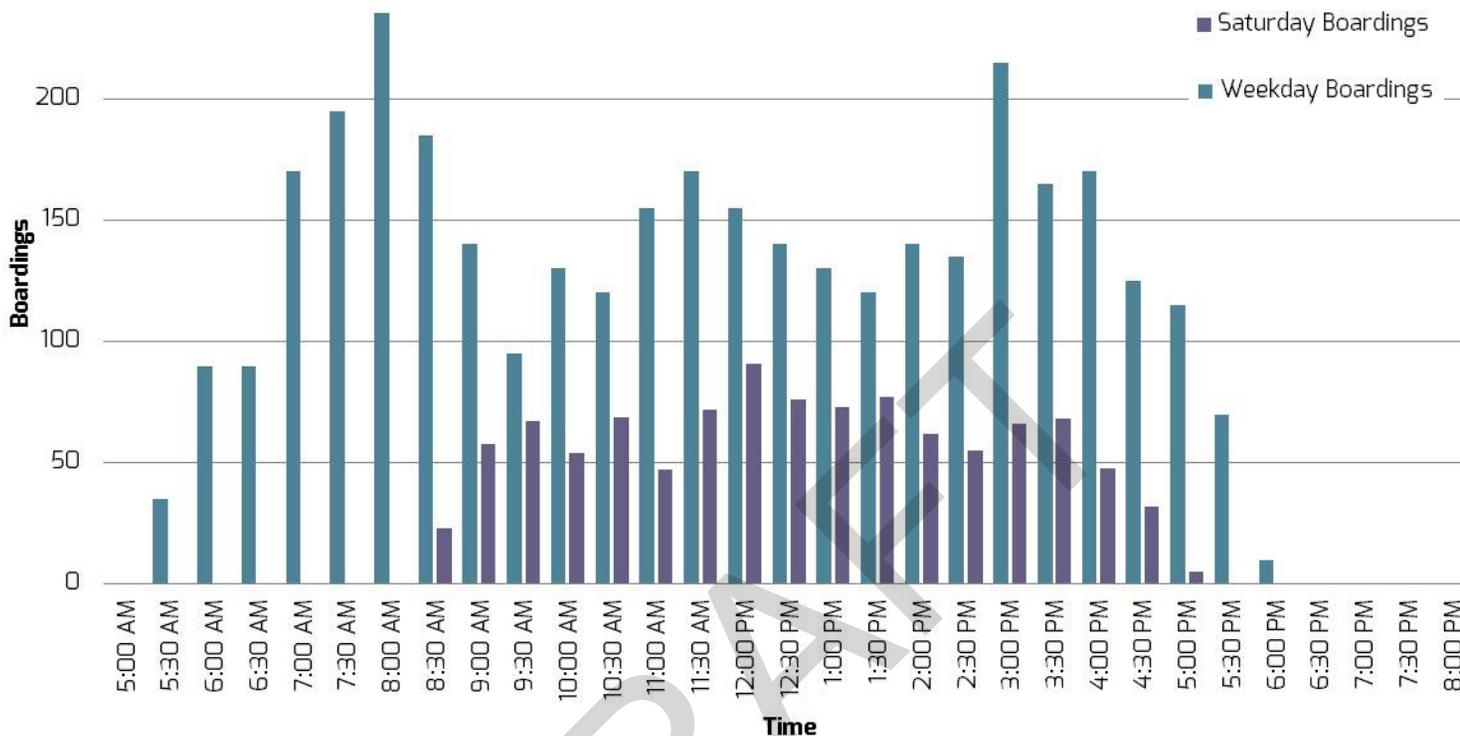
According to the count, the total ridership for all weekday routes was 3,547 daily boardings. This ridership level was compared with the farebox ridership counts from FY2013 to determine if the results were within the expected range.

For FY2013, the average weekday ridership (excluding holidays) was 3,288. Ridership varied plus or minus 446 (14%), which encompasses the recorded ridership from the boarding and alighting count.

On Saturday, the total recorded ridership was 1,042, and the average Saturday ridership for FY2013 was 1,088 +/- 181 (17%). On a system-wide basis, the Saturday recorded ridership was within the expected range. For individual routes, Route 11 was below its expected range, while Routes 13 and 19 were above their expected range. Exhibit 35 displays Saturday ridership levels.

Boardings by Time

Exhibit 36: Weekday and Saturday Average Boardings per Half Hour



Source: City of High Point, Department of Transportation, Hi tran, 2013

Trip level activity was analyzed to identify the ridership profile over the course of a typical operating weekday and Saturday. Ridership was analyzed based upon the start time of the trip, either at the Broad Avenue Terminal or the end of the line, and grouped into half-hour time periods. This analysis provides a view of when High Point Transit System riders are typically using transit.

Exhibit 36 depicts the profile for typical weekdays and Saturdays respectively. What can be seen is that ridership is highest during the traditional peak commuting periods, dipping slightly during the off-peak periods. Interestingly, there is a third “peak” that is observed during the midday period, which may be the result of students traveling between campus and home or work locations, or seniors using the bus network for medical, shopping, or recreational purposes. On Saturdays, ridership patterns appear to be relatively steady throughout the day, although

noticeably lower than ridership during weekdays, as would be expected. This could be the result of people traveling to work or for shopping and recreational purposes.

Of the weekday peak hours, 435 boardings occurred between 7:30 AM to 8:29 AM, or roughly 12 percent of the day’s total. Unsurprisingly, boardings in the afternoon peak period were more evenly spread across the typical peak periods, a result of the different times people begin or leave work most likely. On Saturday, the peak hour was from noon to 12:59 PM when 167 boardings occurred, approximately 16 percent of the day’s total.

Additional Boardings Information

Finally, as public transportation is increasingly becoming a link between non-motorized and motorized forms of travel, staff with the High Point Transit System maintains statistics on the number of persons boarding

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Exhibit 37: Passengers with Wheelchairs and Bicycles by Route

| Route | Passengers in Wheelchairs | Passengers with Bicycles |
|-------------------------|---------------------------|--------------------------|
| 12 (West Green Dr.) | 18 | 152 |
| 13 (Montlieu Ave) | 64 | 217 |
| 14 (Westchester Dr.) | 79 | 266 |
| 15 (Oak Hollow Mall) | 2 | 17 |
| 16 (Leonard Ave.) | 111 | 136 |
| 17 (Washington Dr.) | 84 | 56 |
| 18 (East Green Dr.) | 239 | 354 |
| 19 (English Rd.) | 32 | 111 |
| 20 (Kearns Ave.) | 22 | 37 |
| 21 (Industrial Park Sp) | 1 | 2 |
| 25 (Jamestown/GTCC) | 89 | 245 |
| 10 (N Main St - Wkdy) | 230 | 490 |
| 10 (N Main St. - Sat) | 19 | 65 |
| 11 (S Main St. - Wkdy) | 439 | 659 |
| 11 (S Main St. - Sat) | 61 | 74 |
| GUARANTEED RIDE HOME | - | - |
| Totals | 1,490 | 2,881 |

Source: City of High Point, Department of Transportation, Transit Division, 2013

vehicles using mobility assistance devices and with bicycles. Exhibit 37 provides an overview of wheelchair boardings and boardings by persons bringing bicycles by route.

3.6 Demand-Responsive Service Assessment

As discussed in Chapter 2, the High Point Transit System operates curb-to-curb demand response (commonly referred to as 'paratransit') services as part of its public transportation network. Demand-response services take two forms: ADA-compliant service, and general demand-responsive service. The distinction between these two types of services are that ADA-compliant service must be offered within three-quarters of one mile from any fixed-route bus service, while general demand-responsive service is offered city-wide. Demand-responsive services, known locally as Dial-a-Lift, support a variety of human service and medical transport needs, including trips to grocery stores, pharmacies, educational institutions, and medical facilities. As with the fixed-route system, all Dial-a-Lift demand-responsive services are provided in-house.

Financial support for demand-responsive services is provided by federal and state-aid funding programs, each of which has its own service requirements, along with fares collected from riders. However, because the two services are coordinated, trips on Dial-a-Lift are made using the same vehicles. The High Point Transit System has a fleet of six demand-responsive light duty transit vehicles. Each cut-away van is equipped with a wheelchair lift and restraints for standardized wheelchairs, and each fixed-route vehicle is equipped with ADA-compliant low-floor wheelchair bridge plates, kneeling capabilities, and standard wheelchair restraints.

The High Point Transit System's demand-responsive service is an advanced reservation, origin-to-destination transportation service, providing curb-to-curb transportation for eligible residents (age 60 and above and persons with disabilities) within the jurisdictional limits of the City of High Point. The

service operates on a schedule that mirrors the available fixed-route service provided on weekdays and Saturdays. While same-day travel is available, all trips must be booked in advance between the hours of 8:00am and 5:00pm Monday through Saturday. Service is not available on Sundays. Ride requests may be made up to two weeks in advance of travel. Cancellations must be communicated at least two hours in advance of the scheduled pick-up time. A cancellation made less than two hours in advance are categorized as late cancellations or insufficient notice.

Demand-responsive service is available to City of High Point residents and visitors whose disabilities or health conditions prevent them from using Hi-Tran's fixed-route buses. All eligible persons must register for service in advance. Visitors must also register for services with Hi-Tran and show proof of eligibility for similar services at their home location.

The High Point Transit System is responsible for determining client eligibility, scheduling trips, dispatching vehicles and operating service. Fares for service are \$2.00 per person each way (or twice the base fixed-route cash fare, the maximum allowable by ADA). Personal care attendants may accompany a passenger at no extra charge. Service animals are also permitted.

Exhibit 38. Demand Responsive Performance Trends

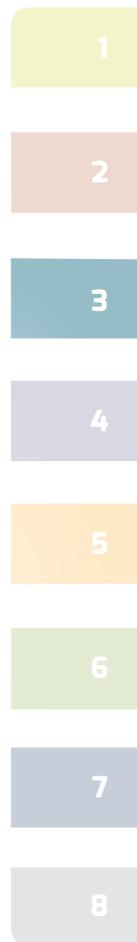
| Performance Indicator | FY2012 | FY2013 | FY2014 ³ | FY2015 (projected) | Percent Change (FY12-FY14) |
|-------------------------------------|-----------|-----------|---------------------|--------------------|----------------------------|
| BASE STATISTICS | | | | | |
| Ridership | 29,207 | 32,438 | 31,781 | 32,000 | 8.8 |
| Vehicle Service Hours | 11,147 | 10,308 | 10,431 | 10,500 | -6.4 |
| Vehicle Service Miles | 121,889 | 126,083 | 119,650 | 120,000 | -1.8 |
| Fare Revenue¹ | \$56,893 | \$60,796 | \$60,050 | \$59,000 | 5.0 |
| Operating Costs | \$577,653 | \$613,793 | \$463,965 | \$520,000 | -19.7 |
| PERFORMANCE | | | | | |
| Passengers/Hour | 2.6 | 3.1 | 3.0 | 3.1 | 15.4 |
| Passengers/Mile | 0.23 | 0.25 | 0.27 | 0.27 | 17.4 |
| Average Fare | \$1.95 | \$1.87 | \$1.89 | \$1.84 | N/A |
| Farebox Recovery² | 9.8% | 9.9% | 12.9% | 11.3% | 31.6 |
| Cost/Hour | \$51.82 | \$59.55 | \$44.48 | \$49.52 | -14.2 |
| Cost/Trip | \$19.78 | \$18.92 | \$14.60 | \$16.25 | -26.2 |
| Subsidy/Trip | \$11.50 | \$12.02 | \$11.49 | \$12.66 | -0.1 |

Source: City of High Point, Department of Transportation, Transit Division, 2014

¹ Excludes reported non-transportation revenues

² Percentage of operating cost

³ FY 2014 numbers shown may reflect fourth quarter YTD data; final FY2014 data is not yet available



Dial-a-Lift Performance Assessment

Generally speaking, Dial-a-Lift demand-responsive service is operating well. Exhibit 38 summarizes the performance of Hi Tran's demand responsive services over the past three fiscal years. As shown, ridership has generally remained constant, although slight fluctuations are noted. Service hours and service miles provided have also remained consistent across the past three fiscal years. A good measure of productivity is average fare paid, which is generally in line with total ridership. Average fares paid below \$2.00 suggests a minimal number of free rides or rides provided below the base fare are being granted.

Each of the numbers shown in Table Exhibit 38 generally reflect a steady state of service operations, but may be indicative of certain trends. First, it may be that the population of elderly and disabled persons eligible for service has remained relatively constant in the past few years. But with an increase of 8.8 percent in ridership, it is reasonable to assume that demand-responsive ridership will gradually increase in High Point. With expansion of the fixed-route service area to the Palladium/Deep River, it will be necessary to expand the demand-responsive service area if it is not already provided to the northeast region of High Point.

3.7 Summary of Key Findings

Based on the analytic evaluations considered as part of the SRTP's market and needs assessment, the project team identified a series of objectives and characteristics that should be carried forward to the scenario development phase. In summary, service improvements may consider the following findings:

Emphasize service efficiency. Overall, the High Point Transit System is an efficient transit service, reaching many of the markets most in need of service, and any proposed changes should seek to capitalize on this strength.

Service levels are generally appropriate for the markets currently served, although additional investments are warranted along key local bus routes such as Routes 10 and

11 that may encourage additional ridership. Expanding the span of service later into the evening hours will become a necessity.

Focus on emerging markets. While the focus of the High Point Transit System fixed-route service has been on downtown High Point, there are emerging markets that demonstrate a strong need for transit service based on increasing employment, specifically the Palladium/Deep River district.

Increase geographic coverage. Budgetary issues have caused the High Point Transit System to focus on geographic coverage in service plan, with increasingly limited availability in terms of the number of service hours operated. The High Point Transit System primarily serves a market of travelers that depend on bus service for basic travel needs. As a result, the bus route network needs to provide broad geographic coverage.

Extend service spans. In order to attract new riders, or increase overall system productivity, it is recommended that the High Point Transit System consider extended service spans, particularly in the evening hours, and enhancing frequency along key system routes that carry the bulk of system passengers daily. In order to accomplish this, additional financial resources will need to be available for service operations.

Simplify routes. The existing High Point Transit System network is fairly simple, although some routes could be simplified in route design. Routes could be simplified by making them direct connections between major destinations. Straightening the routes would have the benefit of not only being easier to understand for the passengers but would also make the routes easier to schedule and operate, thereby making the service faster, more reliable, and more efficient.

Reduce route size. Related to simplifying route structures, the more that can be done to reduce the size of end-of-line loops, particularly Routes 10 and 11, will significantly save operating cost and could also reduce travel times for passengers.

Eliminate route competition. Competition between bus routes should be eliminated. Currently, the High Point Transit System network includes several bus routes that operate in parallel travel corridors that are sometimes less than one city block apart. This type of route spacing encourages internal competition between routes, leading to lower productivity. As a result, the routes end up competing with each other and reducing the overall coverage of the bus network. Instead, services should be designed as a series of orchestrated, complementary network of routes that provide transfer opportunities and better crosstown coverage.

Modify Demand-Response Service Eligibility Requirements. It is recommended that consideration be given to modifying the service eligibility requirements for demand-responsive service. In particular, consideration should be given to increasing the eligibility age of participants from 60 to 65. Tightening service eligibility standards will temporarily stem the growth in overall demand, and encourage persons who require transit for basic mobility to use fixed-route services. It is advised that any increase in the eligibility age should not adversely affect currently eligible participants below a new minimum age threshold; therefore, persons aged 60 years and over who are now program participants should continue to be eligible for demand-responsive services. This new service eligibility requirement would apply to new applicants only.

Institute a Travel Training Program. A travel training program may be beneficial to encouraging the use of fixed-route services by persons who currently use Dial-a-Lift services that may be physically capable of using the fixed-route bus network. Increasingly, transit agencies across the country are incorporating transit travel training programs as part of the services they offer, targeted specifically to seniors and persons with disabilities. Educational programs at senior centers or assisted living and care facilities where a transit agency representative can directly demonstrate how to board a bus vehicle and pay a fare has been proven as a method of encouraging persons to use fixed-route services.

Improve pedestrian infrastructure. Finally, the lack of pedestrian infrastructure presents a significant challenge to the High Point Transit System operations, and is a reason why some persons who may be incapable or uncomfortable taking fixed-route services rely more heavily on demand-responsive services. Design standards and warrants for bus stops should be developed that specify the type of infrastructure at stops, locating stops where suitable sidewalks are currently located or are planned to be located as part of a development, and at high boarding and alighting locations.

Additionally, safety enhancements (e.g. quick call buttons to security or police services) should be made at high boarding and alighting locations, particularly if service is offered later at night.

SAFETY

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¹ Note: Ridership surveys did not distinguish between ADA and Non-ADA demand responsive trips; all demand responsive users surveyed were administered the same survey.

² Note that corrective action does not mean eliminating a route entirely. Corrective actions can include adjustments to service span, modifications in frequency, alterations to bus stop locations, or other measures.



Chapter 4.0

4.0 DEVELOPMENT OF ALTERNATIVE TRANSIT SERVICE OPTIONS

The alternative service scenarios identify the types of transit services, facilities, and features that are needed to support a multi-modal transportation system in the City of High Point.

The initial steps included understanding the performance of existing system, identifying strengths and weaknesses, evaluating opportunities, and developing an understanding of what the community would like to see their transit system become in the future. The second step in this process was the development of alternative routing patterns and service that provide the strategic direction for the future system.

The following discussion presents the alternative service scenarios developed and considered during the planning phases based on the quantitative data reviewed and the input received from High Point Transit staff, project stakeholders, and members of the public at-large.

One important component of the planning process was a workshop conducted with current High Point Transit drivers who provide valuable information on service operations and performance. This effort also includes a broad, policy-level discussion for how the High Point Transit System should structure, operate, and manage the future

transit network, as well as more detailed recommendations on where, how, and when routes should run.

Thus, the project team developed service options that both set the broader strategic direction for service delivery and provide options for how this could be applied.

4.1 Service Design Principals

High Point Transit strives to serve as many of the City of High Point's residents, workers, and visitors as possible with the budget and resources that are available. As with most public transportation systems, this often means balancing between competing demands of a wide variety of riders. For example, many transit users desire frequent service that enables flexibility in their travel schedule. At the same time, many riders express a desire for longer spans of service (e.g. hours of operation).

Finally, a goal of many transit agencies and public leadership is to ensure access to the transit network, thereby desiring sufficient geographic coverage of the city's transit network. Thus, in order to achieve the community's expressed desires for transit service (described above) while staying within budget, tradeoffs are required to balance desires and funding realities. However, underlying all service design principals is the desire to provide the most effective service with the available funding.

In developing the service scenarios and recommendations, several guiding principals were used. These principals were vetted by the project Steering Committee and Sounding Board. Given the limited financial resources available for operations, the project team discussed service development scenarios in consideration of the High Point Transit System's target market and available resources.

Collectively, the team discussed the characteristics of successful transit systems and service design principles, aided in part by the peer system analysis completed as part of the planning effort. Many of these principles arose as priorities of riders during the various public outreach processes. As routes were restructured during the planning process, the team tried to incorporate each of these principals, sometimes having to find balance between competing principles.

- » Focus on the customer
- » Keep service design simple
- » Provide door-to-door service
- » Avoid internal competition between system routes
- » Maximize opportunities to connect with other services
- » Service should be consistent and reliable
- » Bus routes should serve defined markets

The intent of these principals is to maintain service to the areas that are most used while guiding service investments to emerging markets in effort to maximize service productivity, and to make the service easier to understand and attractive to new riders. These principals are also intended to reflect the guidance, goals, and vision expressed in local and regional plans, such as the Community Growth Vision Statement and the Core City Plan, to help ensure the transit system further emphasizes the community's growth vision and the creation of a complete transportation network.

4.2 Core Service Network

At the start of the service planning process, the project team sought to identify the “core services” of the High Point Transit System network. Core services generally refer to the “backbone” of the service network. These are routes and/or corridors with the greatest levels of transit productivity (e.g., ridership). Identifying the core services of a network helps to inform routes that may warrant increased service levels, linkages to other system routes, and how service levels of connecting routes might pivot off of the service characteristics of these primary routes.

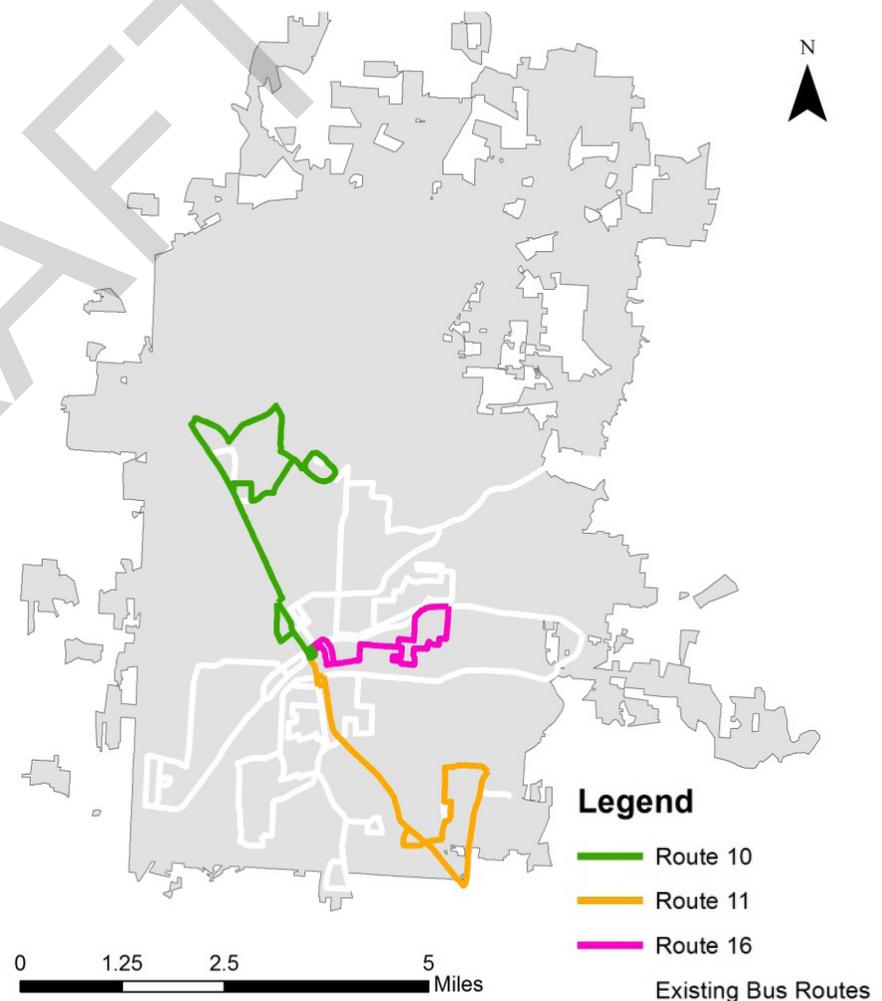
The goal of this effort is to help the High Point Transit System balance available resources to maximize cost and mobility efficiencies so both the high demand corridors and the high need areas receive appropriate levels of service. Once identified, the corridors and bus routes were carried

forward and incorporated into the design of different operating scenarios, and the evaluation process also considered how well these corridors would be served. The primary corridors and corresponding bus routes are identified below:

- » Route 10 North Main Street
- » Route 11 South Main Street
- » Route 16 Leonard Avenue

These corridors are illustrated in Exhibit 39 below.

Exhibit 39. Hi-Tran Core Service Network



4.3 Development of Alternatives Service Scenarios

Working within the framework of the service design principles and key corridor routes discussed above, and in consideration of available performance data, the specified goals and vision statements articulated by High Point Transit staff, project stakeholders, and the public, the project team developed alternative service scenarios for the future High Point Transit System fixed-route bus network.

As noted, modifications to bus routes in each service scenario were made in careful consideration of a route’s current ridership patterns to minimize disruption to current system users. The service scenarios also considered emerging population and employment growth areas, densities, and emerging travel needs. A number of strategies were used to scale each service scenario, including applicable operating costs and vehicle needs. These strategies included:

- » Elimination of underperforming routes
- » Changing route lengths
- » Consolidating overlapping services

- » Adjusting service frequencies
- » Modifying hours of operation

Each of the service scenarios developed revolved around the “hub and spoke” approach to service planning, a function of the pulse-based system and the operational importance of the Broad Avenue Terminal. The High Point Transit System’s current operation as a pulse-based transit network places a strong emphasis on round trip travel times. Each route is generally designed to travel 15 minutes in the outbound direction, and 15 minutes in the inbound direction.

As discussed, the majority of local routes provide 30-minute headways during the morning and afternoon peak travel periods, and hourly service during the midday off-peak time period. The High Point Transit System’s core network routes, identified above, all currently operate at 30-minute headways on weekdays. The following key assumptions were made in the development of the fixed-route service scenarios:

- » Funding for High Point Transit would stay consistent with current levels, and no new funding would be available to the system for operations costs.
- » The radial, “pulse”-based operating structure would remain.
- » The Broad Avenue Terminal would continue to serve as the operations center for all fixed-route services, but that no capital improvements would be made to this facility.

Given the limited availability of current financial resources, each service scenario was developed under a fiscally constrained neutral funding scenario. This assumes that funding levels will remain constant over the life of the SRTF, with no additional financial resources made available for service operations.

Challenges to Service Design

There are several significant challenges that influence service design in High Point. These include (but are not necessarily limited to):



Public outreach

Outreach and engagement activities included a public open house and comment period. In total, approximately XX persons participated in the public meetings, and over XX written comments were received on the scenarios. The input given by the public helped guide the project team as they developed the service scenarios.

- » **Closure of Montlieu Avenue:** A critical challenge affecting service development and design is the closure of Montlieu Avenue between College Drive and Centennial. This portion of Montlieu Avenue was strategically important to transit operations as a linkage between residential neighborhoods and civic institutions on the east side of College Drive with downtown. The closure constrains crossing locations of College Drive, and forces duplicative service operations in this region.
- » **Circuitous Street Network and Street Design Standards:** The circuitous street network results in transit traveling on more circuitous paths. This increases operating costs, particularly in areas with minimal development and low ridership productivity. While the street network will not change in the immediate or long-term future, designing a system that provides the most point-to-point service helps to minimize operating cost and improve expediency of service. Also, as upgrades to street infrastructure are made, opportunities may be possible for larger bus vehicles to serve streets that currently are not designed to physically support larger vehicles, or are not wide enough for larger vehicles to operate along.
- » **Limited Pedestrian Infrastructure:** As noted, the lack of sidewalks presents a significant challenge to service productivity, particularly at stop locations. All transit users are pedestrians at one point of their trip. Therefore, underlying pedestrian infrastructure is important to the operation of transit service, enabling passengers to safely board and alight transit vehicles and connect with destinations along a route without having to walk in the street.

4.4 Evaluation Process

Each of the service scenarios were evaluated in effort to identify strengths, weaknesses, and opportunities in light of the goals, vision, and needs expressed by stakeholders and the public. High Point Transit staff also reviewed the scenarios in greater detail and in consideration of agency operations. This review also provided ideas for improvements and changes. In evaluating each scenario, elements of different scenarios were at times combined to form a new service scenario for consideration. This iterative review process was conducted in effort to identify the future service scenario that best satisfied the goals for the future fixed-route service network.

As part of the evaluation process, the Steering Committee and Sounding Board were asked to review the proposed service scenarios during two workshops. Other outreach and engagement activities included a public

open house and comment period. The meetings were advertised publically in local newspapers, direct-messaging emails to stakeholders and the study's contact list. In total, approximately XX persons participated in the public meetings, and over XX written comments were received on the scenarios.

4.5 Service Scenarios Considered

Guided by the expressed goals for future service expressed by community leaders, the service design principles articulated above, and these assumptions, the following service scenarios were developed and considered. The consultant team and staff conducted two planning workshops to review the route structure for the High Point Transit System with the primary purpose to identify operational efficiencies while trying to provide the most effective service possible to current and future High Point Transit System riders.

Service Scenario 1

An initial service scenario was proposed that organized bus routes into a “hierarchy of routes,” and focused on frequency and service span enhancements. Modifications were made to route alignments to focus on primary activity centers and high boarding/alighting locations. Under this scenario, Routes 10 and 11 would be designated and branded as “trunk routes” serving the North and South Main Street corridors.

These routes would operate at 20 minute or better frequencies during the weekday peak travel periods, and at 30 minute frequencies during the off-peak periods. Additionally, the service hours and number of daily trips would also be increased along these routes. The concept assumes that all other routes will continue to operate at 30 minute headways during the morning and afternoon peak periods and 60 minutes in the off-peak periods to minimize additional operating expenses.

Other routing pattern changes included the re-design of Route 13 to connect downtown High Point with the Palladium/Deep River region. This route was envisioned to serve the Centennial and Eastchester/State Route 68 corridors as a peak period express service with some midday and late evening trips, intended to align with shift working hours.

As a new service type, this scenario would convert Route 17 into a crosstown service, connecting several activity centers in northern and eastern High



Point, and linking with several routes. This service would replace service between Centennial Street, Eastchester Drive, and Lexington Avenue currently served by Route 13, and addresses many crosstown service requests, but will pose some cycle timing challenges to match up with the pulse-based schedule.

Finally, this service scenario consolidated some of the routes on the south side of High Point in effort to minimize costly overlap between services¹. Currently, service is provided on many streets in south and east High Point that is roughly one-third of one mile (or less) apart from each other, resulting in duplicative service coverage without providing more frequency for the users. Duplicative service results in an oversaturation of transit service, competition between routes for riders, lower overall performance, and costly uses of resources that could otherwise be reinvested.

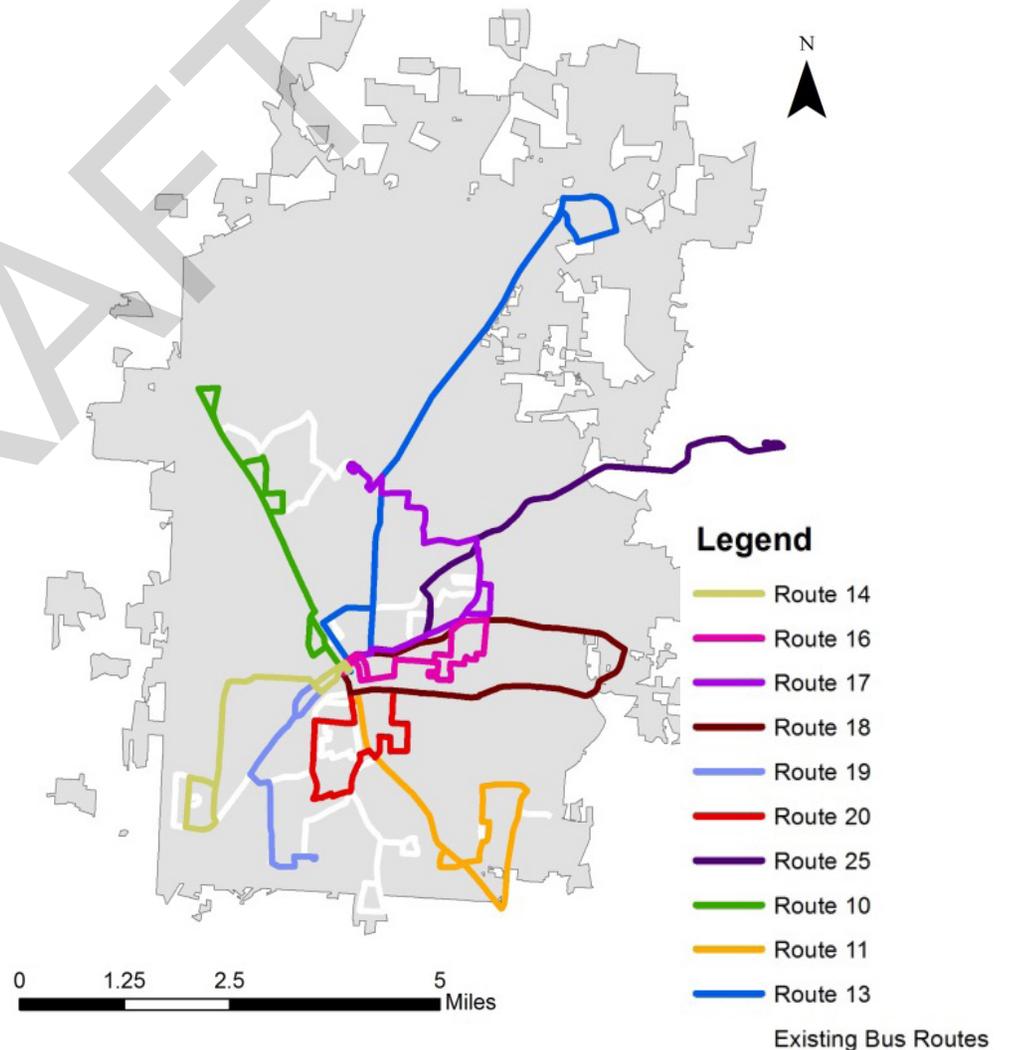
Under this scenario, Routes 12 and 21 would be eliminated, but coverage would be provided to the areas of south High Point that demonstrated good transit productivity. Route 19 would continue to serve English Road between downtown and Ward Avenue, but turn east on Ward Avenue and subsequently south on Prospect Street to serve neighborhoods and businesses in south High Point. Route 20 would be modestly changed to provide service on West Green Drive, but continue to serve much of the same routing pattern made currently.

The cost savings accrued from the elimination of Routes 12 and 21 on weekdays were subsequently reinvested into the High Point Transit System to fund the extension of service

to the Palladium/Deep River region, and used to pay for extensions of other routes, frequency or span enhancements. Given the tight pulse-based schedule, this service scenario attempted to design routes in order to maintain their current schedules and to provide some cycle time that could be used to extend service to new areas.

Exhibit 40 illustrates this service scenario.

Exhibit 40. Service Scenario 1



Service Scenario 2

Following the development of the first service scenario, a presentation of this routing structure was made to High Point Transit staff and a joint meeting of the Steering Committee and Sounding Board. While the committee members concurred with the notion of improving service frequency along key corridors including North and South Main Streets, concerns were raised regarding the elimination of portions of routes serving geographic areas of the city.

Specific concerns focused on the elimination of Route 10 between North Main Street and the Oak Hollow Mall, where the route provides east-west service along Johnson Street and Oakview Road. Questions regarding service eliminations in southern High Point were also raised. However, as noted in Chapter 3, this region has limited market potential, and is perhaps better served by a commute solution vanpool type service that better aligns with travel times of shift workers at manufacturing businesses.

There is insufficient residential or employment density to justify fixed-route service beyond where the service is planned. Also, comments were received regarding the lack of service to west High Point, particularly along Lexington Avenue to Westchester Drive. In general, members of the Steering Committee and Sounding Board voiced their preference for geographic coverage and enhanced service span over improving service frequency.

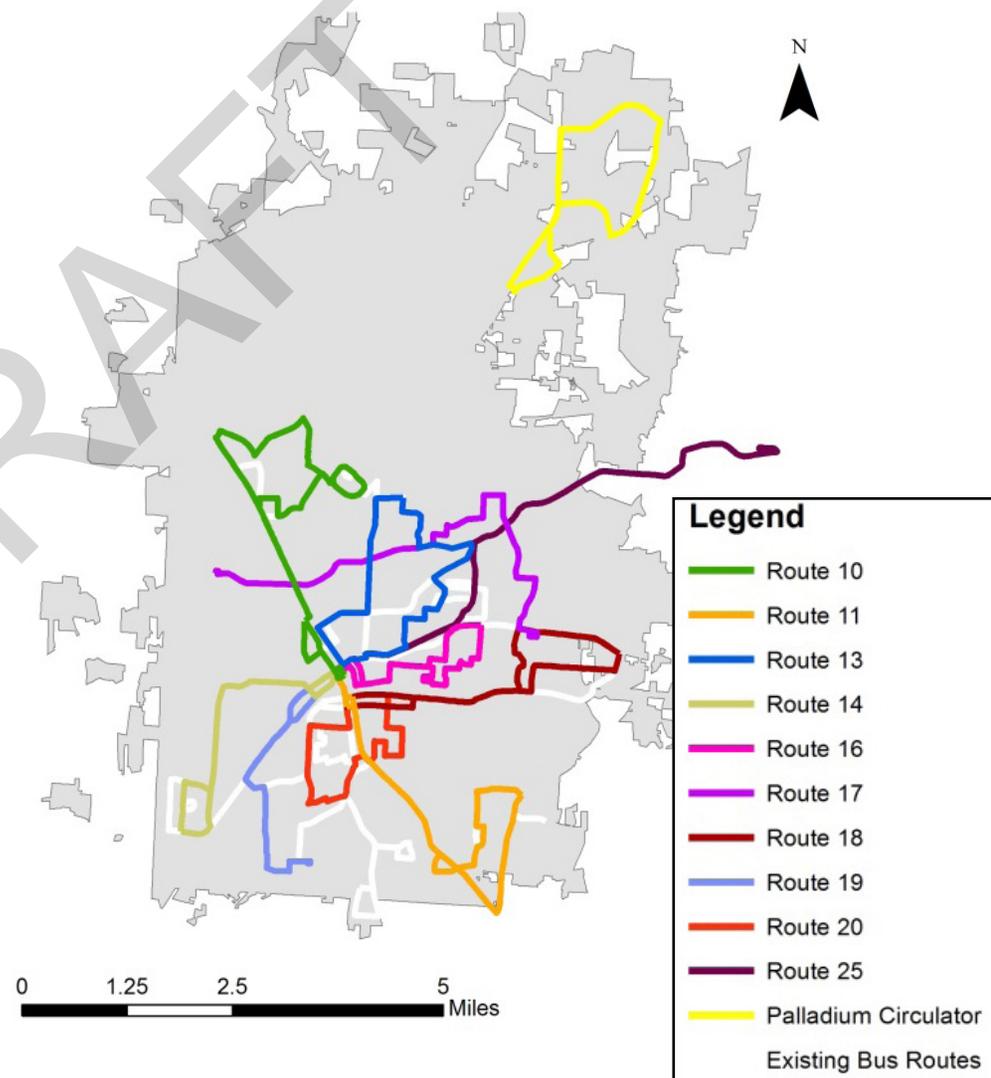
Based on the comments received, a second service scenario was developed that prioritized geographic coverage over frequency. Under Service Scenario 2, Route 10 would return to its current routing pattern, and not be extended to the PART park-and-ride and Aldi Shopping complex near the interchange of Main Street/Route 311 and Interstate 74. Routes 10 and 11 would operate at 30 minute service throughout the day. Route 17 would become a true crosstown route, referred to locally as the “West Lex” connector route. This would provide service into west High Point, currently unserved.

Unlike current services that pulse out of the Broad Avenue Terminal, Route 17 would not connect with this facility under this operating plan, instead allowing passengers to transfer to other routes that would provide service to downtown. Route 13

would be realigned slightly to provide service to neighborhoods Route 17 currently serves on inbound trips.

Perhaps the most significant change would be the establishment of a circulator service in the Palladium/Deep River district. Rather than operating from downtown, as Service Scenario 1 suggested, the connection between downtown High Point and the Palladium would be made by PART service that currently operates along Centennial and Eastchester

Exhibit 41. Service Scenario 2



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Drive. This service operates at 30 minute frequencies during the peak travel periods, and hourly in the off-peak periods. A shortened circulator service operating in the Palladium district exclusively could operate twice as much as a service connecting this region with downtown. However, this would require passenger to transfer between services, something that could pose a challenge if fare structures are not integrated to offer a free transfer.

Finally, modifications were explored to Route 18 under this scenario, although they would also be possible under Service Scenario 1. Outbound trips on Route 18 would serve Russell Avenue, turning onto East Green Drive and continuing out to the Union Hill Elementary School. The thought is to provide additional service southeast of downtown, where recent multi-unit housing developments have been constructed and several social service organizations are congregated.

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¹ All transit services are produced and scheduled according to service demand. Service duplication occurs when two or more transit routes operate on the same or parallel roadways during the same revenue service hours and serve common origins and destinations. In some cases, service duplication is desirable or unavoidable. However, the cost and resource utilization associated with providing parallel or duplicative service can increase the risk of marginalized rates of return with respect to system ridership and ridership growth potential, resource allocation, and revenue generation or investment return.

Chapter 5.0

5.0 RECOMMENDED SERVICE SCENARIO

The purpose of the SRTP is to identify a series of service, facility, and technology investments to guide the High Point Transit System's growth over the coming years. This chapter describes the recommended fixed-route service scenario and capital improvements for the High Point Transit System over the next five year period. Recommendations for service modifications are made for every route in the system. These changes are based on the data collected, analyzed, and discussed in Chapters 2 through 4.

The recommendations presented are based on the best information available at the time of the SRTP's development, and are made solely as recommendations to be incorporated in the High Point Transit System operating program as funding permits. Therefore, the recommendations outlined herein should not be viewed as requirements of the City of High Point; rather, this document, and the recommendations made, should be viewed as a living document.

As circumstances change, this plan is intentionally designed to provide flexibility in its application in order to respond to changing financial conditions and service needs.

5.1 Fixed-Route Service Recommendations

The fixed-route service scenario discussed below includes recommendations for a clear service hierarchy that would create a set of core services the rest of the network could build around in the future. As stated, a goal of the SRTP was to reduce internal service competition, duplication and redundancies in the network, and provide a clear and simple strategy for addressing service in High Point that strengthens connections between local and regional destinations.

The fixed-route service scenario recommends eliminating unproductive routes, reinvesting resources into routes that warrant investment, straightening routes, and scheduling services according to consistent headways. Simplifying the service structure also creates a system that should be easier for the High Point Transit System to expand or contract as budgets require, while also focusing on core services that must be maintained for mobility across the city.

Simplifying the service structure creates a system that should be easier for the High Point Transit System to expand or contract as budgets require, while also focusing on core services that must be maintained for mobility across the city.

The following pages present the types of services that could be implemented in High Point in response to unmet transit needs and the system envisioned by members of the community, discussed earlier in the plan. It is recognized that this document proposes an ambitious vision for transit in the region, and that implementation is dependent on the availability of federal, state, and local funding. Nonetheless, it is important to set forth an outline of the steps needed to achieve it.

The more practical and applied aspects of the SRTP recommendations include guidance for how the High Point Transit System should organize and structure its services. This section does not include detailed service

plans for improved services; these will be developed by the system service planners as funds/resources become available for implementation.

The primary recommendations for the future fixed-route network include re-aligning the High Point Transit System's current radial service design into a model developed around a series of radial Key Local Bus routes that operate as "backbones" or trunk system routes. These routes would operate at higher frequencies with longer weekday spans of service as compared to other local routes, dependent on funding availability. These Key Local Bus routes connect with one another and all other system routes. The approach accomplishes several things including:

- » Provides an easier service to use for existing and future riders.
- » Most riders are currently within one-quarter mile of a transit route and will still be within one-quarter mile of a transit route under the proposed changes.
- » Straightening routes and eliminating redundancies in route patterns and services will help eliminate internal competition among routes for riders and improve operating cost efficiencies.

Evaluating Service Types

Not all routes are equal in service design and performance. A route connecting a lightly populated rural area with an urban area would be expected to carry fewer passengers and require fewer trips compared to a route that serves a densely populated urban area. The SRTP process makes sure to take that difference into account.

Exhibit 42. High Point Transit System Service Types

| Service Type | Description |
|------------------------------------|--|
| Local Bus | Traditional fixed-route transit bus service that generally operates on arterial roadways. Except where there is limited development, passenger stops are typically posted on frequent intervals to maximize passenger access. |
| Limited Stop | Characterized by limited stop, high frequency, all-day service. Generally operates on arterial roadways with a limited or infrequent number of passenger stops. The limited stop configuration provides for increased operating speeds. This service can be operated as an overlay service within a corridor or roadway that is served by one or more other service types as demonstrated by service-demand studies. |
| Demand Response¹ | A transit mode comprised of vans or small buses operating in response to calls from passengers or their agents to the transit system, who then dispatches a vehicle to pick up the passengers and transport them to their destinations. This service type is often used to comply with Americans with Disabilities Act (ADA) requirements for complementary paratransit service to qualifying persons. |

¹ It is important to note that while the High Point Transit System's demand response Dial-a-Lift service is among the suite of service offered, the characteristics of this service type do not always align with the fixed-route services offered. As a demand-responsive service, a standard for minimum operating frequency does not apply.

- » Opens service to new markets and starts to address gaps in the current service network, especially the Lexington Avenue corridor and the Palladium/Deep River region.

Service Hierarchy

Transit services are typically designed to meet specific mobility objectives or serve distinct markets (e.g. serve commuter work trips, connect neighborhoods to local destinations, or provide communities with access to urban services). There are multiple service classifications that are commonly referred to as “service types.” Service types may be applied to help meet a transit provider’s objectives or serve specific markets, and specify the appropriate level of service in effort to satisfactorily serve a market without overinvesting in service. It is essential to identify distinct service types due to a fundamental difference in the expected level of service (service standards) and performance (performance measurement) of each route. For example, a route connecting a lightly populated rural area with an urban area would be expected to carry fewer passengers and likely require fewer trips to meet community needs as compared to a route that serves a densely populated low-income and low-auto ownership urban/suburban area, where transit is the primary form of motorized mobility.

The High Point Transit System currently provides two types of local fixed-route bus service along with demand responsive service. The two types of fixed-route service include regular local routes and limited-stop service. The Route 21 - Industrial Park is the only limited stop services; all the other routes are regular fixed-route local services. Exhibit 42 describes the current service types used by the High Point Transit System.

As part of the SRTP process, routes were grouped by service type to describe similar services provided. These groups are designed to permit evaluation of a given route relative to the performance of similar routes within the system. This approach avoids the difficulty of comparing routes with fundamentally different designs, purposes, and operating characteristics.

Recognizing that not all routes are equal in service design and performance, it is recommended that two additional service types be considered for addition to the list above to acknowledge the characteristics and performance of those routes that regularly outperform other routes in the High Point Transit System network. Three bus routes, Routes 10, 11, and 16, are considered Key Local Bus routes serving High Point.

These routes have strong overall productivity on a daily and annual basis, and are deserving of additional investment in the future for enhanced service frequency and span specifically, as funding permits. These routes functionally serve as the “backbone” of transit service in High Point, upon which all other routes may be designed around to help transport people across the city.

In addition to identifying Key Local Bus routes, a Crosstown or Crosstown Connector service classification should also be considered. Several requests were received for crosstown service and additional connections. As such, a service modification is proposed for Route 17 that would have this route operate as a crosstown service through central-north High Point, establishing connections to Routes 10, Route 13, and Route 25.

The purpose of this modification is to improve crosstown travel without requiring passengers to travel to downtown High Point and transfer at the Broad Avenue Terminal. Instead, passengers could make connections to multiple system routes that may expedite their travel.

Exhibit 43. Recommended Service Classification

| Route | Service Classification |
|-------|------------------------|
| 10 | Key Local |
| 11 | Key Local |
| 13 | Local |
| 14 | Local |
| 16 | Key Local |
| 17 | Local |
| 18 | Local |
| 19 | Local |
| 20 | Circulator |
| 25 | Local |
| PDC | Circulator |



Fixed-Route Service Adjustment Recommendations

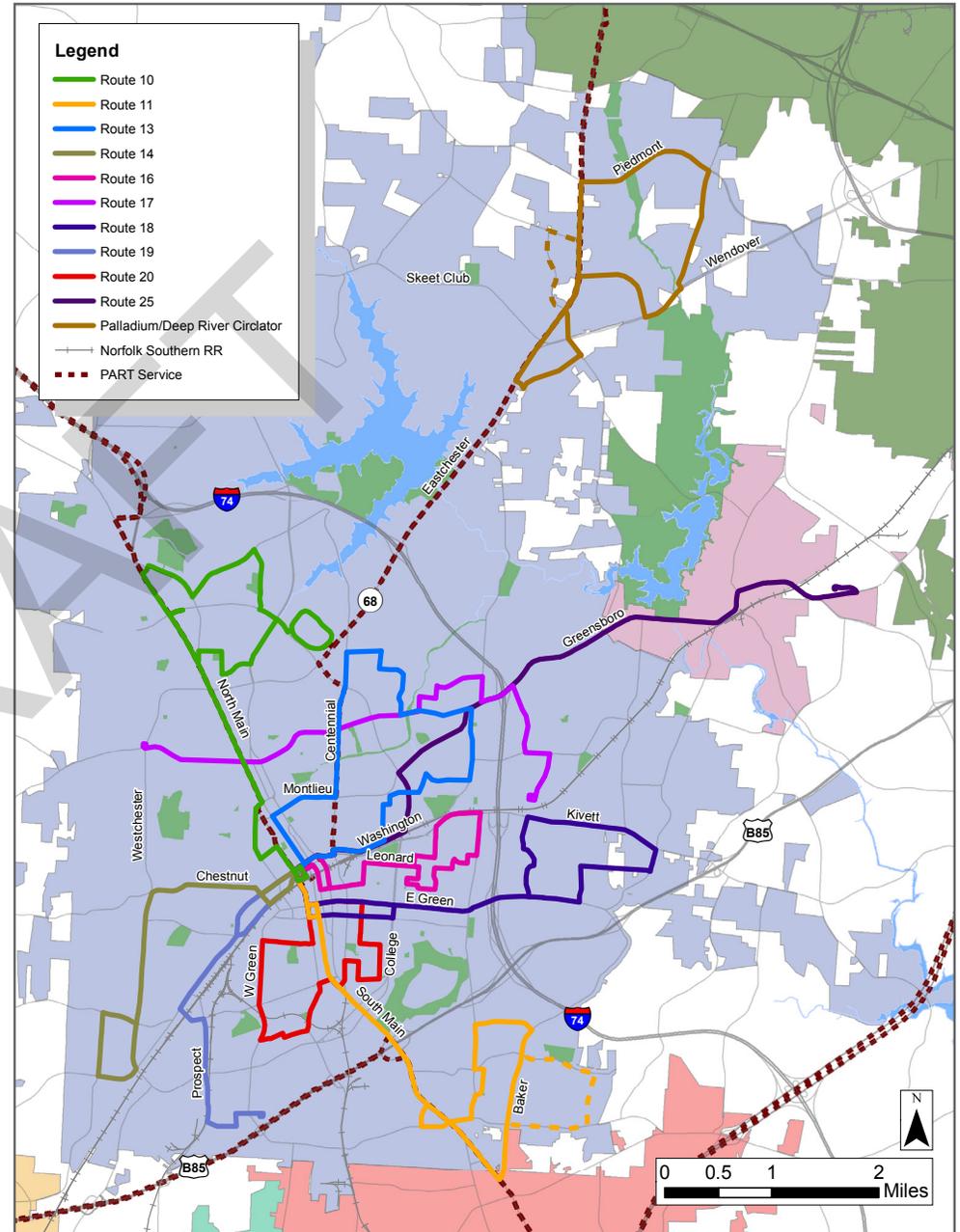
In attempt to balance the community's expressed desire for more frequent service, better geographic coverage, longer service spans, and service to new regions of High Point (specifically the Palladium/Deep River region), the following fixed-route modification recommendations were developed and considered in the context of operating assumptions and costs.

It should be noted that a blocking/operator schedule for service has not been created at this time; however, the routing pattern recommendations described herein, along with the proposed service characteristics, have been specifically designed to coordinate with the High Point Transit System current operating scheme of a pulse-based radial transit network. Illustrations of each service modification are provided.

There are several challenges associated with providing transit service in High Point, most notably the lack of sidewalks and pedestrian infrastructure on many city streets and a circuitous street network. Also, many neighborhood streets are not designed for larger vehicles to regularly travel on. In order to achieve the community's expressed desires for transit service (described above) while staying within budget, tradeoffs are required to balance desires and funding realities.

The recommendations discussed herein achieve many of the community's expressed desires for service while staying within budget, but additional concessions may be necessary.

Exhibit 44: Fixed-Route Service Recommendations



A detailed discussion of the proposed operating characteristics and assumptions is provided below. A summary of the recommendations by route is as follows:

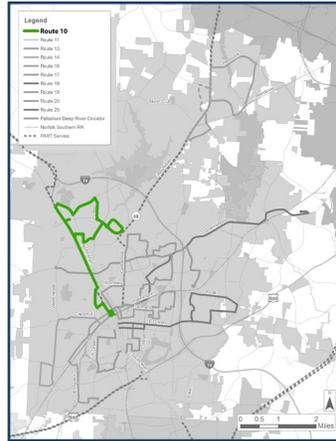
Exhibit 45. Summary of Route Modification Recommendations

| Route | Service Classification | Recommendation(s) |
|-------|------------------------|--|
| 10 | Yes | Designate as trunk route; enhance service span |
| 11 | Yes | Designate as trunk route; enhance service span |
| 12 | Yes | Eliminate route |
| 13 | Yes | Replace Route 17 service south of Montlieu Avenue |
| 14 | Yes | Minor route adjustment at Juanita Hills terminus |
| 15 | Yes | Eliminate route |
| 16 | No | Designate as trunk route; enhance service span |
| 17 | Yes | Designate as crosstown route; realign service |
| 18 | Yes | New service on Russell Avenue, realign service on Kivett |
| 19 | Yes | Modify route to serve Prospect Street and south High Point |
| 20 | Yes | Modify route to serve Green Drive and south High Point |
| 21 | Yes | Eliminate route |
| 25 | Yes | Modify route to serve Washington Drive and Gordon Street |
| PDC | Yes | New service in Palladium/Deep River district |

The following assumptions were made in the development of routing pattern recommendations for fixed-route service:

- » Funding for the High Point Transit System would stay consistent with current levels, and no new funding would be available for system operating costs.
- » The radial, “pulse”-based operating structure would remain.
- » The Broad Avenue Terminal would continue to serve as the operations center for all fixed-route services, but that no capital improvements would be made to this facility.



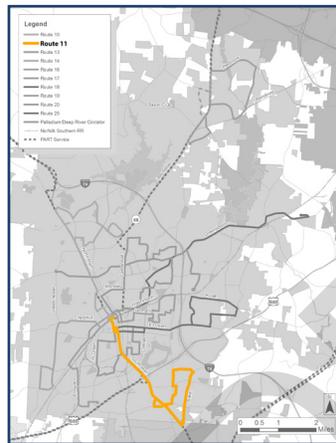


ROUTE MODIFICATIONS:

Route 10 North Main Street

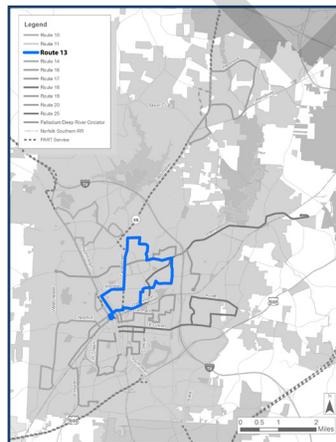
Recognizing the limited availability of resources currently, and given the expressed community desire to maintain service coverage in northwest High Point, the routing pattern of this route is not recommended for change initially. Over time however, it will likely be important to reduce the loop north of the junction of North Main Street and State Route 68. Also, service to the PART park-and-ride near the Aldi shopping complex near the junction with I-74 should be considered in the future. On inbound return trips, it is recommended that the deviation onto Hartley be eliminated, and a crosswalk be constructed or improved for persons to cross North Main Street to the Walmart shopping complex. If this deviation cannot be eliminated, consideration should be given to reducing the length of service north on Old Winston Road, focusing on service to the Walmart.

To maintain operating costs, the Saturday routing pattern may need to be retained until sufficient funds are available to operate the full alignment on Saturdays. Even then, it is recommended that any additional funds be invested in weekday operating service to extend the span of service or improve service frequencies along this route.



Route 11 South Main Street

The current routing pattern is recommended to stay mostly intact. However, it is recommended that the deviation to the Allen Jay Recreation Center be eliminated. This deviation is costly, and both available boardings data and observational analysis suggest that this deviation does not produce sufficient ridership to warrant the expense of service. For special events at the recreation center and park it may be possible to operate a select service. To maintain operating costs, the Saturday routing pattern may need to be retained until sufficient funds are available to operate the full alignment on Saturdays. Even then, it is recommended that any additional funds be invested in weekday operating service to extend the span of service or improve service frequencies along this route.



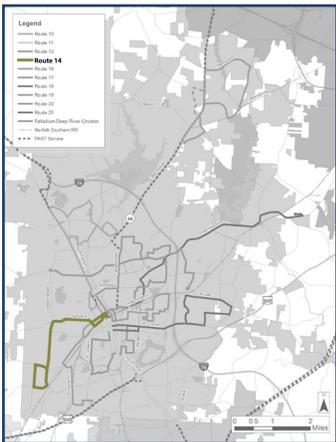
Route 13 Montlieu Avenue

Much of the current routing pattern and service operating characteristics would be retained. The route would continue to provide service on Montlieu Avenue and Centennial Street in downtown High Point. The closure of Montlieu Avenue between College Drive and Centennial Road presents several challenges to this route. On return trips to downtown High Point from the Five Points region, Route 13 would turn south onto Gordon Street to Wendell Avenue, turning east to serve the Parkview Village Elementary School and north side of Washington Terrace Park. The route would continue on Wendell Avenue to Ellwood Drive, turning south to Boundary Avenue. Crossing College Drive, the route would continue on Boundary Avenue to Underhill Street, replacing the inbound Route 17 service (discussed below), returning to the Broad Avenue Terminal via East Washington Drive.

Route 14 Westchester Drive

A modest routing pattern modification is recommended for Route 14. Currently, the route loops around Annmoore Circle and the Juanita Hills housing complex at the southern end of the route.

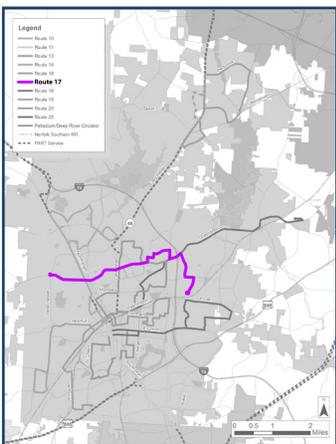
The recommended routing pattern modification would continue to serve the Juanita Hills housing complex, but continue south on South Road to English Road, turn east on English Road and then north on Westchester Drive on the route's return to the Broad Avenue terminal.



Route 17 Lexington Avenue

From west to east, the routing pattern would begin near the intersection of Lexington Avenue and Westchester Drive, and operate east along Lexington Avenue. The route would connect with the Route 10 at the intersection of North Main Street and Lexington Avenue, and with the Route 13 at Centennial Street and Lexington Avenue. At the intersection of Lexington and Carolina Street, the route would turn north, eventually turning east to provide service along Waverly Street and Suffolk Avenue, providing service to the Greater First United Baptist Church and nearby apartments along Deep River Road.

The route would then turn south along Deep River Road, connecting with Routes 13 and 25 at the Five Points region. The route would cross I-74 on Greensboro Road, turning south on Enterprise Drive with continuing service along Pendleton Street to the eastern terminus near the Polo Ralph Lauren facility.

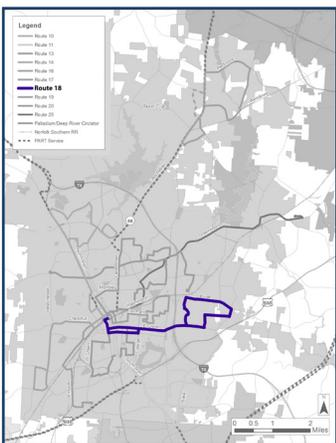


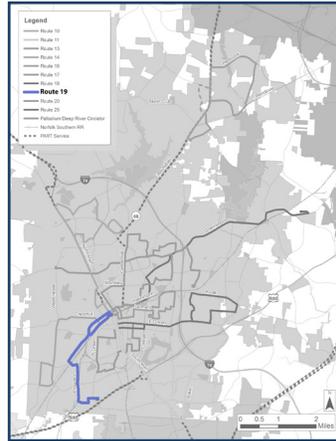
Route 18 East Green Drive

A routing pattern modification should be considered for Route 18 that would provide service along Russell Avenue on outbound trips. Currently, outbound trips on Route 18 operate on Kivett Drive. Available boardings and alightings data clearly show minimal productivity between the intersection of Kivett Drive and Centennial Street and the I-74 highway. East of the highway, route productivity improves, with return trips operating on Triangle Lake Road and East Green Drive. It is proposed that outbound service would instead operate on Russell Avenue, turning north and subsequently east on East Green Drive.

After cross I-74, the route would turn northbound on Knoll Lane, eventually operating on Pendleton Street to Kivett Drive, and turn eastbound on Kivett Drive. At the intersection of Triangle Lake Road and Kivett Drive, the route would begin the inbound return trip to downtown High Point, turning off of Triangle Lake Road and onto Central Avenue to serve area neighborhoods. The route would turn south on Paramount Street, and then westbound onto Triangle Lake Road to complete the trip into downtown and the Broad Avenue Terminal.

However, the route's length, coupled with additional stops, may require additional bus fleet in order to match the pulse at the Broad Avenue Terminal. Alternatively, Route 18 could operate off of the pulse system, which may result in passengers temporarily waiting for the next pulse when all other system routes would converge.

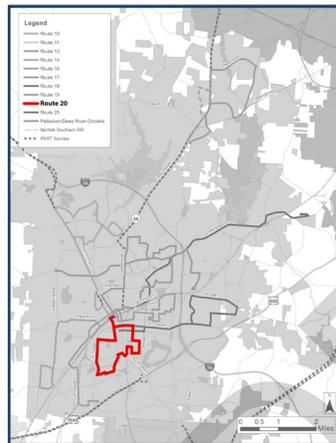




Route 19 English Road

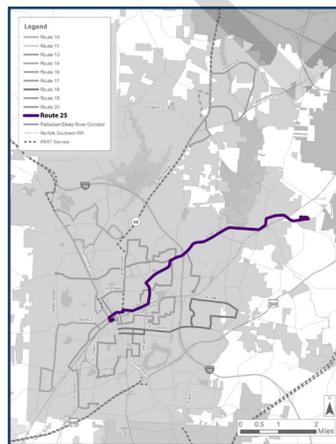
A routing pattern modification to Route 19 should be considered to eliminate the current end-of-line loop near the Juanita Hills public housing complex. The proposed routing pattern for Route 19 would continue to serve English Road southwest of the Broad Avenue Terminal. At the intersection of English Road and Ward Avenue, the route would turn east along Ward Avenue to Prospect Street, where the route would turn south on Prospect Street and replace service previously provided by Route 12 to Progress Avenue.

The modified Route 19 would turn east onto Progress Avenue, north onto Bethel Drive, and east onto Trinity Avenue. The route would continue on Trinity Avenue and use the turnaround at Carolina Trucking as the starting point for inbound service to the Broad Avenue Terminal.



Route 20 South High Point Circulator

As part of the proposed restructuring of service in southern High Point, it is recommended that Route 20 be modified to serve a portion of West Green Drive currently served by Route 12 between Taylor Avenue and Textile Place, winding through the historic mill neighborhood and serving the High Point Mental Health Associates facility at the intersection of Mill Avenue and Elm Street, and then serving Elm Street between Mill Avenue and Ward Avenue, replacing the service of the eliminated Route 21 (discussed below).



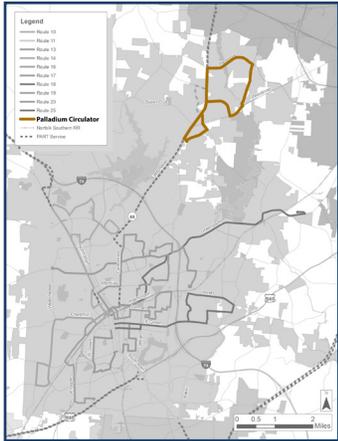
Route 25 Greensboro Road/Jamestown GTCC Campus

The closure of Montlieu Avenue between College and Centennial Street presents a significant challenge to transit service, specifically the Route 25. With this closure, and recommended modifications to the Route 17 as described above, it is recommended that Route 25 provide inbound and outbound service along Montlieu Avenue to the Five Points region, with continuing service along Greensboro Road to the GTCC-Jamestown campus.

Route 13 would provide service to the neighborhoods south of Montlieu Avenue currently provided by Route 17, while Route 25 would operate on College Drive north of East Washington Drive, helping to retain its status as a route linking educational institutions.

Also, by remaining on College Drive and Montlieu Avenue, this route could maintain some level of speed given the distance of the route. In an effort to reduce requests for ADA-paratransit trips in this corridor, additional stops are being added to the route.

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Palladium Circulator

Finally, in recognition of the community’s strong desire for service to and within the Palladium/Deep River district, but in recognition of limited resources, the project team recommends the creation of a Palladium/Deep River district circulator service in northeast High Point. This route would not operate between downtown High Point and the Palladium/Deep River district; rather, it would provide all day circulation through the district, connecting several job, entertainment, and new multi-unit housing developments set to open in the immediate future.

The circulator service would operate on Eastchester Drive/State Route 68, Piedmont Parkway, Tarrant Road, Premier Drive, Penny Road, and Samet Drive. This route is intended to compliment PART service offered by Route 3 – High Point Express, with service from the PART Regional Hub along State Route 68 and Centennial Street to the Broad Avenue Terminal, PART Piedmont-Triad International Airport (PTIA) Shuttle Routes 22 (Palladium) and 23 (Piedmont Centre). The connection to downtown would be made via PART Route 3 service that operates along Eastchester Drive/State Route 68 and Centennial Street. This service operates every 30 minutes during the peak periods and hourly in the off-peak period.

The circulator service was designed to match the PART service to help facilitate transfers between the services. It will be important for the High Point Transit System to consider, and likely implement, a fare program that enables transfers between the services so that passengers do not need to pay a second fare for trips between the Palladium/Deep River district and downtown High Point. Payment of two fares will be a significant disincentive to using transit service.

During meetings with the Sounding Board and Steering Committee, a transit transfer facility was recommended to allow seamless transfers between PART and High Point Transit System services. This facility doesn’t need to be elaborate, but should include a covered waiting area and sufficient bus bays, and be located in an area that enables easy access for both PART and High Point Transit System vehicles. Funding for the facility may be available through surplus federal grant monies.

**NO MODIFICATIONS:
Route 16 Leonard Avenue**

Similar to Routes 10 and 11, Route 16 is identified in this plan as a Key Local Bus route, acting as a trunk route in east High Point with service to several key social service and community facilities. No modifications to the current routing pattern are proposed at this time.

**ROUTE ELIMINATIONS:
Route 12 West Green Drive**

It is recommended Route 12 be eliminated from service. The central-southern region of High Point is oversaturated with transit service currently. In total, five routes provide service to the south/southwest region of High Point, with a sixth route also providing service (Routes 11, 12, 14, 19, 20, and 21)¹. Specifically, the issue is the spacing between these routes that in some cases is one city block. Generally, there are significant lengths of multiple routes that are within one-quarter to one-half mile of each other; thus, there is overlapping coverage that dilutes the market potential for each route, and duplicated service results in inefficient use of resources. Additionally, several of these routes serve areas of south High Point that no longer warrant the level of service currently provided. Modifying both the Route 19 and Route 20 (discussed below) would serve several of the streets and general geographic areas covered by Route 12 that do show modest productivity, offsetting the elimination of Route 12.

Route 15 Centennial Street (Saturday Only)

It is recommended that Route 15 be eliminated from service. This route effectively duplicates service offered by the Route 13, with the exception of service to the Oak Hollow Mall. The mall is no longer a sufficient destination to which to provide exclusive transit service.

Route 21 Elm Street

It is recommended that Route 21 be eliminated from service. Route 21 is the least productive route in the High Point Transit System, and despite this route making a minimal number of daily trips (1 morning and 1 afternoon trip), the extremely low boarding and alighting activity (11 passengers on average each day) as compared to the miles of service provided results in significant operating costs that could be used more productively to fund service to new areas or upgrading service along productive routes. While the Thomasville Built Buses facility is a major employer in south High Point, trips may be better suited to this facility through a vanpool or other commute solution service that can be tailored to the travel times of workers at this or other manufacturing facilities.

Service Operating Characteristics and Cost Estimates

A set of preliminary operating characteristics were used to help establish the operating cost estimates shown above. These characteristics are subject to change. Exhibit 46 presents the weekday service operating characteristics, while Exhibit 47 presents the Saturday operating characteristics. All numbers shown should be considered approximate.

Exhibit 46. Weekday Service Operating Characteristics

| Route | Round Trip Miles | Peak Frequency (Mins) | Off-Peak Frequency (Mins) | Total Hours of Service | Weekday Trips | Miles per Day | Round Trip Time (Mins) | Peak Buses Needed |
|--------------|------------------|-----------------------|---------------------------|------------------------|---------------|---------------|------------------------|-------------------|
| 10 | 12.1 | 30 | 30 | 12.5 | 25 | 302.2 | 50.0 | 2 |
| 11 | 10.1 | 30 | 30 | 12.5 | 25 | 251.3 | 45.5 | 2 |
| 12 | 0.0 | 0 | 0 | 0.0 | 0.0 | 0.0 | - | - |
| 13 | 7.7 | 30 | 60 | 11.5 | 17 | 131.4 | 32.0 | 1 |
| 14 | 7.6 | 30 | 60 | 11.5 | 17 | 129.8 | 31.6 | 1 |
| 16 | 6.0 | 30 | 30 | 12.5 | 25 | 150.6 | 32.6 | 1 |
| 17 | 11.5 | 30 | 60 | 11 | 16.5 | 189.8 | 51.1 | 2 |
| 18 | 8.8 | 30 | 60 | 11 | 16.5 | 144.4 | 37.5 | 1 |
| 19 | 7.6 | 30 | 60 | 11 | 16.5 | 125.8 | 30.3 | 1 |
| 20 | 5.9 | 30 | 60 | 11.5 | 17 | 99.5 | 30.5 | 1 |
| 21 | 0.0 | 0 | 0.0 | 0 | 0 | 0.0 | - | - |
| 25 | 14.8 | 60 | 60 | 5.5 | 5.5 | 81.4 | 63.2 | 1 |
| PDC | 7.4 | 30 | 60 | 11.5 | 17 | 125.8 | 31.7 | 1 |
| Total | 92.1 | - | - | 122.0 | 198.0 | 1732.1 | - | 14 |

Source: HDR, Inc., 2014

Route 21 Elm Street

It is recommended that Route 21 be eliminated from service. Route 21 is the least productive route in the High Point Transit System, and despite this route making a minimal number of daily trips (1 morning and 1 afternoon trip), the extremely low boarding and alighting activity (11 passengers on average each day) as compared to the miles of service provided results in significant operating costs that could be used more productively to fund service to new areas or upgrading service along productive routes. While the Thomasville Built Buses facility is a major employer in south High Point, trips may be better suited to this facility through a vanpool or other commute solution service that can be tailored to the travel times of workers at this or other manufacturing facilities.

Service Operating Characteristics and Cost Estimates

A set of preliminary operating characteristics were used to help establish the operating cost estimates shown above. These characteristics are subject to change. Exhibit 46 presents the weekday service operating characteristics, while Exhibit 47 presents the Saturday operating characteristics. All numbers shown should be considered approximate.

Exhibit 47. Saturday Service Operating Characteristics

| Route | Round Trip Miles | Saturday Frequency (Mins) | Total Hours of Service | Saturday Trips | Saturday Miles | Round Trip Time (Mins) | Bus Needs |
|--------------|------------------|---------------------------|------------------------|----------------|----------------|------------------------|-----------|
| 10 | 12.1 | 60 | 6 | 6 | 72.5 | 50.0 | 1 |
| 11 | 10.1 | 60 | 6 | 6 | 60.3 | 45.5 | 1 |
| 13 | 7.7 | 60 | 5 | 5 | 38.6 | 32.0 | 1 |
| 14 | 7.6 | 60 | 5 | 5 | 38.2 | 31.6 | 1 |
| 15 | 0.0 | 0 | 0 | 0 | 0.0 | - | - |
| 16 | 6.0 | 60 | 6 | 6 | 36.1 | 32.6 | 1 |
| 17 | 13.0 | 60 | 5 | 5 | 65.1 | 57.9 | 1 |
| 18 | 8.8 | 60 | 5 | 5 | 43.8 | 36.9 | 1 |
| 19 | 7.6 | 60 | 5 | 5 | 38.1 | 30.3 | 1 |
| 20 | 5.9 | 60 | 5 | 5 | 29.3 | 30.5 | 1 |
| Total | 78.8 | - | 48 | 48 | 422.1 | - | 9 |

Source: HDR, Inc., 2014

In effort to satisfy the community's expressed desires for future transit service and to quantify the tradeoffs associated with the recommendations, a comparative summary of the current and estimated weekday operating costs by route based on the recommendations and using FY 13 financial data is provided in Exhibit 48. The second column, "Estimated Operating Cost," provides an estimate of the annual operating cost associated with the recommended routing pattern by route described above. It should be noted that this estimate is based in part on route mileage, which was calculated using Geographic Information Systems (GIS) software, and is subject to some variability.

Exhibit 49 provides a comparative summary of Saturday operating costs. Additional detail on the operating assumptions that contributed to the creation of these operating cost estimates, along with a comparison between existing and projected new operating costs, is provided below. All costs shown are approximate, rounded to the nearest hundredth dollar. These costs should only be considered as “order-of-magnitude” costs used for planning purposes only.

Exhibit 48. Weekday Operating Cost Estimate

| Route | FY14 Operating Cost ^{1,2} | Estimated Operating Cost ^{1,2} | Difference ³ | Percent Change |
|--------------|------------------------------------|---|-------------------------|----------------|
| 10 | \$343,100 | \$381,100 | \$38,000 | 11.1% |
| 11 | \$360,300 | \$336,900 | \$(23,400) | -6.5% |
| 12 | \$167,700 | \$0 | \$(167,700) | -100.0% |
| 13 | \$168,000 | \$165,700 | \$(2,300) | -1.4% |
| 14 | \$182,900 | \$163,700 | \$(19,150) | -10.5% |
| 16 | \$223,300 | \$228,800 | \$5,500 | 2.5% |
| 17 | \$162,600 | \$251,100 | \$88,550 | 54.5% |
| 18 | \$180,100 | \$186,500 | \$6,400 | 3.6% |
| 19 | \$168,700 | \$154,400 | \$(14,300) | -8.5% |
| 20 | \$148,100 | \$147,300 | \$(800) | -0.5% |
| 21 | \$25,700 | \$0 | \$(25,700) | -100.0% |
| 25 | \$154,700 | \$104,900 | \$(49,800) | -32.2% |
| PDC | \$0 | \$162,400 | \$162,400 | 100.0% |
| Total | \$2,285,100 | \$2,282,900 | \$(2,200) | -0.1% |

Source: HDR, Inc., 2014 (Based in part on FY13 High Point Transit System Operating Data)

¹ FY13 weekday operating cost and estimated operating cost assumes 250 non-holiday weekdays.

² All operating costs shown are influenced by operating assumptions, including average travel speeds of buses by route. Without the ability to test the routing recommendations in real-time conditions, the average speeds of buses by route were held constant.

³ Parenthetical brackets refer to negative numbers and should be interpreted as cost savings.

Conservatively, it should be assumed that operating costs will increase approximately 3% annually, reflecting inflation rates for capital and operating expense. While costs fluctuate regularly for things such as fuel, it should be assumed that operator wages, insurance, and other administrative costs will continue to rise steadily over the life of the SRTP. Additional detail on agency financials is provided in Chapter 6.

Exhibit 49. Saturday Operating Cost Estimate

| Route | FY13 Operating Cost ^{1,2} | Estimated Operating Cost ^{1,2} | Difference ³ | Percent Change |
|--------------|------------------------------------|---|-------------------------|----------------|
| 10 | \$11,800 | \$17,400 | \$5,600 | 47.5% |
| 11 | \$14,300 | \$16,500 | \$2,200 | 15.4% |
| 13 | \$14,500 | \$13,000 | \$(1,500) | -10.3% |
| 14 | \$12,400 | \$12,900 | \$500 | 4.0% |
| 15 | \$11,900 | \$0 | \$(11,900) | -100.0% |
| 16 | \$13,100 | \$14,800 | \$1,700 | 13.0% |
| 17 | \$11,500 | \$14,800 | \$3,300 | 28.7% |
| 18 | \$14,300 | \$13,300 | \$(1,000) | -7.0% |
| 19 | \$14,300 | \$12,900 | \$(1,400) | -9.8% |
| 20 | \$11,100 | \$12,300 | \$1,200 | 10.8% |
| Total | \$129,300 | \$128,000 | \$(1,300) | -1.0% |

Source: HDR, Inc., 2014 (Based in part on FY13 High Point Transit System Operating Data)

¹FY13 weekday operating cost and estimated operating cost assumes 52 Saturdays.

² All operating costs shown are influenced by operating assumptions, including average travel speeds of buses by route. Without the ability to test the routing recommendations in real-time conditions, the average speeds of buses by route were held constant.

³Parenthetical brackets refer to negative numbers and should be interpreted as cost savings

Benefits and Costs of the Recommended Fixed-Route Service Scenario

The principal reason for adjusting the transit service is to improve service for existing riders and increase ridership. Ridership can be increased by both attracting new riders to the system and encouraging existing riders to use the system more often. The expansion of service to new markets such as Lexington Avenue and the Palladium/Deep River region would provide access to the transit system not currently available. The recommendations outlined above are conservatively estimated to increase system ridership by approximately 2 to 5%. While this is a very modest estimation of anticipated ridership growth, increases in ridership are expected due to:

» **Extended service spans** – To the degree service can be extended into the evening hours, the availability of transit service will be beneficial to

populations who require transport later at night, such as GTCC students or shift workers.

- » **Changes in service frequency** – To the degree service frequency can be increased, available transit industry data suggest that for every 100% increase in service frequency, there is a corresponding 20% increase in ridership.
- » **Increased simplicity and directness of the service provided** – The reduction of large loops at the end of service runs, particularly where service is least productive, and the straightening of service along streets served improves expediency of travel and
- » **Service to new markets** – The addition of service along streets such as Lexington Avenue and the Palladium/Deep River region expands the



coverage area of transit, opening the opportunity for those who currently do not use the fixed-route network or rely on Dial-a-Lift service to take use fixed-route service.

- » **Service reductions on unproductive or duplicative routes**
 - Elimination of duplicative, overlapping route coverage, particularly in south High Point, is anticipated to reduce operating costs that may be reinvested into the system to enhance services where they are most needed. Reducing or eliminating duplicative service also minimizes internal competition between bus routes for the same ridership base, making those services that remain most cost effective.

While efforts have been made to account for as many factors as possible, and care has been taken to ensure that estimates adhere to accepted practices in ridership estimation, ridership projections offer an order-of-magnitude estimate for anticipated ridership changes resulting from modifications to the existing service patterns, rather than exact forecasts. Moreover, it typically takes at least one year for the full impacts of service adjustments to result in ridership changes, since it takes riders time to adjust to the service changes, as well as time for potential new riders who would be attracted to the system based on the improvements to learn about and understand how services operate.

Because most of the routes were modified, and parts of multiple routes combined to form new routes, new routes do not translate one-to-one with their existing service counterparts. Therefore, ridership changes are described as a percentage of overall system ridership.

Still, a number of benefits may be accrued from implementation of the recommendations discussed above for fixed-route service, many of which stem from a combination of simplifying the network and categorizing the routes into a clear hierarchy that matches service types and levels of service to the demand for service. The network will be simplified by straightening the routes, and eliminating route branches and deviations. These actions will improve passengers' ability to understand and use the system and simultaneously make the

service easier to operate, thereby improving service reliability. Straightening routes can also improve operating speeds, and therefore decrease operating costs. The elimination of unproductive service branches and deviations will save operating cost and improve cycle times.

As noted, tradeoffs exist in transit planning that result in benefits and costs to system users and the operating agency. Several challenges to the current and future High Point Transit System have already been discussed, but perhaps the most significant challenge is funding availability. Without additional funds, it will be difficult for the High Point Transit System to maintain current service levels in the near, mid, and long-term futures, particularly as service needs grow. It is recommended that the High Point Transit System maximize the use of all available funds from various contributing sources to fully invest in the current system while planning for service modifications or expansion in the future.

Future Service Expansion Needs

The recommended service scenario discussed above attempts to maximize the service coverage area and provide a relatively similar coverage level as exists today. However, a number of service needs were identified during the study process that were not possible to implement at this time given limitations on existing financial resources.

As funding becomes available, the following service expansions or improvements are recommended as priorities for the future service network:

- » **Increased Service Frequency along Key Local Bus Routes:** Most High Point Transit System routes currently operate with half-hour headways during peak periods and hourly headways during the mid-day off-peak period. While adequate for the current system, it also means service is challenging for many riders. Not only does it require riders to organize their days around the bus schedule, any problem in service (e.g. vehicle malfunction, traffic delay, or missed connections) means that riders may have nearly an hour wait

to catch the next bus, resulting in a more than two hour trip in one direction.

To improve service network redundancy and attract more riders, most service should ideally be operated every 30 minutes or less. Service frequency could be increased to every 30 minutes during peak periods first on major Routes 10 and 11.

- » Increased Service Span: Many study participants expressed the need for service later the evenings on weekdays. Analyses of ridership patterns revealed that ridership on most routes is fairly high on the first trip of the day, indicating that service is likely needed earlier in the morning. As funding permits, a top priority should be the expanding operating hours to provide service later into the evening (roughly 6:00AM – 9:00PM).

5.2 Demand Responsive Service Recommendations

The following recommendations are made for demand-responsive services offered by the High Point Transit System in an effort to further improve both service delivery and to help stabilize operating costs over the life of the short range transit plan. Overall, the High Point Transit System's demand-responsive service has been operating efficiently, and the recommendations provided herein are intended to further improve overall performance. The performance analysis contained in Chapter 3 provides a broad-brush examination of the High Point Transit System's demand-response services, and the recommendations identified above are focused on policies and procedures related to the delivery of service, eligibility, and administrative practices.

At a minimum, the High Point Transit System should continue to maintain its strong operational performance. While the operating cost per revenue hour and revenue mile is anticipated to increase over time, and certain factors that influence operating costs are beyond the High Point Transit System's control (e.g. the cost of fuel), improved service productivity can help control overall operating costs by limiting the number of annual revenue hours necessary to handle demand.

Modify service eligibility requirements, particularly the passenger age requirement

While initially controversial, it is recommended that the High Point Transit System consider modifications to service eligibility requirements within

all legal parameters of ADA. Tightening service eligibility standards will temporarily stem the growth in overall demand, and encourage persons who require transit for basic mobility to use fixed-route services. This is not intended to penalize individuals, but as a necessary means of controlling costs. In particular, consideration should be given to increasing the eligibility age of participants from 60 to 65. Generally, persons between the ages of 60 and 65 are capable of boarding standard bus vehicles, and the low floor fleet vehicles used by the High Point Transit System currently make boarding relatively easy for all individuals, including those with mobility devices. Of course, there will be individuals below the age of 65 who require specialized transportation, but these persons would most likely qualify for demand-responsive services to begin with.

It is advised that any increase in the eligibility age should not adversely affect currently eligible participants below a new minimum age threshold; therefore, persons aged 60 years and over who are now program participants should continue to be eligible for demand-responsive services. This new service eligibility requirement would apply to new applicants only.

Institute a transit travel training program for seniors and persons with disabilities

Increasingly, transit agencies across the country are incorporating transit travel training programs as part of the services they offer, targeted specifically to seniors and persons with disabilities. Educational programs at senior centers or assisted living and care facilities where a transit agency representative can directly demonstrate how to board a bus vehicle and pay a fare has been proven as a method of encouraging persons to use fixed-route services. As noted in Transit Cooperative Research Program (TCRP) Report 163, limited experience with using fixed-route services is frequently identified by seniors and persons with disabilities as a reason for choosing demand-responsive services over fixed-route services. Often, a live demonstration can help ease uncertainties on how to use the fixed-route system that may prevent persons from using it currently. While a travel training program introduces additional administrative components and costs to the High Point Transit System service program, these educational programs have proven to help reduce costs in the long-term.

Schedule Non-Essential Trips during Low Volume Periods.

As funding programs become more constrained, the High Point Transit System should consider scheduling non-essential trips during off-peak travel times. This would lower the cost of these trips by transferring them



to times when the system has capacity.

Establish a Community Service route to consolidate trips to common locations

Similar to a fixed-route, a community service route is a service that operates on a fixed-route schedule (and to a degree on a fixed-route alignment) but is designed to consolidate trips to common locations frequently accessed by demand-responsive service users. These destinations include senior centers, assisted living and care facilities, public housing complexes, medical facilities, shopping centers, and libraries, among other destinations. For the passengers, a benefit of this service is that it does not require the need to pre-arrange trips, and fares may be lower. For the transit provider, pre-scheduling trips patterns made multiple times per week or per month can reduce the burden on the call intake system, and reduce the need to dispatch a driver and vehicle to the same destination multiple times per week or month, thereby reducing overall operating hours and miles. While there is a cost to provide this type of service, successful implementation could reduce demand-response costs to sufficiently cover the operating cost of the service.

Also, a third beneficiary of this strategy could be a retailer, for example. Transit agencies across the country now often coordinate with local retailers or civic institutions frequently visited by seniors or persons with disabilities to provide incentives on specific days of the week or month. For example, it may be possible for the High Point Transit System to negotiate with a local retailer where trips are commonly made by demand-responsive passengers to provide a designated time of day when a group of ten or more passengers would be dropped off for shopping purposes. The retailer benefits from the economic activity, while the High Point Transit System benefits from consolidating trips that would otherwise be made individually.

Consider free-fare policy on fixed-route services for qualified demand-responsive participants

Depending on budget availability, it may be prudent to consider a free fare policy for qualified demand-responsive

participants on fixed-route services. While this would subsidize an individual's entire trip cost, the cost associated with providing the same trip via the current demand-response program is likely to outweigh the cost of providing a free trip on the fixed-route network. A free fare policy could replace the discounted fare policy for fixed-route services.

Create a bus stop improvement program for improved bus stop accessibility

The placement of bus stops and passenger amenities is an important component in attracting and retaining transit ridership within a community. Beyond pedestrian safety and passenger comfort, the location of bus stops and supporting infrastructure are important components to bus operations, and can play a key role in future land use development and compatibility with transit service. As noted in TCRP Report 163:

“Improving the accessibility of bus stops and the pedestrian infrastructure is an important strategy for enabling people with disabilities to use fixed-route transit. Transit agencies have addressed the accessibility of bus stops for some years; however, the need for accessibility extends beyond the bus stop and, increasingly, transit agencies are expanding their accessible bus stop programs to focus on improving pathways of travel to and from stops, facilitating travel to and from the accessible stops for people with disabilities.”²

It is recommended that the High Point Transit System, as part of both a fixed-route and demand-responsive operating program, establish a bus stop accessibility improvement program and conduct a review of all existing bus stops in the network. As noted, a major challenge facing the City of High Point is the lack of sidewalks and pedestrian amenities that can allow pedestrians to safely access bus stop locations without having to walk in the street. Depending on annual budget availability, the High Point Transit System may be able to help provide capital funding for bus stop or sidewalk improvements as part of the city's capital improvement

program. It is recommended that if such a program is started, investments be prioritized based on demand for boardings and alightings at bus stops to focus investments where they are most warranted.

Consider a functional assessment test as part of demand eligibility determination

While controversial, functional assessments are increasingly standard practice by transit agencies to evaluate the physical fitness of demand-responsive applicants and to determine overall eligibility. Functional assessment screening can be an effective method for limiting the growth of demand-responsive applicants. If instituted, a functional assessment would require demand-responsive applicants to demonstrate that they are unable to use the fixed-route network. If an individual is physically able to perform basic functions such as boarding and alighting, the High Point Transit System may be able to temporarily restrict their access to demand-responsive services until they meet the minimum age or other eligibility requirements, or educate the individual in the use of fixed-route services.

Establish a supplemental service agreement with area taxi providers

Increasingly, transit agencies establish agreements with local taxi companies to help handle non-wheelchair or mobility-aid trips. The High Point Transit System may consider contracting with local taxi operators as a technique to reduce overall costs, especially during periods of very high and very low demand. A voucher program could be created wherein individuals purchase vouchers through the transit agency that may be used to help pay for cab rides or driver tips up to a certain valuation limit, with any costs beyond the voucher limit paid for by the individual.

A benefit of supplemental taxi service programs is that service is almost always available (depending on taxi service operating schedules), taxi services come with their own dispatch system, helping to relieve dispatch on the transit operators end, and taxis can sometimes be more responsive to individual passenger needs and travel schedules. Challenges include ensuring consistent service quality and the fact that taxi operators are often reluctant to meet federal standards for insurance and driver requirements (training, drug and alcohol testing).

5.3 Vehicle Fleet Needs

In addition to overall operating costs (discussed above), the recommended service modifications also considered the availability of existing physical resources, including the number of vehicles used in peak service. Although

the number of routes is increased somewhat, the number of vehicles used during the weekday peak period is not increased (see Exhibit 50). This is a critical metric to determine if the service scenario can be operated within the existing fleet, or whether additional vehicles will be necessary.

Exhibit 50. Fleet Requirements – Existing and Recommended Service Scenario

| Time | Existing Network | | Recommended Network | |
|----------|------------------|----------|---------------------|----------|
| | Weekday | Saturday | Weekday | Saturday |
| Peak | 12 | - | 14 | - |
| Off-Peak | 7 | 10 | 9 | 10 |

Source: HDR, 2014

Fleet replacement needs are driven by a number of factors, the primarily factors being vehicle age, mileage, vehicle type and the operating environment. The FTA has developed a set of replacement guidelines based on age. The FTA's guidelines for the useful life of transit vehicles is shown in Table 5-9. These guidelines provide general parameters for the ages at or beyond which FTA will generally help fund vehicle replacement. Before these timeframes, replacement funding is also possible, but requires special justification. Conversely, vehicles may also be used beyond the minimum standard for vehicle life, in order to conserve financial resources. However, this must be balanced against the typically increased maintenance costs, and the increased risk of in-service breakdowns.

As discussed earlier, the average age of High Point Transit System buses is approximately 8.7 years of age, while demand response vans have an approximate age of 2.6 years. Fifteen of the buses are scheduled to be replaced in 2016, one in 2019, and one in 2022. A vehicle lifecycle and replacement plan is in place for both fixed-route and demand-responsive vehicles. All present and planned vehicles are ADA-accessible. Until recently, the fleet consisted exclusively of 29-30 foot transit buses and the ADA-compliant paratransit demand-responsive vehicles. A new 41-foot suburban bus was acquired to operate along Route 25 specifically.

As service is extended, both to new geographic regions of the city or in terms of operating characteristics (e.g. service frequency increases), additional fleet vehicles will be required. The size and configuration of new vehicles purchased should be tailored to the service characteristics and



markets to be served. For example, smaller vehicles would be more appropriate for demand-responsive services and/or lower density areas with lower peak loads, while larger vehicles may be more appropriate for fixed-route services carrying more passengers. The High Point Transit System should seek to acquire fuel-efficient and low-emissions buses that employ clean engine technology. In fact, the High Point Transit System should consider new fleet purchases that offer hybrid fuel technologies which provide greater fuel economy, reduced greenhouse-gas emissions, and can accrue cost savings to the agency.

As the High Point Transit System grows and its existing vehicles and equipment age it will be vital to continue to program expansion and replacement equipment and parts into its annual capital budget.

Vehicle Technologies

As the High Point Transit System considers the replacement of the current revenue vehicle fleet, it is a good time to consider the use of alternative vehicle fuel types. With technology improvements in recent years, many transit agencies are realizing cost savings and environmental benefits accrued with the use of hybrid electric-gasoline vehicles.

Currently, all High Point Transit System buses use diesel fuel, with all paratransit vehicles using gasoline. Alternatives to diesel fuel include:

» **Hybrid-Electric:** Hybrid vehicles are powered by batteries which in turn are charged by an internal combustion engine. The engines can run on a variety of fossil fuels. At this time diesel hybrids are the most popular due to the ability of the transit agencies to retain their existing fueling infrastructure. Hybrids are more energy efficient than standard fossil fuel engines. While there is a strong incentive for transit agencies to incorporate hybrid-electric technology in order to improve air quality and meet EPA emissions standards, especially nitrogen oxides (NO_x) and particulates (PM), the vehicle cost of hybrid-electric

technology is much higher – potentially almost double the cost of the comparative conventional diesel model.

- » **Compressed Natural Gas (CNG) and Liquefied Natural Gas (LNG):** CNG is the most used fuel source in the transit industry after diesel fuel. CNG buses emit over 90% less particulate mass than diesel. CNG buses cost about \$25,000 to \$100,000 more than diesel buses, but the fuel is often less expensive. According to an APTA survey of transit agencies, CNG accounts for approximately 10% of transit buses in the United States although it makes up over 20% of new bus orders. LNG accounts for only 2% of buses. LNG contains almost no sulfur, so the fuel has lower emissions of air contaminants than most fossil fuels.
- » **Biodiesel:** Biodiesel is made from natural ingredients, such as seed crops. It contains no petroleum and it is biodegradable with virtually no sulfur, resulting in lower emissions than petroleum diesel. One of the most attractive features of biodiesel for operators is that it can be used in standard diesel engines with little or no modifications.
- » **Hydrogen Fuel Cell Technology:** A hydrogen fuel cell converts chemical energy directly into electricity by combining oxygen and hydrogen gas. Fuel cells do not need recharging and continue to produce electricity as long as hydrogen is refilled. Fuel cell engines are cleaner than fossil fuel engines; in fact, fuel cells emit only water vapor. The hydrogen used as fuel can be produced by renewable energy sources as well as standard fuels such as gasoline, ethanol and natural gas. Although there are number of pilot programs throughout the United States, fuel cell technology still has not proven to be a reliable power source for transit buses. Furthermore, fuel cell buses are much more expensive than diesel and CNG buses (as much as \$300,000 more per bus).

A critical drawback to developing alternative fuel fleets is the need to build expensive new infrastructure including re-fueling stations, new pumps, and training maintenance crews. An order-of-magnitude small system CNG/LNG fueling depot can cost \$2 million or more to install. In addition, changing

fuel technology may also result in the need to hire specialized maintenance staff based on the significantly more complicated engine technology, especially for hybrid vehicles.

5.4 Facilities and Passenger Amenities

Passenger Facilities

As discussed, the central passenger facility of the High Point Transit System is the Broad Avenue Terminal. With nearly one half of the transit system's weekday boardings occurring at this facility, this first-class facility makes a huge difference in the public perception of the High Point Transit System and makes the system more attractive to choice riders.

Outside of downtown High Point and the Broad Avenue Terminal, enhanced passenger facilities should be located based on boardings and alightings. These could be considered transit satellite stations at locations where two or more routes connect and could facilitate transfers. These facilities would include sheltered waiting areas with lights, bicycle racks, and real-time passenger information (in the future). The locations for these satellite stations include the following:

- » GTCC High Point Campus
- » Guilford County Complex
- » Lexington and North Main Street
- » Walmart South Shopping Center
- » Five Points District

The High Point Transit System has a bus shelter expansion and replacement program, a bus stop bench program, and a bus stop signage update program. However, the warrants associated with standards for locating bus stops and the infrastructure at stop locations should be investigated. These programs and warrants will be important when considering current and future bus stop facilities in order to meet the needs of current riders and make transit more attractive to new riders, as well as reducing operating costs.

The addition of a circulator service in the Palladium/Deep River district provides the opportunity for the creation of a transit transfer facility in northeast High Point. A signature facility in this region could help facilitate transfers between services for passengers and coordinate service among

providers. The design of such a facility would need to take into account anticipated service levels and function, but at a minimum should include sheltered waiting areas, street furniture, an operator break room/restroom facility, and real-time travel information.

As discussed, a significant challenge facing the High Point Transit System is the lack of sidewalks in High Point along several transit routes. While the High Point Transit System may not have sufficient resources to help pay capital costs for sidewalk upgrades, it is advisable that a stop improvement program be considered (with some financial resources available) to annually make investments and improvements in stop locations based on boarding and alighting activity.

In addition to shelters and benches, in some instances, covered walkways linking parking, major employers, and trip generators to transit corridors could be used to offer more pleasant, safe, and comfortable pedestrian connections to bus stops. In such instances, it may be appropriate to approach employers to help cover the cost of such facilities, if service is specifically focused on reaching businesses or civic facilities.

Such walkways allow bus routes to stay on main corridors rather than diverting to these generators, saving on operating expenses and minimizing travel time for through passengers. Also, as new services in outlying areas are implemented, transfer points at these remote areas must be designed to enhance rider convenience, including informational signing, shelters, seating, lighting, and other amenities.

Specifically, High Point Transit System services in the Palladium/Deep River region will immediately warrant investment in sheltered waiting areas with sufficient passenger amenities as part of the effort to enhance rider comforts and the pedestrian environment leading to the stop locations.

At this time, construction and operation of park-and-ride facilities are not recommended at this time.

Operations and Maintenance Facility

The current High Point Transit System operations and maintenance facility is in very good condition, but requires parking of some transit vehicles outside. Indoor storage helps extend the life of transit vehicles and also makes them easier to start, particularly in cold weather conditions.

A looming need is for the additional vehicle storage capacity at the High Point Transit System operations and maintenance center. Based on the service improvements proposed, the High Point Transit System vehicle fleet will need to grow by 2 buses in the peak period. Over time, it will also be necessary to grow the number of ADA-compliant vans. The potential exists that all vehicles will be housed at the High Point Transit System operations center, which is strategically located to help minimize deadhead mileage. For planning purposes, it is appropriate to consider a 25-vehicle facility.

Expansion in the fleet will require additional outdoor storage space for buses. With a total current fleet size of 17 buses, the peak pullout cannot exceed 12 buses and still maintain a recommended 20% spare ratio. With the proposed short-term improvements, peak pullout increases from 12 buses to 14 buses, thus necessitating the purchase of at least 1 new bus to maintain a sufficient minimum fleet of revenue service and spare vehicles.

As service expands, the High Point Transit System will need to explore and create additional indoor bus parking with bus lift facilities at or adjacent to this facility. The High Point Transit System should continue to maintain and update internal systems (such as, but not limited to, communications, maintenance equipment, and HVAC) at this facility as necessary, should also enhance its facility to accommodate additional staff space as necessary to support growth in operational departments.

Ancillary Facilities

Ancillary facilities, including streetside improvements, are an important component to the success of transit and can include such items as sidewalks, street connectivity, and the locations of social service agencies, particularly for communities where the predominant ridership base are transit-dependent riders. As noted, a challenge to growing ridership is the limited availability of sidewalks throughout the city. The lack of sidewalks along many routes may act as a deterrent to potential riders. The High Point Transit System

should work with city staff to help prioritize investments in sidewalks based on boarding and alighting volumes at stop locations, and emphasize accessibility to the stop by all persons, including those with mobility assistance devices.

Street connectivity is also a challenge in High Point as it is in several other cities in North Carolina and across the United States. The street network and current design standards for streets makes efficient routing of transit service difficult. As noted, the closure of Montlieu Avenue presents a particularly difficult challenge to orchestrating efficient transit service.

The circuitous routing patterns of certain routes, such as Route 16, limit the reach of routes geographically, especially if the network is designed to pulse at the Broad Avenue Terminal. The High Point Transit System staff should continue to coordinate with city engineers and streets technicians on future designs of roadways to help ensure transit needs are met.

Over the course of this study, Sounding Board and Steering Committee participants commented on the locations of bus stops and fixed-route services relative to the social service agencies, both public and private. Further, a goal of the High Point Transit System is to encourage those individuals who may be capable of using fixed-route service to do so as opposed to using demand responsive services. While it is an admirable goal to serve as many social service agencies and facilities throughout the city, prioritizing those agencies that warrant service will be important toward creating a network that connects travelers with where they need to go, especially given the current limited resources available for service, and the expressed desires for enhanced frequency and span of service.

Future comprehensive transportation plans should carefully review the location of thoroughfares and collector streets compared with the location of existing and future bus service so that buses can have a more direct routing to all major locations.

5.5 Intelligent Transportation Systems (ITS) Solutions

The High Point Transit System has been investigating technology enhancements to improve efficiency, convenience, and customer service with respect to the passenger experience on board High Point Transit System vehicles and at stop locations. The recent renovations to the Broad Avenue Terminal greatly improved the image of the High Point Transit System, and both City of High Point and High Point Transit System staff are currently engaged in development of computer-based and mobile phone applications to enhance passenger communications. In recent years, new scheduling software has been installed to increase the efficiency of service scheduling.

A clear priority is to provide real-time bus arrival information to waiting passengers, particularly at the Broad Avenue Terminal, where the majority of passenger transfers occur. Coupled with the efforts of city and High Point Transit System staff to develop a GPS-based bus location application to inform passengers of arrival times, it is recommended that High Point Transit System staff continue to research systems that could provide real-time passenger information at bus stops throughout the system, particularly those where transfer activities occur.

Longer term, additional ITS investments should be considered, such as upgrades to the fare payment system for smart cards (particularly if transfers between services are required), automated ticket vending machines, public Wi-Fi service at major transfer points such as the Broad Avenue Terminal, and consideration of transit signal phasing along key corridors to enhance service frequency and reliability. With the implementation of Automatic Vehicle Location (AVL) systems planned for buses, and similar technology being used currently for demand responsive and ADA-compliant paratransit vehicles, this will provide better passenger information and improve the efficiency of operations.

In addition to an electronic display of arrival times at the Broad Avenue Terminal, it may also be pertinent for the High Point Transit System to consider the following ITS systems for implementation in the future:

- » Computer Aided Dispatch (CAD) software/hardware linked to the driver scheduling software

- » Automatic Vehicle Location (AVL) software/hardware linked to CAD
- » Predictive capacity added to AVL with on-time performance reporting
- » Real-time arrival info available via telephone and cell phone
- » Real-time arrival info linked to a web-based traveler information system such as Google Transit
- » Real-time arrival info linked to interactive voice system
- » Real-time arrival info linked to electronic signs at high boarding locations in the High Point Transit System such as the GTCC High Point and GTCC Jamestown campuses

Queue jump lanes (also known as “queue jumpers”), or lanes that allow a bus to jump ahead of cars stopped at a traffic light, may be warranted at specific locations around the city. Given the length and travel times of certain routes, it may be possible to implement simple traffic solutions that can improve travel times for transit. High Point Transit System staff should work with the city’s traffic engineers to identify locations and potential intersection solutions that can support improved.

As the city plans and implements streetscape improvements, these and other transit-supportive street solutions should be considered. Centennial Street, East Green Drive, and Westchester Drive (among other streets and roadways in town) all show a number of good characteristics for transit-supportive investments such as bus only lanes during peak travel periods, potential ITS system improvements at intersections, or other roadway striping projects that maintain current capacity without needing to acquire new public rights-of-way. Additionally, traffic calming and streetscape enhancement projects like those on Main Street can be very transit-supportive in the design elements that aim to encourage multi-modalism and reduce dependency on the automobile.

5.6 Public and Stakeholder Comment

As part of finalizing the preferred scenario, the High Point Transit System staff and the study team encouraged the public and project stakeholders to review and comment on the recommended service scenario. To facilitate this input and comment period, the project team prepared a handful of summary documents that outline and describe the preferred service scenario.

Summary documents (see Appendix D), together with several of the study documents were posted on the project's website, with paper copies available upon request. Paper copies of the draft SRTP were also made available at the Broad Avenue Terminal and at city offices. The project team alerted members of the public and riders that the information was available by placing posters and advertisements in transit vehicles, at stop locations, and sending emails to participants who had been in contact with the project to request additional information. The project team also set up a telephone hotline to encourage people to call the team directly with comments. In total, the project team received XXX comments, with XX in the form of letters, XX emails, and XX telephone calls received.

TO BE COMPLETED FOLLOWING PUBLIC WORKSHOP

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¹ Route 21 provides only one morning and one afternoon trip.

² Transportation Research Board, Transit Cooperative Research Program, Report 163, Page 44, 2013



Chapter 6.0

6.0 TRANSIT FUNDING

The High Point Transit System's most significant challenge both in terms of providing quality public transportation services and maintaining existing service levels is funding. There are few, if any, recommendations in the SRTP that can move forward to implementation without additional funding to at least mitigate the trend of rising costs through economic inflation. The goal of the transit funding element of the SRTP is to ensure that the recommended service enhancements and capital improvement projects are financially supported throughout the FY2016-2020 planning period.

This chapter provides a general estimate of the financial needs in order to operate the High Point Transit System in the future. The estimated costs for individual route recommendations were provided in Chapter 5, while this chapter attempts to estimate the costs associated with operating the entire High Point Transit System, including agency administrative elements.

6.1 Funding Challenges

Federal, state, and local funds play a critical role in the annual budget of the High Point Transit System. The system receives approximately 80% of its operating funds and nearly all of its capital funds from federal, state and local sources. While essential sources of funding, the amount available from these sources has been reduced or held

constant over the past several years. Additionally, the system has only a limited ability to influence changes to these funding sources. Consequently, the High Point Transit System, like transit agencies around the country, struggles to provide its services within the budget of revenues it receives.

From a cost perspective, there are numerous challenges faced by all transit agencies big and small alike. In recent years, as the national recession strained government financial resources at all levels, virtually every transit agency faced difficult choices in the provision of service. This trend is likely to continue for several critical reasons.

- » Transit costs are largely driven by operator wages, fuel, and insurance costs. The High Point Transit System has worked hard to keep driver wages reasonable, but there is continuous pressure to adjust wages to keep pace with cost of living increases. While fuel costs have stabilized recently, and even declined from what prices were in the mid to late 2000s, these costs are anticipated to gradually increase over time. Insurance costs rise steadily year-on-year, a trend that shows no sign of reversing.
- » It is increasingly anticipated that competing priorities and pressures placed on the federal budget will result in a stagnant level of funding for transit (i.e. no adjustments for annual cost increases). This may represent the best case scenario for transit funding at the federal level. This is especially challenging for small and mid-size transit agencies, which typically get a significant amount of their funds from federal sources. State and local funds

are similarly stretched and are unlikely to increase dramatically in the short-term.

- » There are mounting pressures on the City of High Point's budget for public goods and services, including the High Point Transit System. As the most important source of funding, the City is challenged by the same pressures facing the transit system and thus has not been in a position to provide additional funding over the past few years.

Developing a feasible and sustainable financial plan depends upon the identification of secure funding sources with sufficient continuous revenue that can support the financing, operation, and implementation of existing and any proposed transit service options or facilities.

As the High Point Transit System looks into the future it must become more proactive about working with partners and looking for new ways to raise revenue, recognizing that it is unlikely that there will be a single solution and instead the agency must look to broaden and diversify funding opportunities.

6.2 Forecast System Costs

The financial element of the SRTP calls for the implementation of the service and capital improvement program discussed in Chapter 5. As discussed in Chapter 5, the future service recommendations and preliminary operating plans assumed a neutral funding scenario. Under this scenario, the recommended services would operate in line with current funding levels, assuming no new sources of funding were available. As such, forecasts of future system costs reflect this concept.

Table 6-1 displays general estimates of the costs associated with implementing the recommendations of this plan, separated into several cost categories. On the operating side, there are expenses associated with continuing operation of existing levels of service, expansion of service into new markets, improvements to existing routes, and administrative support services over the five years of the SRTP.

Operating and maintenance expenses are assumed to be funded through a combination of fare revenues, local vehicle registration fees, state and federal grants. Financial partnerships with local governments or employers are discussed later.

The financial plan includes the following assumptions about revenue availability for operations and maintenance:

- » State and federal formula grant revenues (State Maintenance Assistance Program (SMAP) and Section 5307) will increase at a rate of 3% per year.
- » The fare recovery for fixed-route and demand-responsive services will continue to be roughly 20%.

The existing service column provides an overview of the current fiscal year programmed funds for High Point Transit. Forecasts for system operating expenses are based on the current fiscal year budget and anticipated annual escalations in costs for line items such as staff wages, fringe benefit costs, vehicle parts, fuel, insurance, and facilities, among other costs. A modest 3.0% annual inflation rate was assumed. It may be that costs fluctuate more or less than 3.0%, but this escalation rate reflects a common average cost escalation rate across all categories of costs.

The "New Service" category includes the costs associated with implementing the concept plan detailed in Chapter 5, and reflects the expenses of optimizing the existing service. Note that these services are specifically identified in FY2016, but are subsequently rolled into the service operating costs in following fiscal years, assuming the new service plan is fully operating by FY2017.

The costs for operating expenses shown reflect costs for weekday and Saturday service collectively. The financial element of the SRTP assumes that all current and future services would be operated directly by the High Point Transit System.

The total net costs shown in Table 6-1 show the difference between estimated expenditures and revenues, including passenger fares and other revenue sources available to the High Point Transit System. Fares for fixed-route service and ADA-paratransit services are included in the "Fare Revenue, Concessions, and Assistance" row. Any costs not covered by the revenue sources listed would be the responsibility of the City of High Point. It should be noted that these costs are generalized based on existing budget information, and forecast costs are intended as "order-of-magnitude" forecasts for future system costs.

Exhibit 51. Forecast System Operating Costs and Revenues by Fiscal Year

| Operating Costs and Revenues | Existing Budget | Fiscal Year | | | | |
|---|-----------------|-----------------|------------------|------------------|------------------|------------------|
| | | 2016 | 2017 | 2018 | 2019 | 2020 |
| Operating Expenses | | | | | | |
| Operating Expenses | \$1,975,300 | \$1,719,100 | \$2,095,600 | \$2,158,500 | \$2,223,200 | \$2,289,900 |
| New Service | \$0 | \$315,500 | \$0 | \$0 | \$0 | \$0 |
| Personnel Costs | \$1,531,500 | \$1,577,400 | \$1,624,800 | \$1,673,500 | \$1,723,700 | \$1,775,400 |
| Employee Benefits | \$612,600 | \$631,000 | \$650,000 | \$669,400 | \$689,500 | \$710,200 |
| Capital Improvements | \$271,000 | \$250,000 | \$250,000 | \$250,000 | \$250,000 | \$250,000 |
| Total Estimated Expenses | \$4,390,400 | \$4,493,000 | \$4,620,400 | \$4,751,400 | \$4,886,400 | \$5,025,500 |
| Revenues | | | | | | |
| Inter Governmental Revenues | \$1,044,700 | \$1,076,000 | \$1,108,300 | \$1,141,600 | \$1,175,800 | \$1,211,100 |
| Government Fees | \$413,000 | \$425,400 | \$438,200 | \$451,300 | \$464,800 | \$478,800 |
| Fare Revenues, Concessions, and Assistance | \$2,255,400 | \$2,255,400 | \$2,255,400 | \$2,255,400 | \$2,255,400 | \$2,255,400 |
| General Fund Contribution | \$521,700 | \$521,700 | \$521,700 | \$521,700 | \$521,700 | \$521,700 |
| Transit Capital Projects Fund | \$155,700 | \$155,700 | \$155,700 | \$155,700 | \$155,700 | \$155,700 |
| Total Estimated Revenues | \$4,390,500 | \$4,434,200 | \$4,479,300 | \$4,525,700 | \$4,573,400 | \$4,622,700 |
| Net Total | \$(100) | \$58,800 | \$141,100 | \$225,700 | \$313,000 | \$402,800 |

There are numerous factors that influence the costs of operating transit service, many of which cannot be forecast with any certainty. For example, in recent years, the cost of fuel has both risen and fallen. Improved fleet efficiencies and routine preventative maintenance can help system operating control costs. Other costs have consistently increased, such as the cost of insurance.

The totals shown in Exhibit 51 should only be considered as a general guide for assessing future system costs, but these costs will be determined with better accuracy after the service plan is implemented.

A cost that has not been specifically accounted for but will play an important role in the advancement of transit services in High Point are marketing and promotional costs. Transit is both a public service and consumer good, and advertisements of service improvements need to be communicated with the general public. It is recommended that dollars be allocated to cover the costs of advertising service adjustments at the Broad Avenue Terminal, at key bus stops in the High Point Transit System such as the GTCC High Point campus, and on-board vehicles. Advertisements of service modifications should also be posted in community facilities, senior centers, mailed notifications to demand-responsive service users (to encourage greater use of the fixed-route system), and in new service areas to help attract riders (e.g., multi-unit residential complexes near the Palladium/Deep River district). Over time, marketing costs may be scaled back as new services or brand identity is established.

Capital expenses during the upcoming fiscal years primarily reflect the purchase of new buses. With 12 of 17 fixed route fleet vehicles being below 50% of their remaining useful life, the High Point Transit System will need to procure new fleet vehicles, likely toward the end of the SRTP's timeframe. While vehicle costs differ by manufacturer, a 30-foot city bus with ADA accommodations such as bridge plates or kneeling capability are likely to cost between \$400,000 and \$500,000 each. Economies of scale can be achieved through bulk ordering for vehicles with a peer agency.

Additional capital items include costs for sheltered stop installations (typically costing approximately \$10,000 per stop), funds for bus stop signs or public furniture at bus stops, and the construction of sidewalk space at shelters or around bus stops. Expenditures for sidewalks are assumed to be in addition to the city's regular expenditures for sidewalks already programmed. No costs are included for transit centers or park-and-ride facilities. However, the cost to construct a transit terminal in the Palladium/Deep River region to facilitate transfers between Hi Tran and regional services could cost as much as \$500,000 or more depending on design, right-of-way acquisition, and construction. If the facility is shared with PART or other regional transit services, there may be an opportunity to offset costs with these other service providers.

6.2.1 Service Frequency and Span Enhancements

As discussed, the recommended service operating scenario outlined in Chapter 5 for the future Hi Tran service network assumed a neutral funding scenario, wherein the addition of service in the Palladium/Deep River region, as well as the revised service along Lexington Avenue and other system changes, resulted in operating changes to all routes in the Hi Tran system.

These changes resulted in frequency adjustments or reduced service spans for most routes in the system, a necessary tradeoff to cover the operating cost of the new services and stay within existing budget parameters. However, the SRTP aims to be a forward looking, and throughout the planning process project stakeholders have emphasized a need for enhanced service spans and increased service frequencies.

Exhibit 52 provides an illustration of how enhanced service frequency or a lengthened span of service would change the service operating costs associated with the suggested improvements in Chapter 5. Specifically, these improvements include the following:

- » **Enhanced Frequency:** The frequency of Routes 10 and 11 during the peak travel periods would increase from 30 minutes to 20 minutes.
- » **Enhanced Span of Service:** All routes would be extended to a minimum of 14 hours of daily service (approximately 6:00AM to 8:00PM). There would be no frequency adjustments to any route under this option, in effort to keep costs down.

Costs were escalated by 3% annually to reflect inflation rates over fiscal years. The costs shown are for weekday service only, as the plan suggests that modifications to service frequency or span should only occur on weekday. Saturday service would operate on the same schedule as is currently in service.

Exhibit 52 Forecast Service Operating Costs – Enhanced Frequency or Span of Service

| Fiscal Year | S RTP Service Plan | Enhanced Frequency | Enhanced Span |
|-------------|--------------------|--------------------|---------------|
| 2016 | \$2,351,400 | \$2,528,900 | \$2,713,900 |
| 2017 | \$2,384,900 | \$2,604,800 | \$2,795,300 |
| 2018 | \$2,456,400 | \$2,682,900 | \$2,879,200 |
| 2019 | \$2,530,100 | \$2,763,400 | \$2,965,600 |
| 2020 | \$2,606,000 | \$2,846,300 | \$3,054,500 |

Note: The costs shown in Table 6-2 for operating expenses are different than the costs shown in Table 6-1. This is because the costs for operating expenses in Table 6-1 were based exclusively on expenses for FY 2015, where the costs in Table 6-2 are based on the generalized cost per revenue mile with an overhead factor to broadly account for operator wages, employee benefits, fuel, insurance, and other costs, spread across the entire system.

As noted, the costs shown are generalized, and subject to significant price fluctuation, and therefore are intended for illustrative purposes only. However, it is noted that frequency or span of service enhancements escalate costs, and an analysis of fleet needs would also be necessary to determine whether frequency changes specifically would necessitate additional fleet during the peak travel periods. However, as an expressed desire for improved frequency and span of service by the Steering Committee and Sounding Board, it is important to understand the general parameters associated with these options from a cost perspective, and how these costs impact the overall agency budget to achieve what the community has outlined as a goal for future transit services.

6.2.2 Transit Mode Share

A key ingredient in the forecast of future system costs is ridership. According to High Point Transit System data, fixed-route ridership has declined slightly over the past three fiscal years while ridership for demand-responsive services has slightly increased. Several factors have likely contributed to these observed trends. As the City of High Point’s populace has aged, more persons are now eligible under the current

rules for demand responsive service. At the same time, job losses among skilled trades or service sector employment have likely led to reductions in ridership. Still, High Point experienced a population growth rate of 21.6% between 2000 and 2010, and U.S. Census Bureau projections assume the City has added an additional 3,000 - 4,000 residents since 2010. The growth in population will place additional need on public services, including public transportation, as a means of basic mobility. Coupled with the demographic characteristics of High Point, public transportation will continue to be a vital service to many residents.

While future ridership is an important consideration in forecasting financial needs, the statistic most relevant to measuring whether the High Point Transit System is achieving its mission is the percentage of trips in the region that are made on public transportation, also known as the transit mode share. Despite recent trends suggesting declining ridership on fixed-route services, with the City of High Point continuing to grow, transit’s mode share should be anticipated to increase. Transit mode share is also closely tied to economic conditions, as transit represents one of the most economical forms of transportation for a city. In a growing economy, transit ridership may increase, but the transit mode share may actually drop if overall travel is increasing at a faster pace. Conversely, if transit mode share is increasing, then it is clear that the region is moving toward a more sustainable transportation system with less reliance on the private automobile.

It is difficult to measure with any level of precision the transit mode share at a single point in time, but estimates may be made using various data sources and basic assumptions. A common way to examine the potential future transit mode share is to consider the past experience of transit relative to population growth. Based on the growth of High Point over the past decade, growth in transit mode share may be estimated for year 2020. This extrapolation assumes that the rate of growth that occurred between 2000 and 2010 will continue at roughly the same pace between 2010 and 2020. With the rate of growth between 1990 and 2000 being nearly

equal to the rate of growth between 2000 and 2010, and current Census Bureau figures projecting growth in the first few years of the current decade, the assumption that the rate of growth will be consistent is valid.

The U.S. Census Bureau estimates the proportion of public transportation trips made for work purposes in High Point is approximately 1.1%¹ of all work trips. By 2020, it is estimated that the transit mode share could increase to XX% based on the assumed growth of Hi Tran ridership relative to the City's population growth.

Several factors affect future transit mode share. As the High Point Transit System increases its levels of service (e.g., frequency and span of service) and expands the system's geographic reach, more riders will be attracted. Rising automobile-related costs will promote the use of non-motorized travel modes including transit. The two most obvious components of the direct cost of car use are the price of gasoline and the price of parking. To the extent these costs increase relative to the cost of transit (e.g., fares), transit will become a more attractive option. The mode share of bicycle and pedestrian trips (while not estimated here) is likely to continue to rise, which compliments transit utilization.

6.3 Future Funding Opportunities

The following discussion presents a brief description of potential federal, state, local, and public/private sources of funding commonly used by transit agencies to help offset the public subsidy costs of providing service. Transit agencies are looking for creative means to raise revenues to offset increasing operating costs while competing for increasingly limited public general fund dollars with other public services. These funds could be used for both capital and operating cost needs for the existing and future transit system. In some cases, the High Point Transit System may have already explored potential partnerships; in other cases, opportunities may exist that should be capitalized on.

Fares

Across the country, nearly every transit agency has had to increase fares to help cover operating cost increases in the past five and ten years. Fare increases are one of the most common methods of raising transit agency revenues, and should be considered by the High Point Transit System periodically. The last time High Point Transit System fares were increased

was 2004, and current data suggests a fare recovery percentage of between 21 and 23 percent. Establishing fare recovery thresholds is an important step for when fare increases are warranted and justifying future fare increases with the public. A common fare recovery threshold used by transit agencies is 25 percent, by example.

However, raising fares is a delicate balance between equity, ridership, and agency revenue needs, particularly for transit agencies like the High Point Transit System that predominantly serve transit-dependent populations. Fare increases directly impact system users, some of whom may not be able to afford the increase, thus also affecting ridership. Yet in order for the High Point Transit System to continue to provide service and achieve the goals outlined in this and future short range transit plans, users should expect periodic fare increases. Underlying both of these points is that transit continues to be an affordable transportation solution as compared to driving.

Dedicated Taxes

One of the most common ways transit service agencies are able to achieve financial sustainability is by working with local, regional, and state governments to develop taxing mechanisms that dedicate tax revenues to the transit agency. Also, federal funding support often requires a form of dedicated local revenue. In 2009, the NC General Assembly passed the Congestion Relief and Intermodal Transportation 21st Century Fund, authorizing counties to enact (with voter approval) up to a one-half cent sales tax and increases in regional vehicle registration fees to fund public transportation service. This fund also provides grants to transit agencies, provided a transit plan is in place.

The High Point Transit System does not directly receive funds as part of a tax used to support public transportation. However, many transit agencies across the country are working with local, regional, and state legislative bodies to enact dedications of tax revenues from different funds to pay for service. Popular tax mechanisms used by transit agencies include the following:

- » **Sales Taxes** – Dedicated sales taxes are increasingly used by transit agencies as a means of generating revenues for capital improvements and operating revenues. Typically, communities propose sales tax increases as one-quarter or one-half of one cent. These taxes are most often part

of ballot initiatives and ratified by voters. However, there is risk associated with this approach. The inherent instability of this revenue source makes predicating investments in transit service difficult, especially if these funds are used for service operations. Still, sales taxes are often a mechanism used to help fund agency services and capital improvements.

- » **Automobile/Truck Rental Fees** – The City of High Point already collects vehicle use fees for licenses, permits, and inspections, and a portion of these funds are provided to transit. It is recommended that this source of revenue continue to be available to the High Point Transit System, and increased if possible. Maximizing the available dollars authorized by the NC General Assembly as part of the Congestion Relief and Intermodal Transportation 21st Century Fund should be implemented if not already in practice.
- » **Automobile Sales Taxes** – Some states and municipalities have taken steps to dedicate a portion or all of automobile sales taxes to fund transit services. Personal transportation will continue to be the dominant form of transportation in cities and states across the country, and sales of automobiles are gaining strength. However, as with other sales-based taxes, automobile sales taxes are subject to economic conditions of the region, state, and nation.

The feasibility of identifying local taxing mechanisms to support transit was not included as part of the SRTP process, but may be a topic for additional research.

Student Transportation Fees

Another revenue-generating mechanism that is increasingly popular with transit agencies are student transportation fees. Universities and colleges typically have a strong interest and high demand for transit service because students do not always have access to private vehicles, but need or want to travel; university and college campuses often have limited and/or restricted parking facilities, and offering transit

programs is often equally or less expensive than developing parking structures; and many colleges are interested in being more “green” and look to transit programs as one of the ways they can reduce the environmental impact of their institution. Partnerships between transit agencies and universities and colleges are typically referred to as “UPass” programs; the moniker reflects both that such arrangements are with a university and often offers universal access to transit service. These fees, typically paid individually by students, offer students a flat rate per semester or for the entire academic year for unlimited transit trips. While student transportation fee programs will not fully resolve Hi Tran’s revenue needs, it may help reduce the budget challenges slightly. Developing partnerships with High Point University and GTCC could provide a source of revenue.

It is also worth noting that student travel programs may be structured so the revenue collected is used as fare revenue or as local matching funds.

In addition to universities and colleges, transit agencies have also successfully earned revenue through partnerships with public school districts. Common arrangements include contracting directly with the school district to provide specific trips to schools (such trips must still be open for general public use) or selling school districts bulk transit passes for students.

Employer Partnerships

Many transit agencies have also developed partnerships with large local and regional employers to offer employees bus passes and incentives to use transit. These pass programs are paid for by either the employer or a combination of the employer and employee, selling passes in bulk to major employers, or working with an employer to provide targeted transit service to a specific employment site. The High Point Transit System might consider working with regional employers such as Ralph Lauren or Bank of America to identify times of day employees are traveling and their travel needs. In the case of the recommended crosstown service on

Lexington Avenue that would directly serve the Ralph Lauren facility on Pendleton Street, or the Palladium/Deep River region circulator service, it may be possible to work with employers to provide some funds to offset operating costs if there is direct benefit. As noted above, effective marketing of the service improvements and new routes will be critical to their success. A suggested approach is to combine individualized marketing strategies at the residential end of new routes with employer-based transportation demand management (TDM) strategies.

Advertising Revenues

Advertising on and within transit vehicles and at facilities is not a new concept. Transit centers, vehicles, and bus stops are places where people congregate and wait for service. Recognizing the potential to reach temporarily captive audiences, advertisers are looking for cost effective and easily implemented advertising mechanisms to deliver messages. Similarly, transit agencies are continuing to recognize the revenue generated and operational cost savings available through advertising dollars.

According to the 2009 Transit Cooperative Research Program (TCRP) Report 133, Practical Measures to Increase Transit Advertising Revenues, which surveyed national and regional advertisers and media experts, the “Sale of advertising in public transit facilities and vehicles is a nearly \$1 billion industry generating approximately \$500 million annually to transit agencies.”

While transit advertising expenditures have fluctuated in recent years, “out-of-home” advertising (billboards, newspapers, and place-based advertising) has continued to grow. While the report notes that transit advertising expenditures comprise approximately 0.3% of all advertising expenditures in the country (according to 2007 data), the revenue generated to transit agencies can help secure additional operating revenues and offset operating and maintenance costs.

The findings of TCRP Report 133 state that “Market conditions suggest that transit advertising is well positioned to grow. The outlook from organizations that track media trends is that the shifting of dollars out of traditional media and into non-traditional formats will continue, despite an overall decline in advertising spending due to the current recession. In particular, out-of-home media, as a category, will remain one of the fastest growing sectors of advertising spending. This forecast is compatible with

the belief that the benefits offered by transit advertising can be made to align well with the needs of advertisers.”

Exterior bus advertising reaches all sectors of the population – as moving billboards, transit bus or rail fleets can carry a message from one side of town to another, through neighborhoods, commercial districts, medical or institutional campuses, and industrial centers. These advertisements allow for large displays of products or messages using minimal written copy, given the short duration viewers are typically exposed to the advertisement. Where exterior bus advertising is capable of reaching a mass audience quickly through large but simple displays, interior advertising capitalizes on the captive nature of the transit user audience and the duration of their trip.

Transit riders typically remain in a transit vehicle for more than one stop and the time in transit (including the dwell time at stops) allows them to view interior advertisements for long periods. Interior bus advertisements, sometimes referred to as “Car Cards,” are smaller-sized posters mounted in plastic frames between the top of the window and roof of the bus, or sometimes along vertical panels within the bus (a popular location is the vertical panel behind the driver’s seat, or seatback panels by the rear door). Finally, transit shelters and street furniture offer fixed facilities that may be used to display outdoor advertisements, thereby generating additional revenue to the transit agency.

A strong advertising program generates a reliable revenue stream, positioning the High Point Transit System as a fiscally responsible agency. Ultimately, this allows the High Point Transit System to provide better products and services. The High Point Transit System may consider an open solicitation of potential outdoor advertising partners via an RFP for implementation and ongoing management of an advertising program. Once awarded, the advertising vendor, in partnership with the High Point Transit System, could:

- » Perform a market analysis in order to create a flexible and robust menu of advertising options, establish advertising value (e.g., number of impressions, frequency, etc.), and establish advertising unit price points.
- » Seek out local and national advertising partnerships, with an emphasis on strong local brands as potential advertisers.
- » Increase awareness about the benefits of advertising with Hi Tran,

especially among local businesses and communities.

- » Utilize advertising profits to reduce capital costs of advertising program infrastructure improvements, which will in turn result in higher levels of advertising revenue,
- » Coordinate with client and fleet maintenance services to assure quality control and manage content to ensure the branding of Hi Tran presents a strong community based image.

Congestion Mitigation Air Quality Funds

New services in the High Point Transit System service area could be funded through a Congestion Mitigation/Air Quality (CMAQ) grant. These grants are three-year demonstration grants that provide 80% federal funding and require a 20% local match. During the three-year demonstration period, the City of High Point would be responsible for the 20% local match and the High Point Metropolitan Planning Organization (HPMPO) would provide the 80% federal funds from the FTA as pass-through money. A risk with using this approach to funding new services is whether a route funded with CMAQ money is successful, but limited funds for transit do not permit it to continue operation.

At the conclusion of the three-year demonstration period, if the route has proven to be successful, the City of High Point would presumably be responsible for the full cost of the service. This places a burden on the City of High Point to identify a source of the 80% funding that would not be covered by the federal government. If a regional funding source (e.g., HPMPO, Guilford County, or the State of North Carolina) was available to the High Point Transit System, the burden on the City after the three-year demonstration period ends could be significantly reduced.

Another important consideration with regard to CMAQ funding is the regions continued ability to meet air quality standards as defined in the Clean Air Act. Transportation contributes substantially to greenhouse gas emissions. As

long as the region remains “in attainment” as it currently is, the State of North Carolina has full discretion on how to allocate its CMAQ grant from the federal government.

Rather than risk falling into non-attainment, investments in public transportation now, using CMAQ and other funding as a hedge against non-attainment, will both enhance the sustainability of the transportation system in High Point and preserve the freedom to use CMAQ funds for the best available and most needed projects.

¹ U.S. Census Bureau, American FactFinder, 2011-2013 American Community Survey 3-Year Estimates Journey to Work

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