

City of High Point, North Carolina

SHORT RANGE TRANSIT PLAN



SHORT RANGE TRANSIT PLAN

Prepared for
City of High Point
High Point Transit System

Prepared by



HIGH POINT



NO
Stations



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EXECUTIVE SUMMARY

The High Point Transit System (HPTS) Short-Range Transit Plan (SRTP) is a five-year transit operating plan and capital program for public transportation and ridesharing services. The plan is intended to act as a guide for investments to current services between Fiscal Year 2016 through 2020.

The service recommendations and policies presented in the SRTP are intended to be supportive of the City's goals for providing public transportation service, but also intended to support economic activity, provide service to those most in need, and move the city forward in providing a sustainable transportation system. The plan assumes that no net increase in operating costs will be possible; therefore, the plan provides a strategy to improve services within the framework of the existing annual operating budget.

In 2013, the High Point Transit System retained the consulting team of HDR to assist the City with the development of this SRTP, with assistance from the firms of TJR Advisors, AJM Consulting, and Simon Resources. In addition to the consulting team, 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 City Council also requested the formation of a Sounding Board, comprised of local residents, advocacy agencies, civic groups and local institutions to provide an additional review and public input on the SRTP's development. As a community-driven planning effort, considerable effort was made to incorporate the input of public officials, representatives of key civic organizations, businesses, public agencies, and the public at-large.

The primary recommendations of this plan include the extension of service into the later evening hours on week nights, expansion of service to new areas of High Point (particularly the Palladium/Deep River region), coordination with regional service providers, and investments in sidewalks and passenger amenities at bus stops.

Additionally, the plan calls for continued investments in stop amenities and investments in a real-time arrival information system and other technology upgrades.

By adopting this plan, the City of High Point Council is not committing to funding all the recommendations over the five-year life of this plan. Each year, a refined funding request for the upcoming fiscal year's recommendations will be included in the budget planning process and recommendations will be considered along with other agency priorities. The SRTP includes:

- » Review of existing service performance
- » Identification of services needs and opportunities
- » Recommendations for fixed-route and demand-responsive services adjustments
- » A fiscally constrained implementation plan

The following sections of this document provide an overview of the study process and analysis, provides the final recommended plan for future service in the next five years, including specifications for the recommended service redesign, a financial management plan, a capital improvement plan, and additional recommendations to support execution of high-quality transit services in the City of High Point.

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Chapter 1.0

1.0 OVERVIEW

The City of High Point Short Range Transit Plan 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 HPTS 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.

High Point Transit System

High Point Transit System's (HPTS) 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.

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 HPTS 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 HPTS to achieve its operating mission and meet the community's expectations and desires for service?



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

The HPTS 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 HPTS strives to provide the most cost-effective and efficient public transportation services as funding allows. As with any public transportation provider, the HPTS 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 Piedmont 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 HPTS, 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 HPTS 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-American's with Disabilities Act (ADA) demand-responsive service.



Broad Avenue Terminal

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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 HPTS 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.

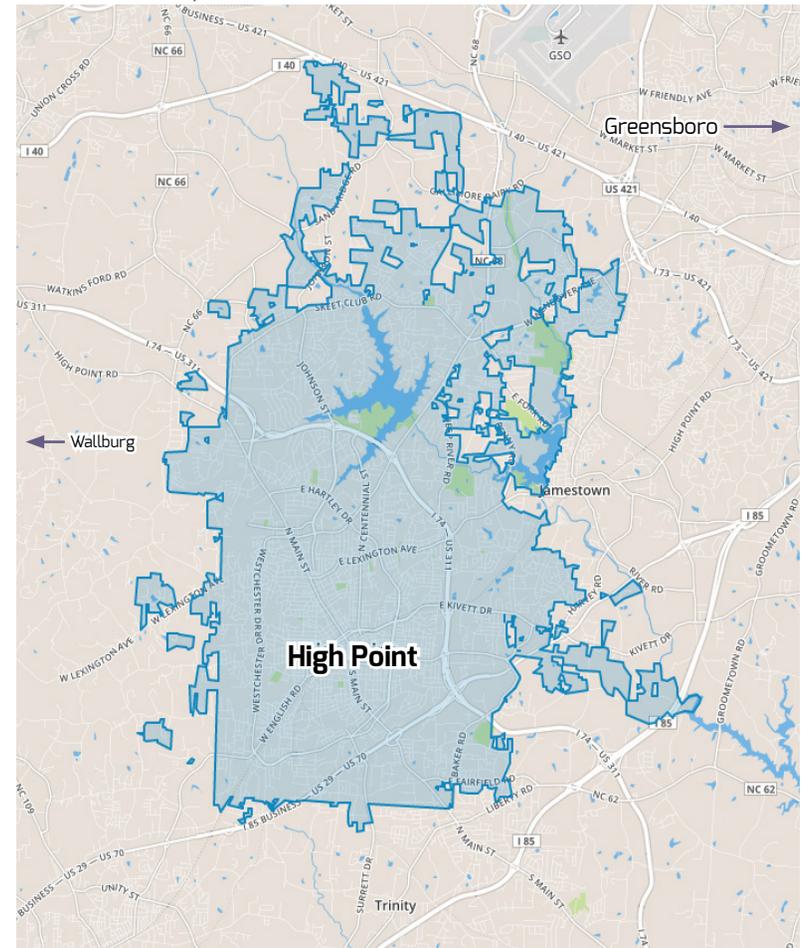


1.2.1 The Study Area

The planning study area for the SRTP is principally the City of High Point. Some HPTS 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 HPTS are within the boundaries of the City of High Point.

Exhibit 1-1. 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 HPTS' 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.



Hi tran Dial-a-Lift Vehicle

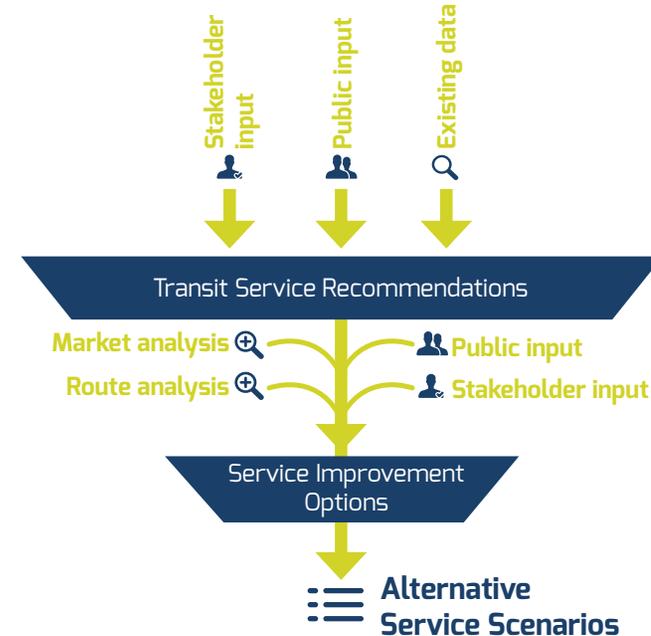
In addition to population characteristics, a comprehensive review of current performance data was conducted on both a system-wide and individual route basis, along with a review of available stop-level boarding and alighting data. The objective was to identify under- or over-served markets in the system, 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 HPTS 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 HPTS 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 HPTS 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 HPTS staff to develop and evaluate a variety of alternative service scenarios that offered a new approach to the organization of the HPTS' 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

HPTS 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 1-2.

Exhibit 1-2. 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 (HPTS 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 SRTP 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 with assistance from the firms of TJR Advisors, AJM Consulting, and Simon Resources. The following were the principal team members on this project:

Exhibit 1-3. Members of the Project Team

Consultant Staff	Affiliation and Role
 Kirk Stull, PE	HDR (Project Manager)
 Alec More, AICP	HDR (Principal Planner)
 Cavan Noone	HDR (Transit Planner)
 Kelly Spitzley	HDR (Graphic Design)
 Hannah Baweja	HDR (Transit Planner)
 Krista VanAuken	HDR (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

Chapter 1.0 - Overview

The SRTP is organized into six chapters, including Chapter 1. This chapter introduces the SRTP document.

Chapter 2.0 - High Point Transit System

The evaluation of existing conditions begins with an overview of the HPTS and existing transit services in the second chapter of the SRTP. This chapter provides a comprehensive overview of the HPTS' 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 3.0 - Transit Market Analysis and Needs Assessment

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 4.0 - Development of Alternative Transit Service Options

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

Chapter 5.0 - Recommended Service Scenario

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

Chapter 6.0 - Transit Funding

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.



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.

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 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.

¹This 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 HPTS 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), HPTS serves approximately 3,800 weekday riders. HPTS 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 HPTS 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.

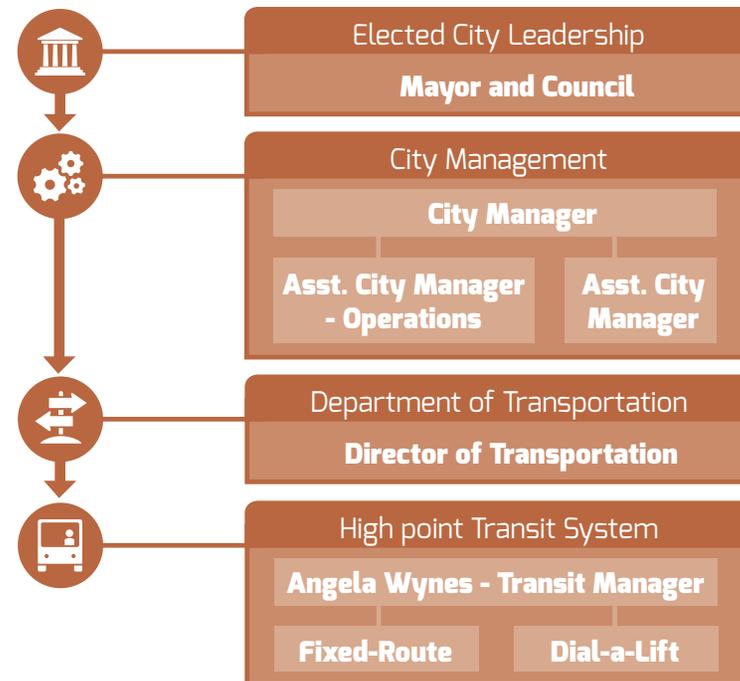
Governance Structure

The HPTS 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, HPTS 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 HPTS.

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.

Exhibit 2-1. HPTS Organizational Chart



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Advising the 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 HPTS 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

The HPTS 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 HPTS. The administrative section has four positions, Dial-a-Lift has eight positions, fixed-route has 27 positions, and maintenance has six positions. Exhibit 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 HPTS 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 HPTS facilities.

Funding for HPTS comes from a combination of federal, state, and local sources. Federal funds are provided by the Federal Transit Administration (FTA), distributed on a formula basis, and account for approximately 40% of all operating costs.

Exhibit 2-2. Operation and Capital Funding Sources

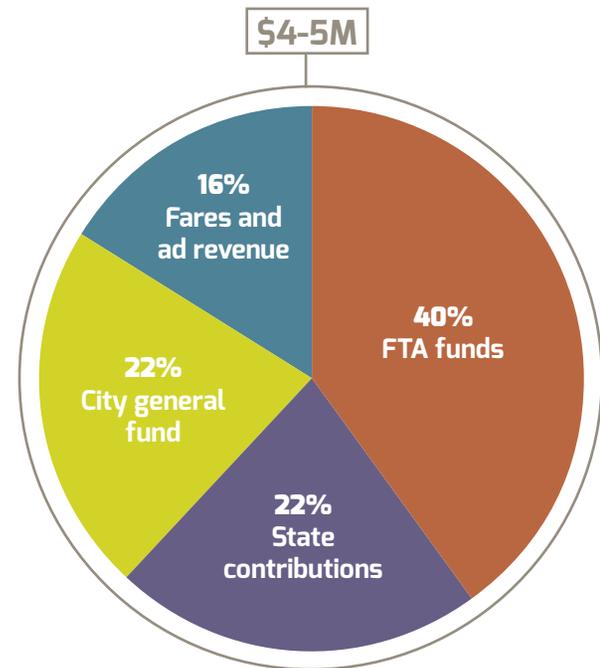


Exhibit 2-3. Capital Improvements Funding Sources



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

In addition to federal funds, State of North Carolina contributions are made to the city for the ongoing operation of HPTS, accounting for approximately 22%. Funds appropriated from the City of High Point general fund also contribute approximately 22% to the operating cost of HPTS 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 HPTS through the City's general fund, and as such HPTS 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 HPTS' 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 HPTS 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 HPTS 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 HPTS 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 HPTS 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 HPTS.

- » 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 HPTS service network. As noted, HPTS 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 2-4 identifies the fixed-routes in the HPTS, the primary travel corridors served, the service classification, and recent performance.

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Exhibit 2-4 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
15	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

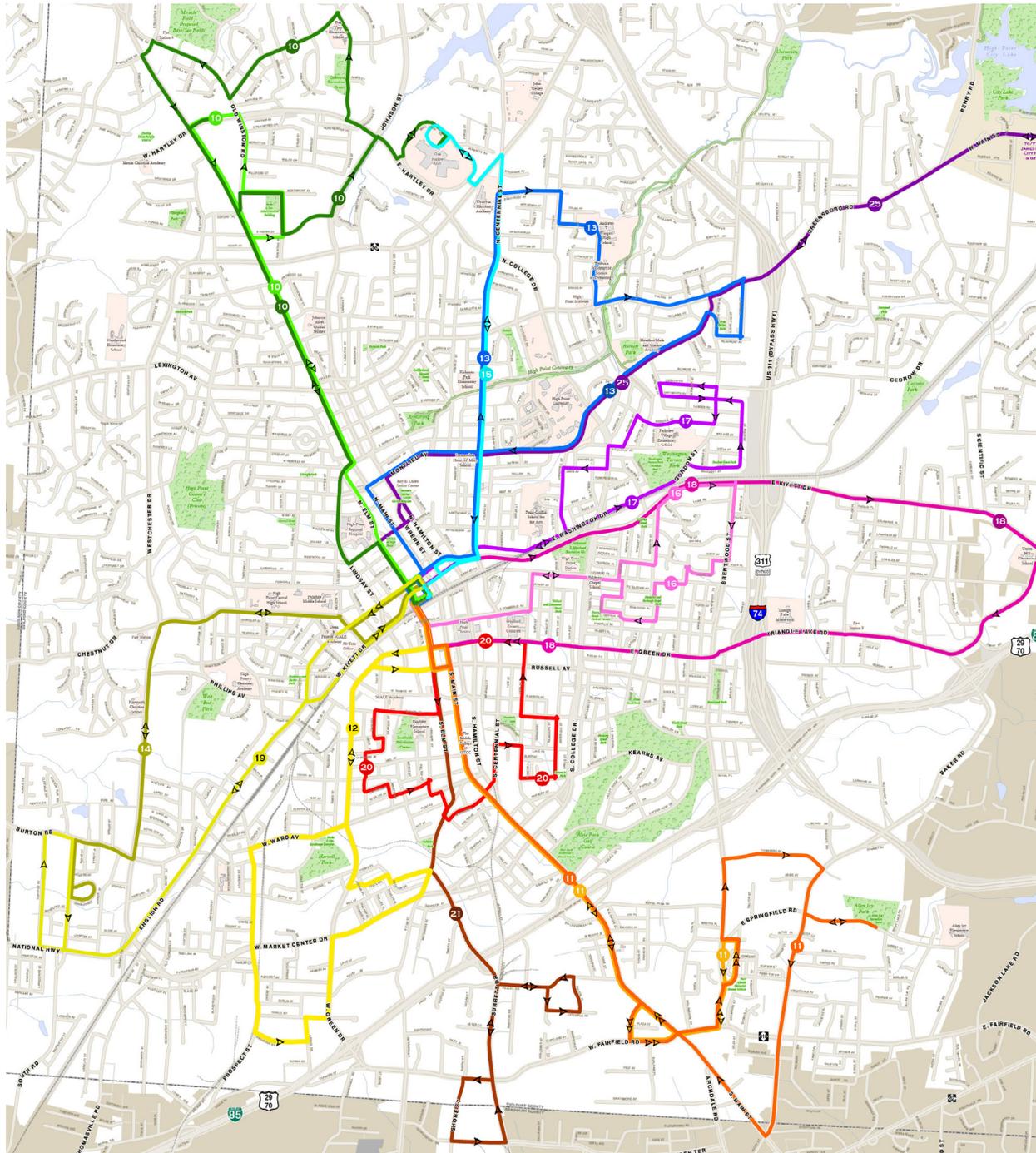
Where the Sidewalk Ends

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 HPTS 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 2-5. HPTS Map



Map key

- 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

Interlined Bus Routes

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:

Weekdays and Saturday

- | | |
|--|--|
| Route 10 | Route 11 |
| Route 14 | Route 18 |
| Route 16 | Route 17 |
| Route 19 | Route 20 |

Weekdays only

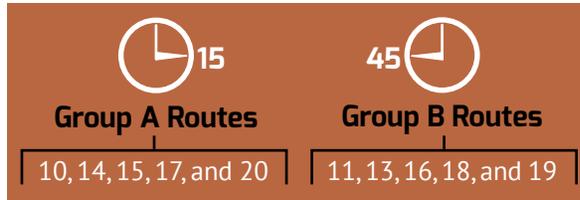
- | | |
|--|--|
| Route 12 | Route 13 |
|--|--|

Saturdays only

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| Route 13 | Route 15 |
|--|--|

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.



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 HPTS to maximize area coverage while minimizing operating costs.

In addition to local routes, the HPTS 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 Surratt 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 data were used to assess the approximate number of persons within easy walking distance of HPTS fixed-route services. Assuming an even population distribution, nearly 26,960 persons, or 26% of the city population, live within a one-quarter mile radius of local fixed-route services. Moreover, 45,656 people, or 44% 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 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 HPTS’ 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 2-7 lists all HPTS fixed-routes by service category and basic operating characteristic information.

Exhibit 2-6. Fixed-Route Service Coverage Area

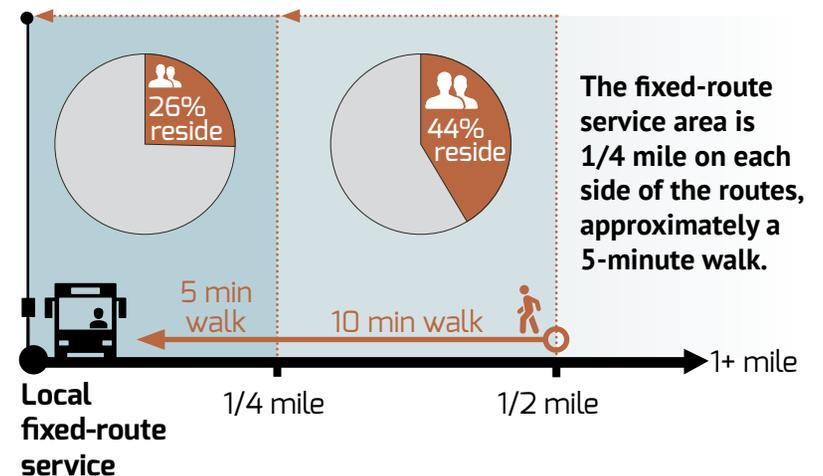


Exhibit 2-7. Fixed-Route System Service Characteristics

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, HPTS, 2014

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

Demand Responsive Service

In addition to the fixed route service, HPTS 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, HPTS 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, HPTS 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). HPTS'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 HPTS 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 HPTS service area. 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 HPTS, two other transit services operate in portions of High Point or connect with HPTS 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 HPTS 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 HPTS 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 HPTS. 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 2-8 below.

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 2-9 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.

Exhibit 2-8: 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, HPTS, 2014

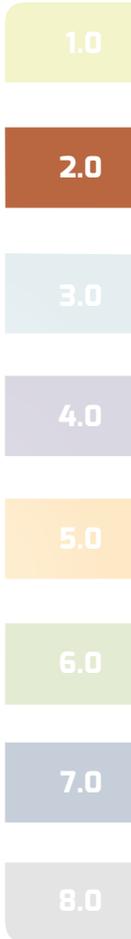


Exhibit 2-9: Other High Performing Boarding/Alighting Locations

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, HPTS, 2014

¹Excluding the Broad Avenue Terminal

Operations & Maintenance Facility

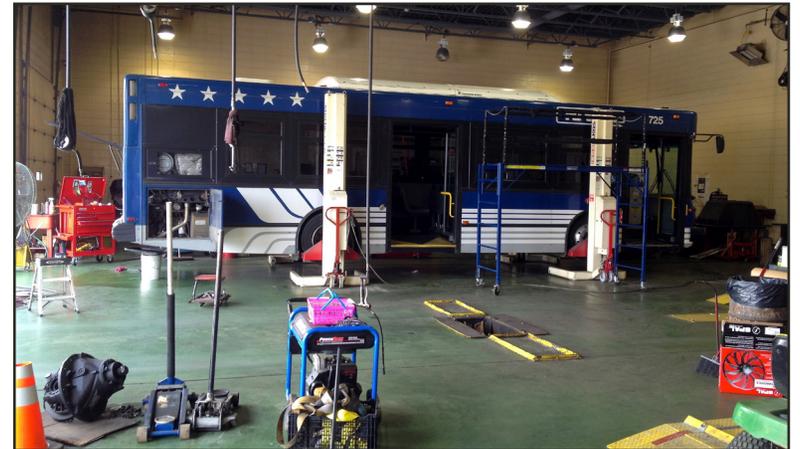
The HPTS' operations and maintenance facility (O&M facility) is located at 716 West Kivett Drive, approximately one half-mile from the Broad Avenue Terminal in downtown High Point. Entrances to the O&M facility are located off West Kivett Drive and Chestnut Drive. There are four bays at this facility: 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

The HPTS' 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.



Hi tran Vehicle Maintenance Garage

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.

HPTS'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 HPTS 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 HPTS 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 HPTS works with PART and accepts the Regional Value Cards. Exhibit 2-10 outlines the current fare table.

Exhibit 2-10. 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, HPTS, 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.

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

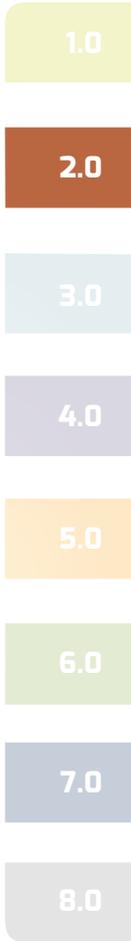
² HPTS policy currently does not permit in vehicle or exterior advertising with the exception of public service announcements.

³ Unlinked 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.

⁴ Revenue 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.

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

⁶ Routes 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 HPTS.





Chapter 3.0

High Point Quick Facts

Exhibit 3-1. 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, HPTS 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 needs.

» **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

The HPTS 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 HPTS’ 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.

Exhibit 3-2. 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

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.

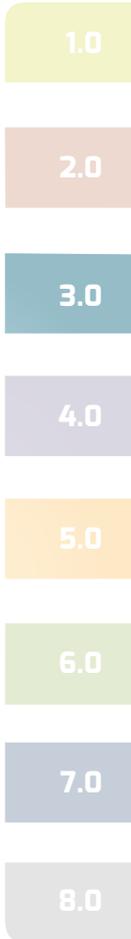
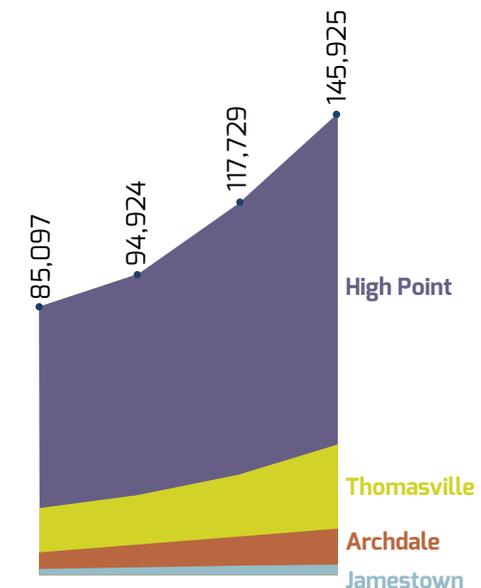
The market analysis analyzed a variety of demographic, socioeconomic, and available travel pattern data, including a trend analysis on the changes in population and employment in High Point and the surrounding communities, and analysis of the size and spatial distribution of population groups with a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

Exhibit 3-3. High Point Area Population Growth, 1980-2010



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 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 HPTS service. Exhibit 3-2 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 3-2, 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.

Exhibit 3-4. Comparative Household Statistics, 2008-2012

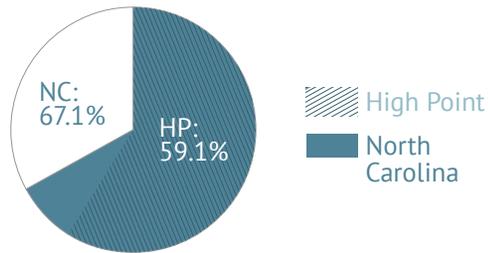
Location	Total Households	Persons per Household	Median Household Income	Per Capita Income	Persons Below Poverty Level
High Point	40,038	2.54	\$44,367	\$22,729	20.4%
Archdale	4,378	2.60	\$51,332	\$24,202	9.6%
Jamestown	1,405	2.41	\$81,250	\$43,204	10.8%
Thomasville	10,681	2.51	\$34,253	\$17,628	29.2%
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

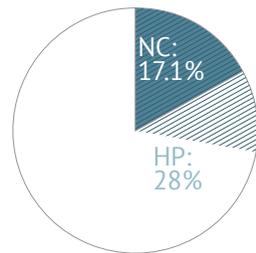
According to ACS data, a total of 40,038 households were identified in High Point between 2008 and 2012, with an average household size of 2.54 persons. The median household income was reported at just above \$44,000, with a per capita income of half that amount (\$22,000). Interestingly, the percent of persons living below the poverty level was nearly 4 percentage points above both Guilford County and the State. Exhibit 3-4 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:

Multi-resident structures



Residents who own their home



Residents who live alone



Median home value



In High Point, on average...

- 2.5% more residents have Bachelor's degrees or higher
- 5% more residents are foreign-born
- 3% fewer residents speak only English. 3% more non-English speakers speak English "less than very well"
- Residents are 2 years younger, with 1% fewer residents who are 65+ years old

...than in the State of North Carolina

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 3-5. 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.

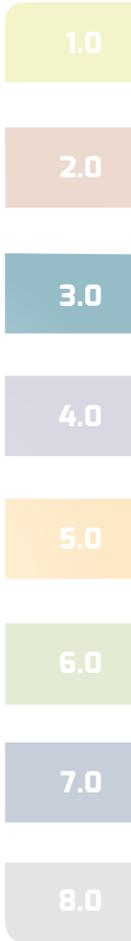


Exhibit 3-5. Major Employers in High Point

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 Palladium/Deep River 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.

Exhibit 3-6. 2011 LEHD Inflow-Outflow Graphic (All Workers)

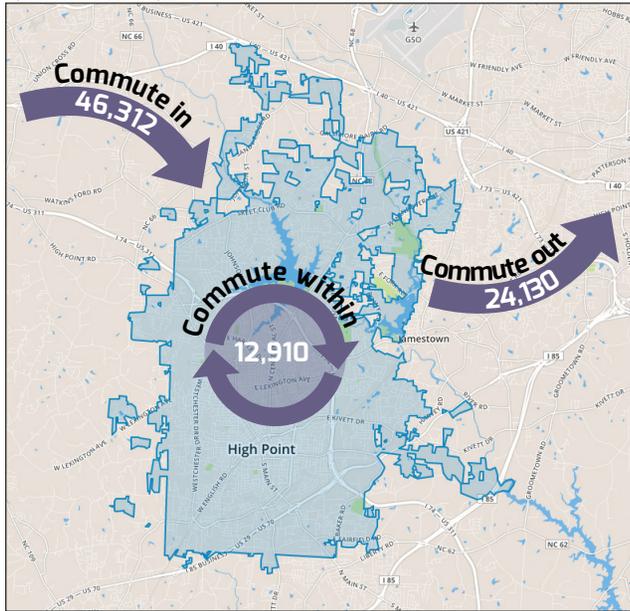
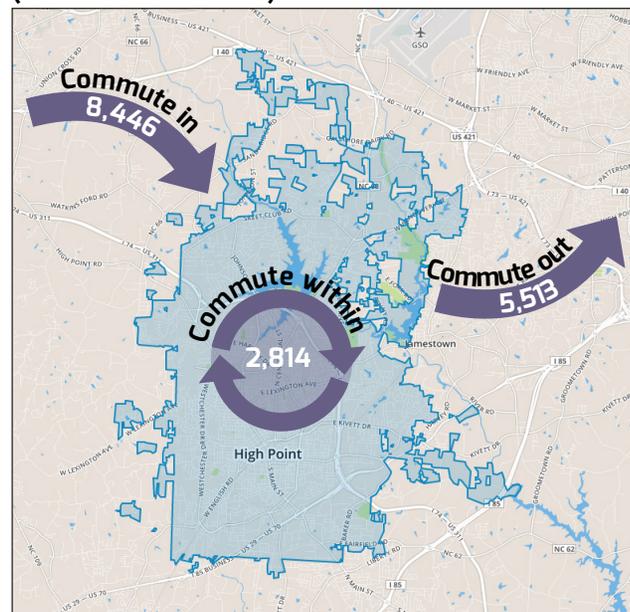


Exhibit 3-7. 2011 LEHD Inflow-Outflow Graphic (Low-Income Workers)



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

While land uses are 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

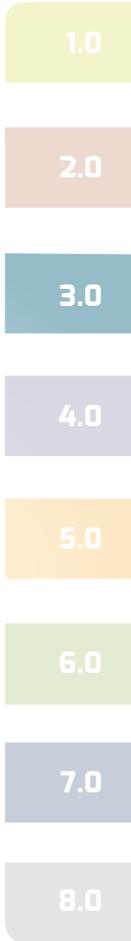
The Census Bureau's Longitudinal Employer-Household Dynamics (LEHD) program provides a rich set of data and a detailed view of the commuting patterns of an area's workforce. This data is based upon employer surveys submitted from a variety of regional, state, and federal agencies, and includes information from each state's 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 3-6 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 HPTS 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 HPTS, PART, and Greensboro Transit Authority (GTA).

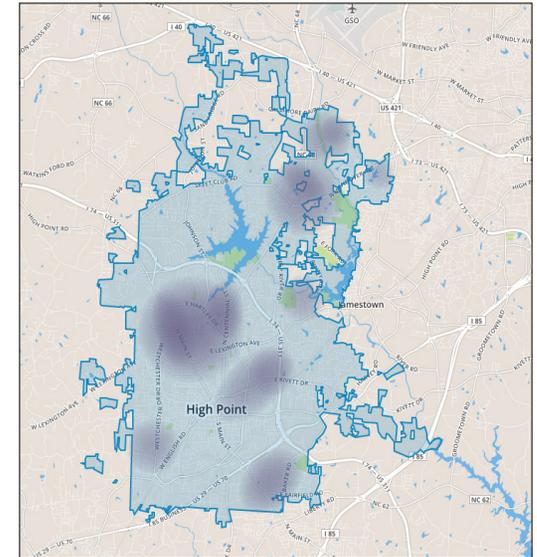


The LEHD database permits the selection of workers by pre-set income level. The lowest income level is \$1,250 per month (\$15,000 annually) or less. This level was analyzed to determine the inflow-outflow patterns of low-income workers in High Point and surrounding areas. This analysis yielded several 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 3-7 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.

Exhibit 3-8. Low-Income Job Location



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

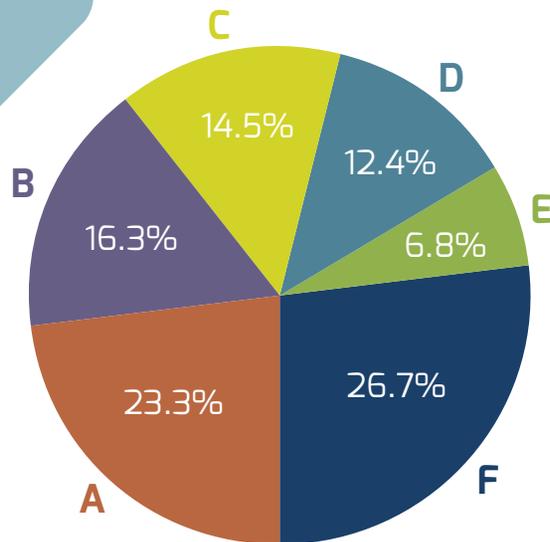


Exhibit 3-9. Low-Income Jobs by NAICS Sector, 2011

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

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 3-8 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 Palladium/Deep River 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 Palladium/Deep River and Piedmont Parkway areas, all of these areas are served by HPTS routes. The Palladium/Deep River and Piedmont Parkway areas represent a notable gap in the HPTS service coverage area. This job center sits immediately at the confluence of several major transportation routes, with a high volume of daily traffic.



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 HPTS, PART, and Greensboro Transit Authority (GTA).

Exhibit 3-10. 2011 Job Locations of Low-Income Residents

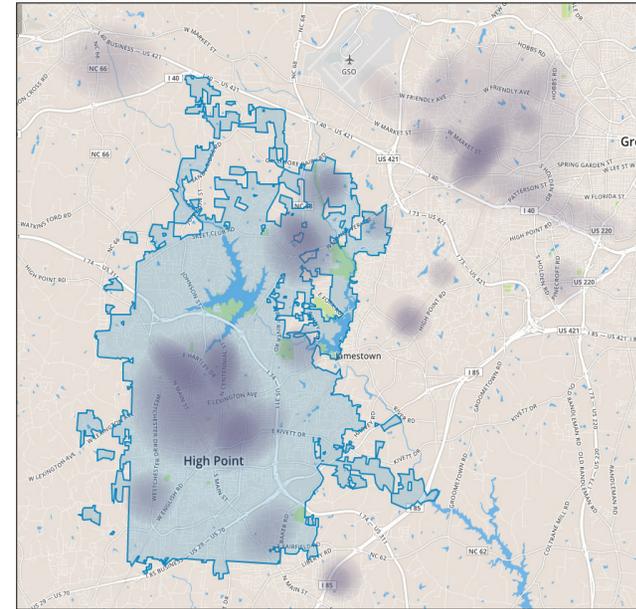
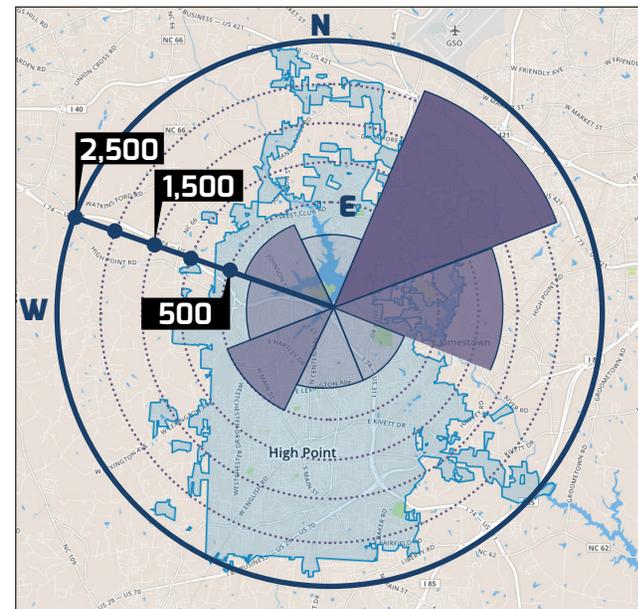
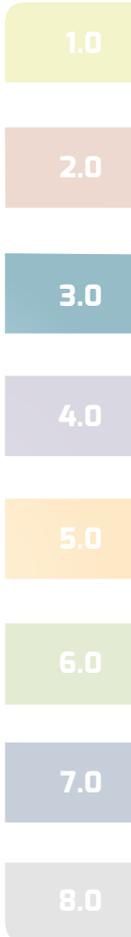


Exhibit 3-11. Job Counts by Distance/Direction in 2011 (\$1,250 per month or less)



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



As an emerging employment area, it will be important to connect this area with downtown High Point.

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 3-9.

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 3-8 depicts the location of their workplace.

Exhibit 3-10 shows the specific location and concentration of jobs, while Exhibit 3-11 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.



What People are Saying

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

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.

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 in Section 3.4).

Exhibit 3-12. Public and Stakeholder Involvement Efforts



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 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.

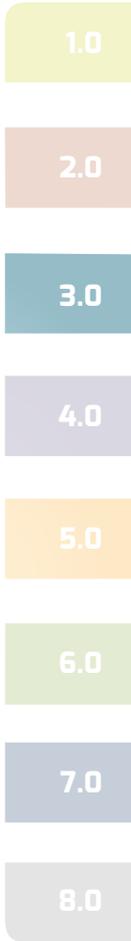
3.2 Public and Stakeholder Input

The perspective and priorities of members of the public, existing transit riders, area stakeholders, and operators of the HPTS 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 HPTS.



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 HPTS 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 HPTS drivers and staff was gathered during a workshop with operators in late 2013. The purpose and the process of the SRTP was presented during this workshop that included drivers, maintenance employees, and others involved in transit system operations.



Measuring service performance

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

Costs	Trips per hour
Revenues	Trips per mile
Service	Ridership

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.

HPTS staff were asked to illustrate routing patterns they felt should be considered for the future system on street maps provided during the workshop. 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.

Findings

Overall, there is strong appreciation and support for the services offered by HPTS.

-  Overall, there is strong public appreciation for HPTS personnel and services offered
-  General understanding of challenges and complexity of operating the service
-  Desire to see the HPTS succeed
-  Overall, the System connects transit-dependent population with jobs, shopping, and education, - but, this needs to be a continued priority
-  Amount and span of service on weekdays and weekends is inadequate
-  Routes are indirect, leading to lengthy travel times
-  Stop infrastructure is limited

Members of the public, the committees established, and transit system staff generally understand the challenges confronting the agency and the complexity of planning and operating the service. Most participants in the outreach activities expressed a desire for the HPTS 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 HPTS 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 HPTS' existing fixed-route local bus and demand-responsive services were inadequate with respect to the amount of service provided during weekdays and weekends (particularly the span of service).

Other complaints regarded the indirectness of travel (and lengthy travel times), and limited stop infrastructure. Despite the limited hours of operation, few comments were received on service reliability, suggesting that service operations during revenue service hours were reliable. The need to serve transit-dependent populations adequately was expressed as a top priority. This is particularly important for the transit-dependent community, who rely heavily on transit in High Point to connect them with jobs, shopping locations, and educational institutions. While the general consensus was that the HPTS does a good job of reaching these populations, efforts should be made to ensure these populations continue to be served sufficiently.

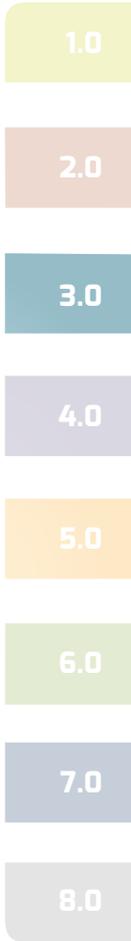
A summary of the public comments received are included in the appendices of this plan.

3.3 Peer Review

As part of the SRTP process, an analysis of peer agencies was conducted to compare High Point's transit 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 HPTS could learn from peer agencies on how to improve service. The full peer review is included in the appendices of this plan. Highlighted findings include the following:

- » **In general, HPTS is a productive and cost effective system for the services operated.** HPTS 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 HPTS 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 HPTS 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.



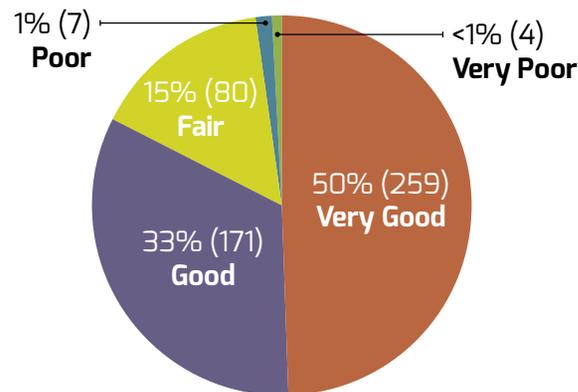
In summary, High Point runs a solid system as compared to regional peers. Addressing demand-responsive productivity by possibly shifting riders and resources to fixed-route operations (or flexible route operations) is an area worthy of consideration. Further, understanding demand-responsive service's 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 HPTS services is by asking those persons who use the system. To collect feedback from the public, the SRTP included a survey of HPTS 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 on-board survey results are included in the appendices of this plan.

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.

Exhibit 3-13. Level of Overall Satisfaction with Current Transit Service(s)



Source: HPTS On-Board Rider Survey, September, 2013

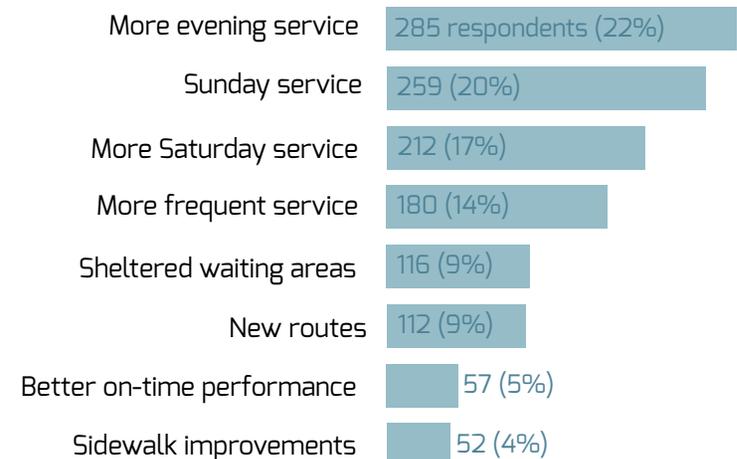
Survey forms were made available in English and Spanish. The survey asked questions regarding riders' trip characteristics, ridership habits, demographic information, and recommendations for improvements.

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 HPTS 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.

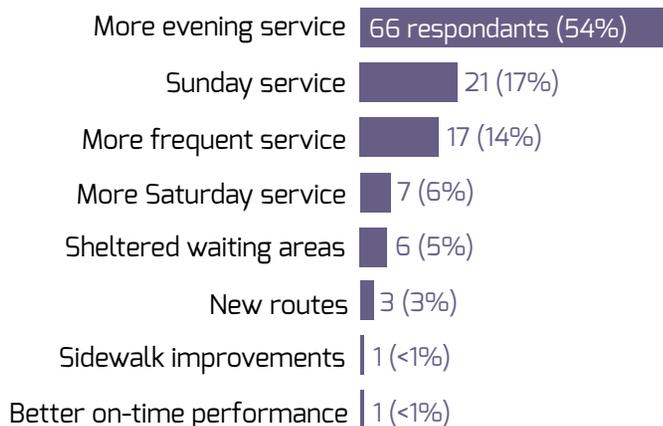
Riders were also asked about system needs, and asked to prioritize their preferences for system and service improvements. Exhibits 3-14 and 3-15 discuss these preferences. First, riders were asked to prioritize service improvements from a list provided of frequent service improvements most transit riders seek (Exhibit 3-14).

Exhibit 3-14. Needed Service Improvements



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 3-15).

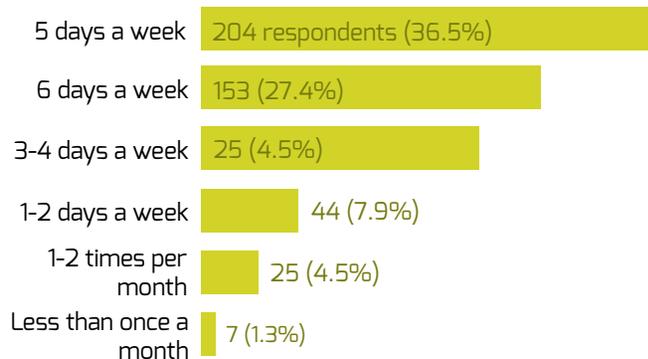
Exhibit 3-15. Prioritized Service Improvements



Source: HPTS On-Board Rider Survey, September, 2013

Riders were asked how frequently they use HPTS services. As illustrated in Exhibit 3-16 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 3-16. Frequency of HPTS Use among Current Riders



Source: HPTS 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.

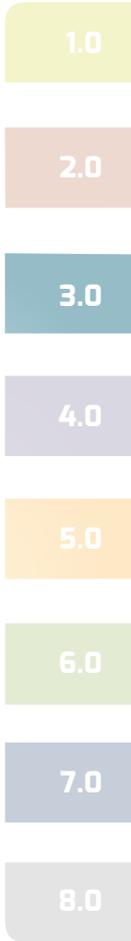
In addition to how frequently they use HPTS services, riders were also asked how long they have been using the bus service. Over half of the responses (54%) indicated they been using the HPTS for at least three years.

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 HPTS 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.

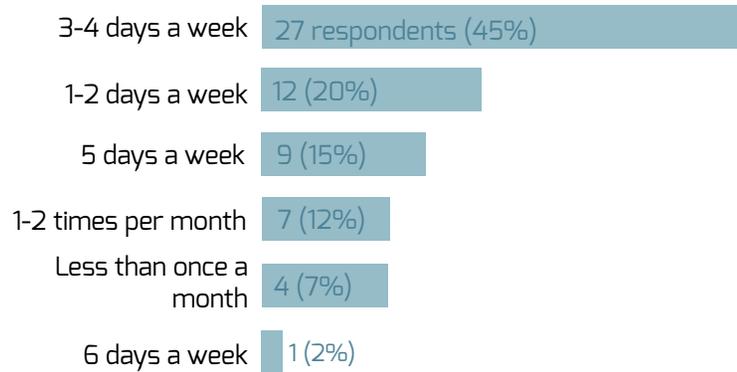
In contrast, less than 1% of responses indicated that their household income was greater than \$50,000. The HPTS is already serving the needs of this market, and should continue to do so. Those needs can likely be addressed most by adding frequency on key routes such as North and South Main Streets, and Leonard Avenue. This will give them better and more frequent access to jobs and schools and improve their quality-of-life and transportation.

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, and to identify needs and opportunities for improvements.



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 (Table 3-9), and a majority of respondents indicated they had been using demand-responsive services for more than four years (Exhibit 3-17).

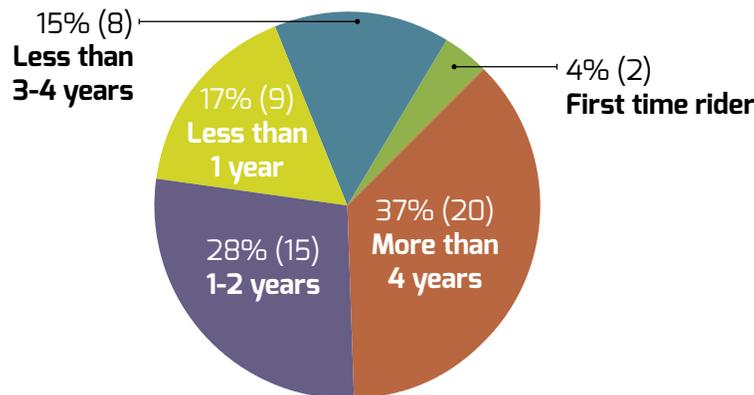
Exhibit 3-17. Frequency of Dial-a-Lift Use among Current Riders



Source: HPTS On-Board Rider Survey, September, 2013

Exhibit 3-18. 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



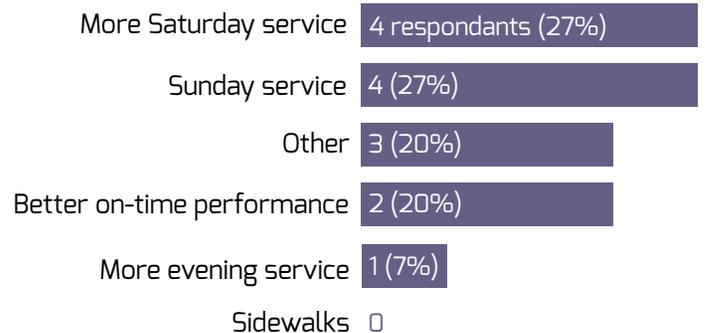
private automobile at home, 34% of respondents said they had access to at least one vehicle, and 21% of respondents said they lived in homes where at least two cars were available.

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. Exhibit 3-19 displays the expressed service improvements desired by survey respondents for Dial-a-Lift service, and prioritized service improvements.

Exhibit 3-19. Needed Service Improvements



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 HPTS 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.

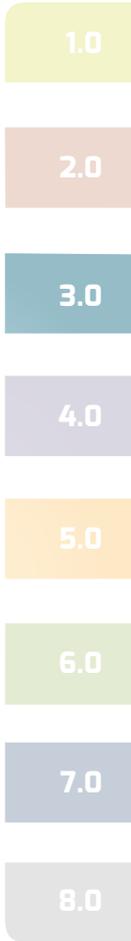
Increasing frequency can help boost ridership, but also requires additional fleet vehicles and operators, thus increasing operating costs. Frequency increases during the peak period on North and South Main Street are anticipated to have the greatest return on ridership, but should also be considered 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 HPTS 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.

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 HPTS 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 HPTS' productivity as a mechanism to broadly gauge the fixed-route system's productivity and efficiency. The performance of all HPTS 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 HPTS. 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**
- » **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 entire 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. The mall was recently purchased by High Point University, with the intention of incorporating the facility as part of the campus, but details of its intended use are unknown at the time this plan was authored.

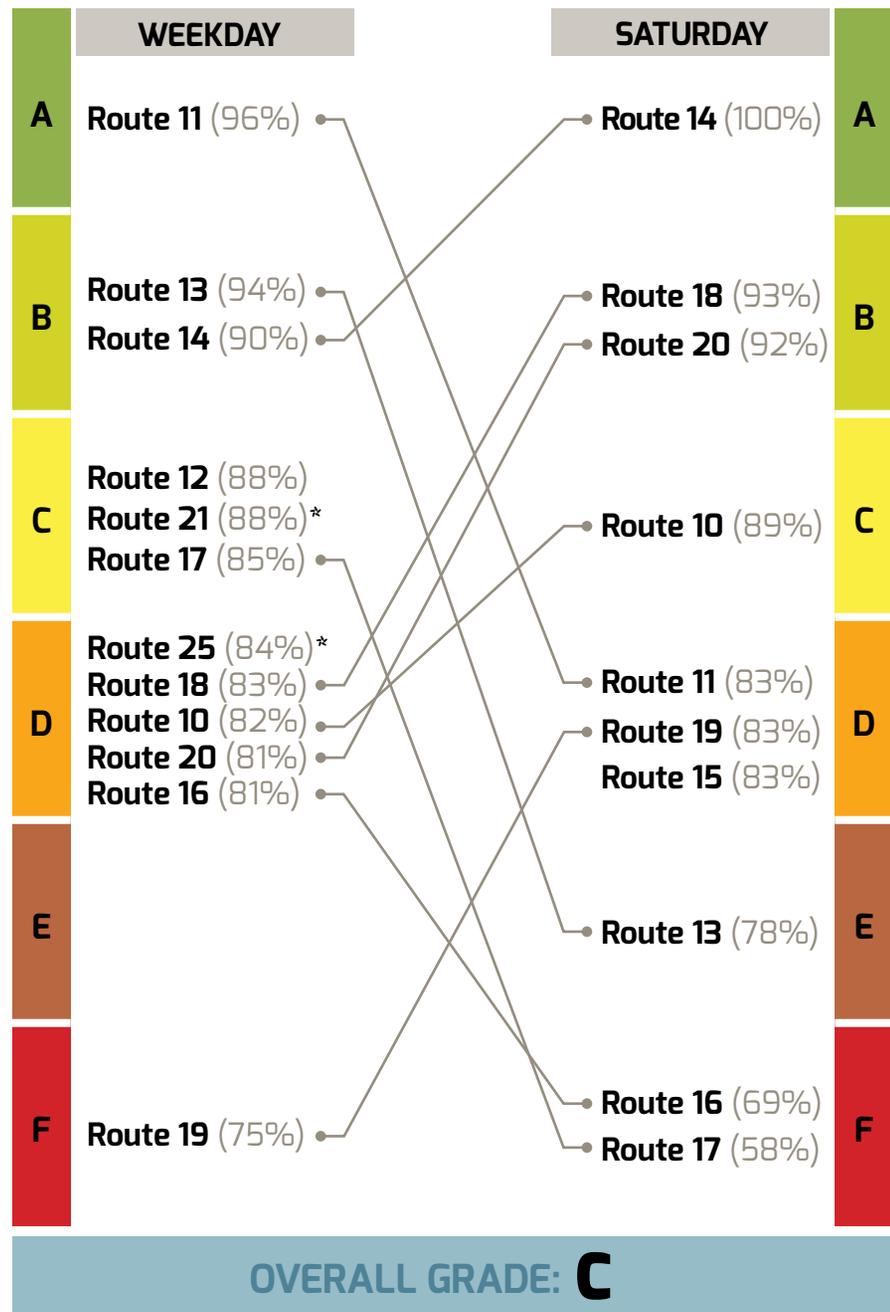
On-Time Performance

The boarding and alighting count conducted for this SRTP 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 time points that may or may not have been randomly selected. For the HPTS, 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.

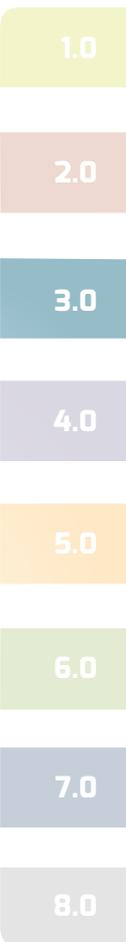
Just as some flexibility in the definition of on-time is permitted, it is also reasonable to expect that less than 100% of transit trips will be on time. The *Transit Capacity and Quality of Service Manual* recommends that at least 80% (LOS D) of the trips be on-time.

Exhibit 3-20: HPTS Bus Route On-Time Performance



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

*limited stop route



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.

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 3-21. 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.

Exhibit 3-21: 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

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

¹Based on weekday average boardings by route (refer to Table 6 – Average Daily Riders)

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 3-21 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 HPTS, 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 HPTS represented the SRTP's largest data gathering effort. Boarding and alighting counts are the

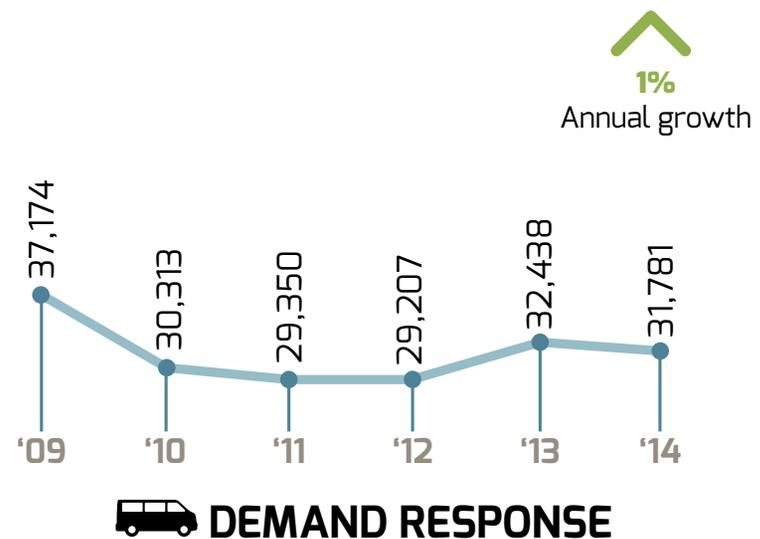
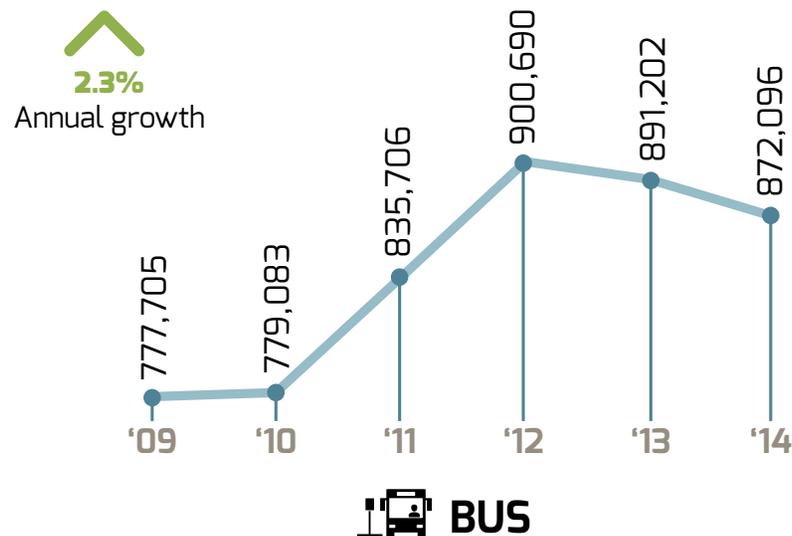
most intensive data gathering effort a system can conduct since it requires a counter to be on the bus during all hours of operation on a single day. Most transit systems conduct these counts on an infrequent basis due to the labor effort required. The boarding and alighting counts were conducted during 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 3-22 shows the trends in HPTS ridership between 2009 and 2014, provided by NTD.

Between 2009 and 2014, bus ridership has generally grown at a compounded annual growth rate of 2.3 percent. The demand-response ridership has fallen considerably, which from a cost perspective is beneficial since this service is expensive on a cost per rider basis. Exhibit 3-21 shows the route-by-route results of the total count.

Exhibit 3-22: Compound Annual Growth Rate, 2009-2014



Source: National Transit Database, 2012

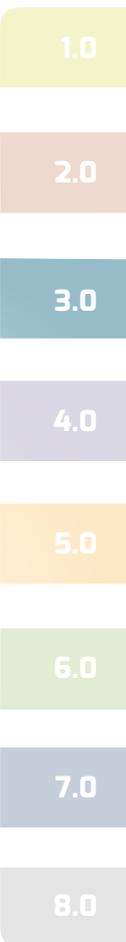


Exhibit 3-23: Typical, Weekday and Saturday Passenger Activity, 2013

ROUTE	TOTAL PASSENGER ACTIVITY		BOARDINGS/ALIGHTINGS		BOARDING RANK	
	Weekday	Saturday	Weekday	Saturday	Weekday	Saturday
11 S. Main Street	1,503	334	755/748	167/167	1	2
10 N. Main Street	1,060	376	525/535	188/188	2	1
18 E. Green Dr	731	200	372/359	98/102	3	6
16 Leonard Avenue	679	207	333/346	104/103	4	5
13 Montlieu Ave	618	228	311/307	110/118	5	3
25 GTCC/Jamestown ¹	617		310/307		6	
17 Washington Dr	486	211	249/237	105/106	7	4
14 Westchester	400	128	194/206	66/62	8	8
15 Eastchester (S)	116		62/54		9	
19 English Rd	384	168	194/190	84/84	9	7
20 Kearns Ave	352	116	174/178	58/58	10	10
12 W. Green Dr ¹	240		118/122		11	
21 Industrial Park ¹	24		12/12		12	

¹Routes 12, 21, and 25 only operate on weekdays

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

According to typical weekday ridership, all weekday routes average approximately 3,500 daily boardings. This ridership level was compared with the farebox ridership counts from FY2013 to determine if the results were within the expected range.

Ridership varied plus or minus 446 (14%), which encompasses the recorded ridership from the boarding and alighting count.

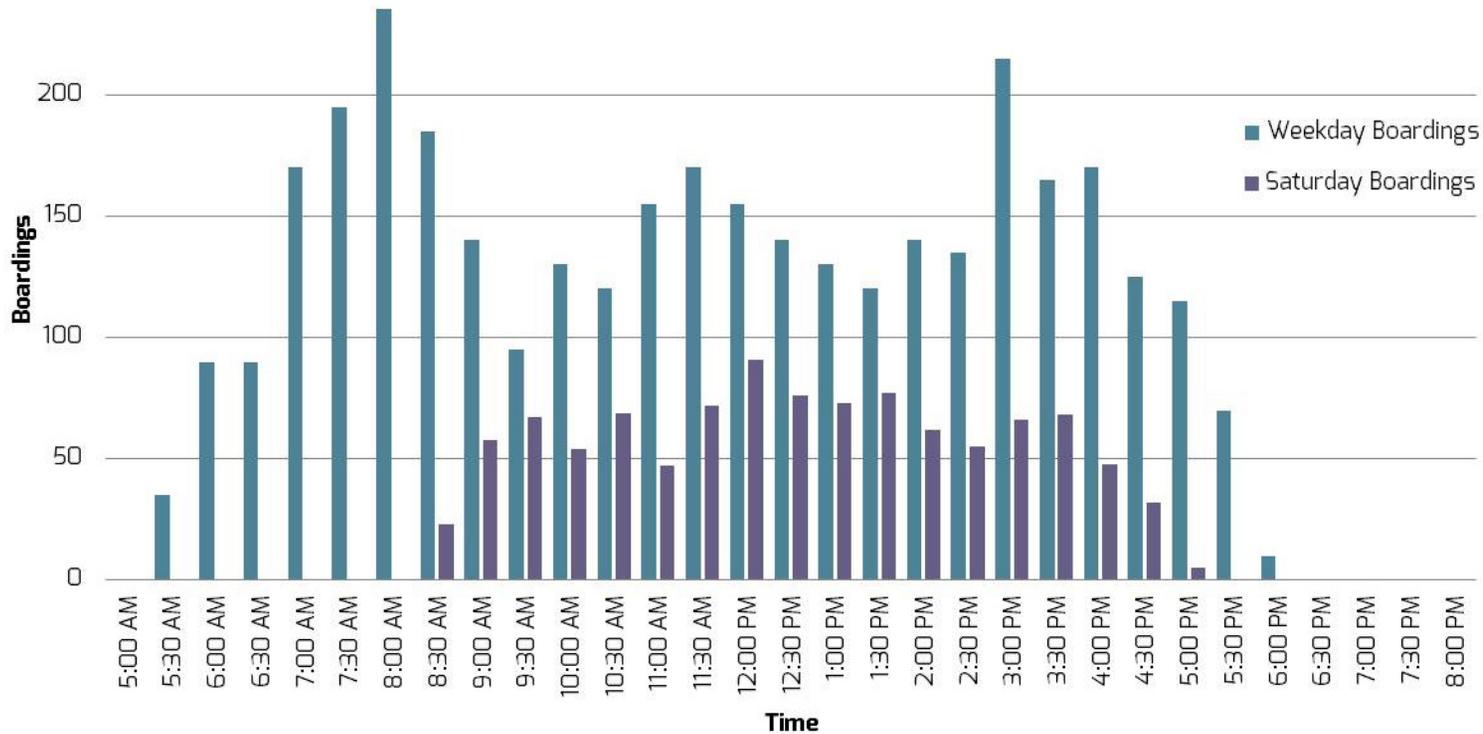
On a typical Saturday, HPTS generally averages just over 1,000 riders, with an average Saturday ridership in FY2013 of 1,088 +/- 181 (17%). On a system-wide basis, the Saturday recorded ridership was within the expected range. For individual routes, Route 11 was below its expected range, while Routes 13 and 19 were above their expected range. Exhibit 3-23 shows a route-by-route comparison of total passenger activity (boardings and alightings) on weekdays and Saturdays.

Boardings by Time

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 HPTS riders are typically using transit.

Exhibit 3-24 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.

Exhibit 3-24: Weekday and Saturday Average Boardings per Half Hour



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

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 HPTS maintains statistics on the number of persons boarding vehicles using mobility assistance devices and with bicycles. Exhibit 3-25 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 HPTS 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:

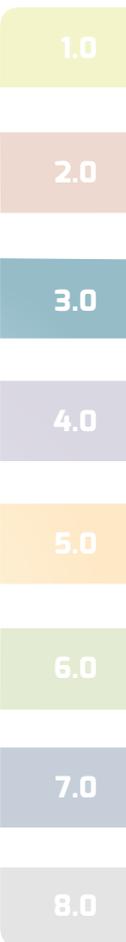


Exhibit 3-25: Passengers with Wheelchairs and Bicycles by Route

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

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 HPTS 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 HPTS 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 HPTS' fixed-route buses. All eligible persons must register for service in advance. Visitors must also register for services with HPTS and show proof of eligibility for similar services at their home location.

The HPTS 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.

Dial-a-Lift Performance Assessment

Generally speaking, Dial-a-Lift demand-responsive service is operating well. Exhibit 3-26 summarizes the performance of HPTS' 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 Exhibit 3-26 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.

Exhibit 3-26. Demand Responsive Performance Trends

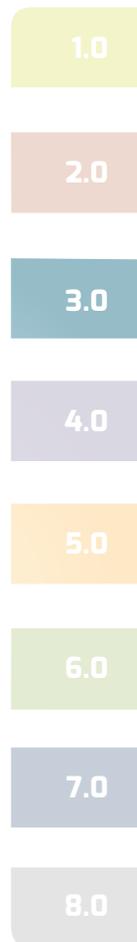
Performance Indicator	FY2012	FY2013	FY2014 ³	FY2015 (projected)	Percent Change (FY12-FY14)
BASE STATISTICS					
Ridership	29,207	32,438	31,781	32,000	8.8
Vehicle Service Hours	11,147	10,308	10,431	10,500	-6.4
Vehicle Service Miles	121,889	126,083	119,650	120,000	-1.8
Fare Revenue¹	\$56,893	\$60,796	\$60,050	\$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



But with a 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 HPTS 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 HPTS 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 HPTS to focus on geographic coverage in service plan, with increasingly limited availability in terms of the number of service hours operated. The HPTS 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 HPTS 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 HPTS 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 HPTS 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.

Maintain current cycle times. The HPTS routes show few problems with maintaining on-time performance. The dual-pulse operating structure and assignment of one bus per route results in routes being able to travel 15 minutes in the outbound direction and 15 minutes in the inbound direction, pulsing from the Broad Avenue Terminal. The exceptions are Routes 10 and 11 that have longer cycle times of 22.5 minutes. This cycle time is critical, and indicates that any route extensions must be possible within the current cycle times for each route unless an additional bus is available. It also means any cutbacks or speeding up of round trip travel time is less critical since a bus will not be saved and any time savings would be added to the layover time at the terminal.

Conduct traffic study to improve service reliability. The HPTS routes that have on-time performance issues are generally because drivers leave the terminal or time points early. The route with the tightest schedule is Route 18 on East Green. As one of the longest routes in the system, drivers need the time in the outbound direction to make up time on inbound trips to the Broad Avenue Terminal. It is advisable that a traffic study be conducted along this road to see what transit advantages may help improve service reliability.

Streamline routes in over-services areas. The southwest quadrant of the City of High Point, particularly east of the Norfolk-Southern railroad track, shows little productivity potential, with Routes 12, 19, and 21 among the poorest performing routes in the system. There is too much service being provided in this area of High Point given the ridership productivity. Routes

are competing with one another, resulting in expenditure inefficiencies. Route 20 could serve portions of Ward Avenue served by Route 12 that show productivity, and enable more expedient trips into and from downtown. Route 19 should be retained, but re-aligned to serve south High Point. Route 21 should be eliminated, and service offered as a vanpool commuting option.

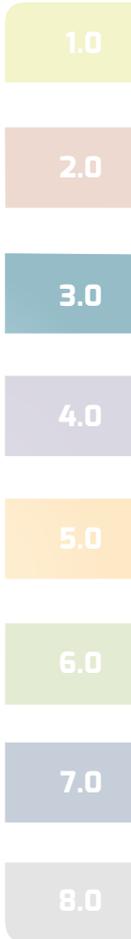
Improve pedestrian infrastructure. Finally, the lack of pedestrian infrastructure presents a significant challenge to the HPTS operations, and is a reason why some persons who may be incapable or uncomfortable taking fixed-route services rely more heavily on demand-responsive services. Design standards 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.



High Point's John Coltrane Statue

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 HPTS drivers who provide valuable information on service operations and performance. This effort also includes a broad, policy-level discussion for how the HPTS 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.

The alternative service scenarios discussed in this chapter center on modifications to the fixed-route bus network. Demand-responsive services are inherently different from fixed-route service. HPTS provides ADA-compliant demand-responsive service within three-quarters of one mile from all fixed-route services, and will continue to do so pursuant to federal law. General Dial-a-Lift demand-responsive service for those who qualify will continue to be available throughout the City of High Point.

4.1 Service Design Principals

HPTS 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 HPTS's target market and available resources. Collectively, the project 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 principals.



Service Design Principals

- » 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.

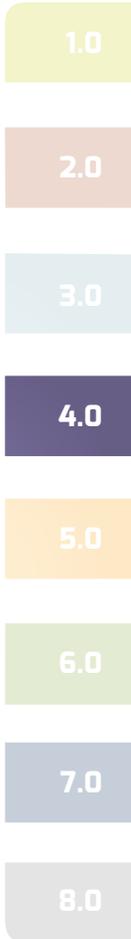
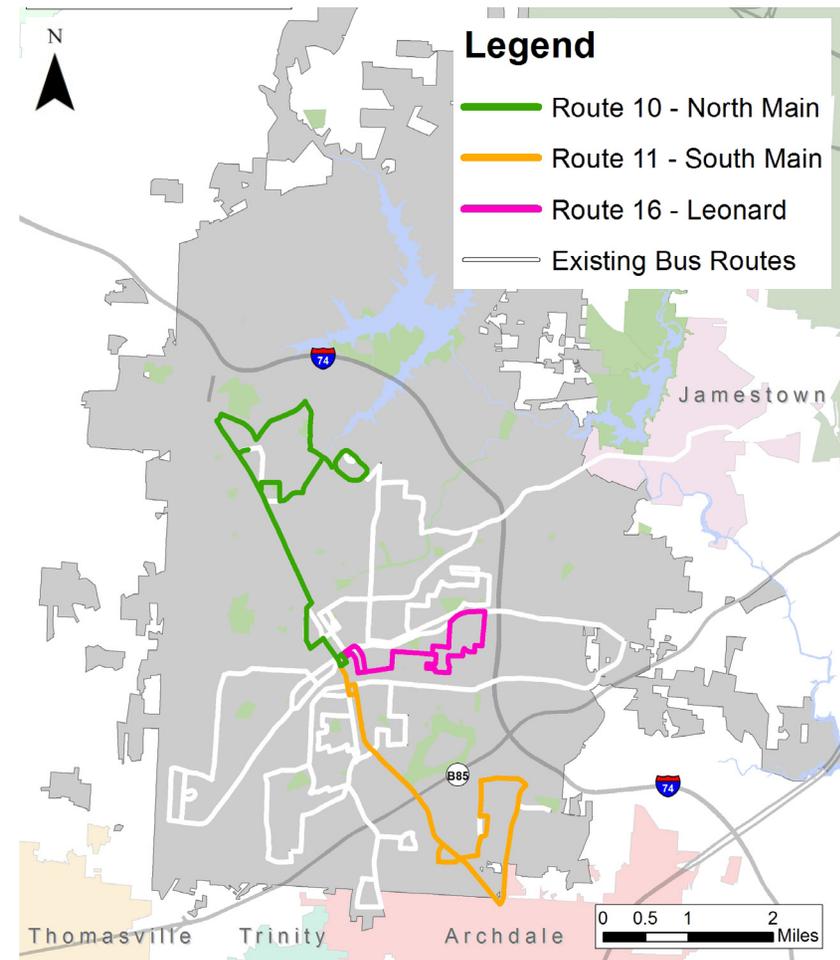
4.2 Core Service Network

At the start of the service planning process, the project team sought to identify the "core services" of the HPTS 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 HPTS 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

Exhibit 4-1. HPTS Core Service Network



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 4-1 below.

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 HPTS staff, project stakeholders, and the public, the project team developed alternative service scenarios for the future HPTS 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 HPTS' 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 HPTS'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 HPTS 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.



Service Development Scenario Goals

Public outreach and engagement were essential components in the development of alternative service scenarios. Participation from local residents, civic organizations, business groups, and other stakeholders was sought to identify the most pressing needs. Over 100 written comments were received on the various scenarios. The input given by the public helped guide the project team in the development of service scenarios.

- » 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 SRTP, 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):

- » **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. HPTS 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.

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 HPTS with the primary purpose to identify operational efficiencies while trying to provide the most effective service possible to current and future HPTS 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

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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.

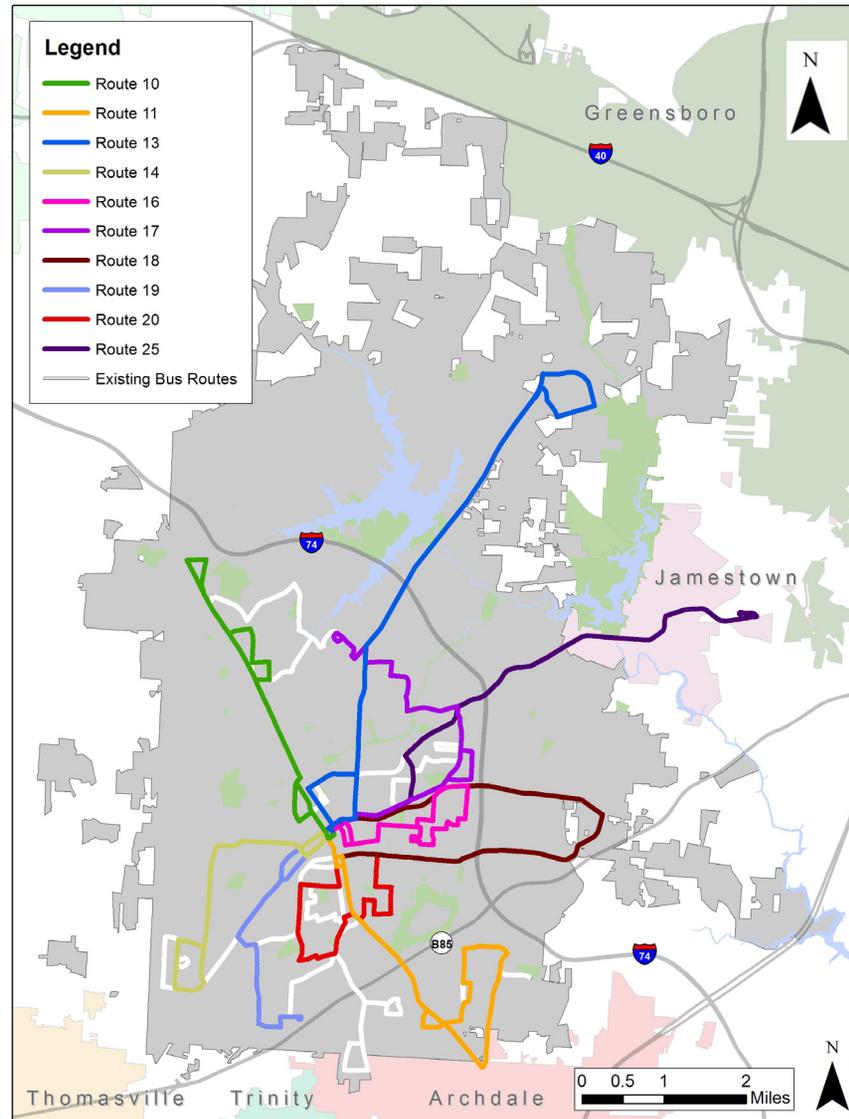
As a new service type, this scenario would convert Route 17 into a crosstown service, connecting several activity centers in northern and eastern High Point, and linking with several routes. This service would replace service between Centennial Street, Eastchester Drive, and Lexington Avenue currently 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.

Exhibit 4-2. Service Scenario 1



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 HPTS 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 4-2 illustrates this service scenario.

Service Scenario 2

Following the development of the first service scenario, a presentation of this routing structure was made to HPTS 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.

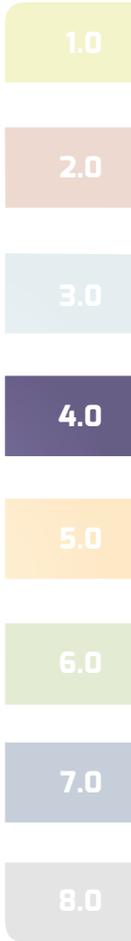
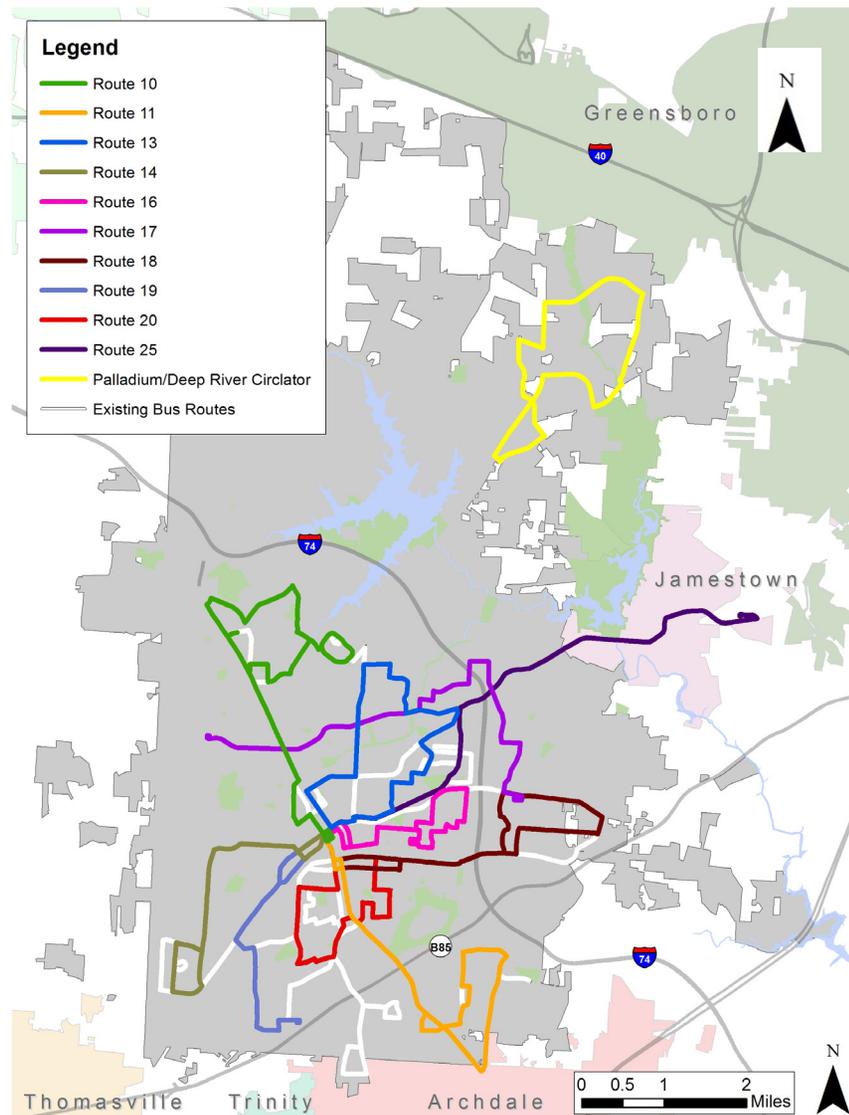
There is insufficient residential or employment density to justify fixed-route service beyond where the service is planned. Also, comments were received regarding the lack of service to west High Point, particularly along Lexington Avenue to Westchester Drive. In general, members of the Steering Committee 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.

Exhibit 4-3. Service Scenario 2



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 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/Deep River 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.



Broad Avenue Terminal

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 HPTS' growth over the coming years. This chapter describes the recommended fixed-route service scenario, demand-responsive service improvements and operating policies, and capital improvements for the HPTS 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 HPTS 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 HPTS 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.

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

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 HPTS 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 HPTS' current radial service design into a model developed around a series of radial Key Local Bus routes that operate as

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“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.
- » 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 over-investing 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 HPTS currently provides two types of local fixed-route bus service along with demand responsive service. The two types 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 5-1 describes the current service types used by the HPTS.

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 in Exhibit 5-1 to acknowledge the characteristics and performance of those routes that regularly outperform other routes in the HPTS network. Three bus routes, Routes 10, 11, and 16, are



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 5-1. HPTS 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.

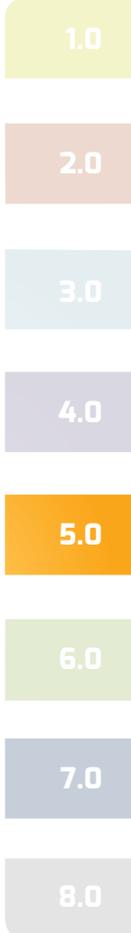
¹ It is important to note that while the HPTS' demand response Dial-a-Lift service is among the suite of service offered, the characteristics of this service type do not always align with the fixed-route services offered. As a demand-responsive service, a standard for minimum operating frequency does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

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 to enable connections outside of downtown High Point to help expedite trips across the City. 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 5-2. 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



Crosstown services can be difficult to successfully implement in small urban areas. Transit routes are most productive when they serve major employment locations with charges for parking, which in most cities is the downtown area. However, given the community facilities, residential densities, employment centers, new transit markets served, and connections with other local services, it is believed that the establishment of a crosstown service type on the north side of downtown High Point could prove a valuable addition to the HPTS network.

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.

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 HPTS current operating scheme of a pulse-based radial transit network. Illustrations of each service modification are provided.

Exhibit 5-3: Fixed-Route Service Recommendations

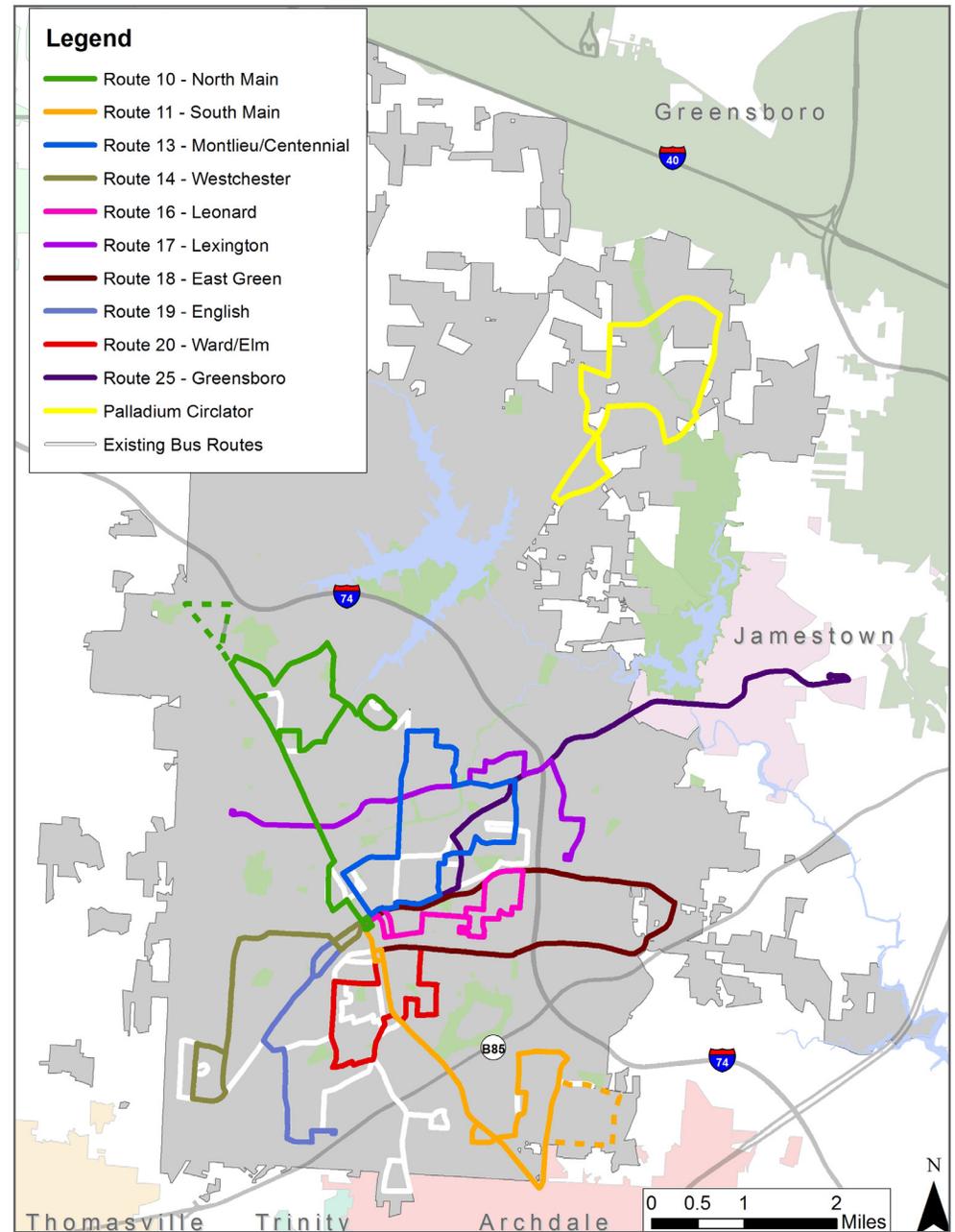
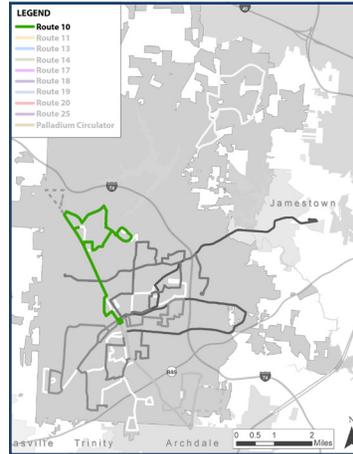


Exhibit 5-4. Summary of Route Modification Recommendations

Route	Service Classification	Recommendation(s)
 10	Yes	Designate as trunk route; add shelters at high boarding locations
 11	Yes	Designate as trunk route; add shelters at high boarding locations
 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; add shelters at high boarding locations
 17	Yes	Designate as crosstown route; realign service
 18	No	Maintain existing routing pattern
 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

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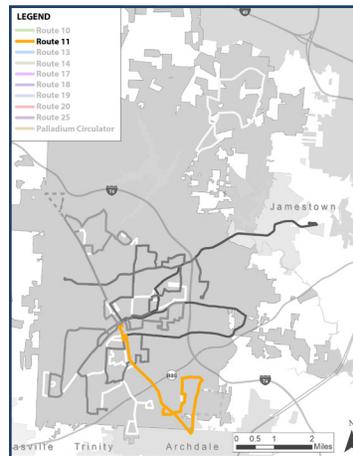
A detailed discussion of the proposed operating characteristics and assumptions is provided below. A summary of the recommendations by route is as follows:



Route 10 North Main Street

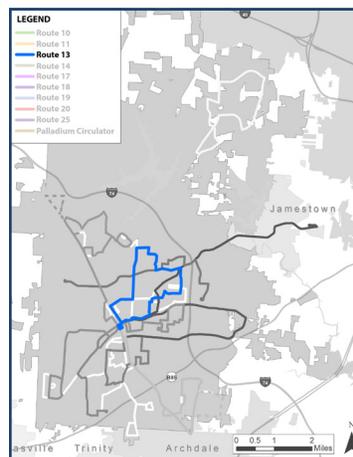
Recognizing the limited availability of resources currently, and given the expressed community desire to maintain service coverage in northwest High Point, the routing pattern of this route is not recommended for change initially. Over time however, it will likely be important to reduce the loop north 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.



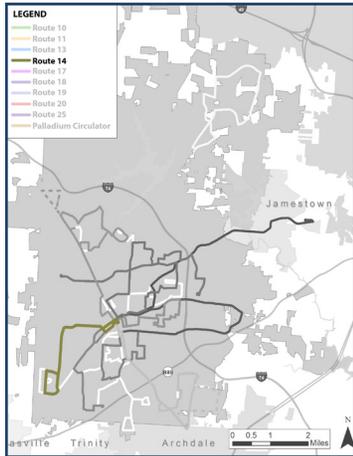
Route 11 South Main Street

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

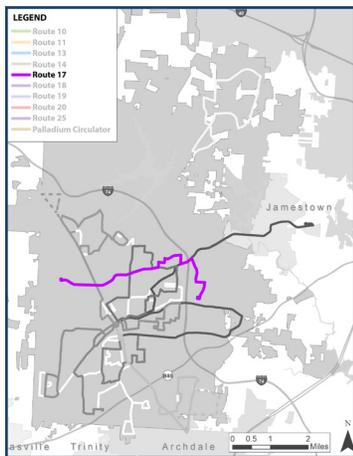
Much of the current routing pattern and service operating characteristics would be retained. The route would continue to provide service on Montlieu Avenue and Centennial Street in downtown High Point. The closure of Montlieu Avenue between College Drive and Centennial Road presents several challenges 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.

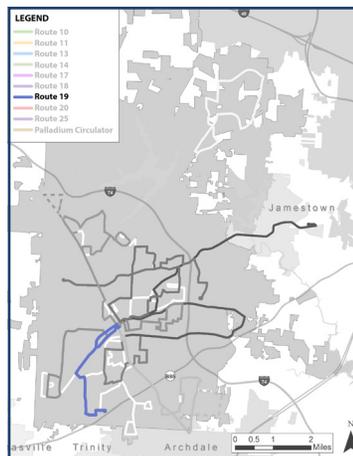
The recommended routing pattern modification would continue to serve the Juanita Hills housing complex, but continue south on South Road to English Road, turn east on English Road and then north on Westchester Drive on the route's return to the Broad Avenue terminal.



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.

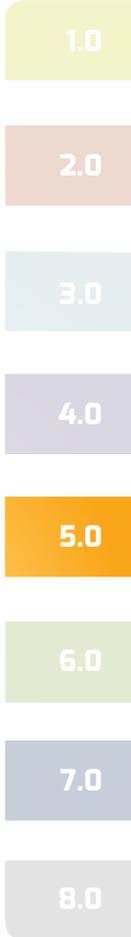
The route would then turn south along Deep River Road, connecting with Routes 13 and 25 at the Five Points region. The route would cross I-74 on Greensboro Road, turning south on Enterprise Drive with continuing service along Pendleton Street to the eastern terminus near the Polo Ralph Lauren facility.

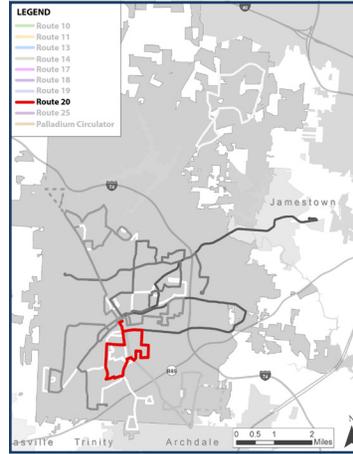


Route 19 English Road

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 be eliminated as this area may be more effectively served by Route 14. 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.

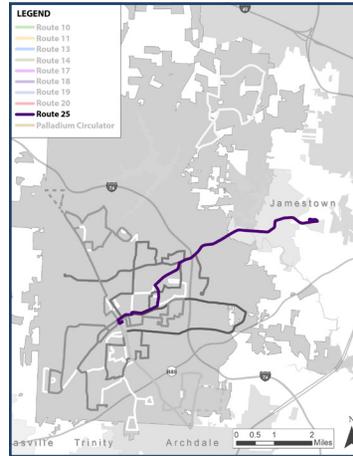
The modified Route 19 would turn east onto Progress Avenue, north onto Bethel Drive, and east onto Trinity Avenue. The route would continue on Trinity Avenue and use the turnaround at Carolina Trucking as the starting point for inbound service to the Broad Avenue Terminal.





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).

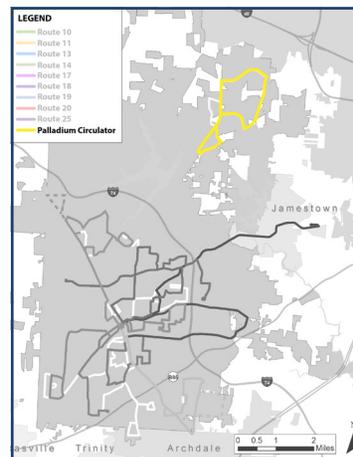


Route 25 Greensboro Road/Jamestown GTCC Campus

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.



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 HPTS 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 HPTS 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 HPTS 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 18 East Green Drive

Additionally, no service modifications are planned for Route 18 at this time. As one of the longest routes in the HPTS, the time necessary to reach the beginning of Route 18's service run just east of Interstate 74 on Kivett Drive necessitates that this route continue to operate on Kivett between the Broad Avenue Terminal and Interstate 74. But as one of the more productive routes in the HPTS network, Route 18 should continue to serve the East Green Drive and east High Point markets.

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 HPTS, 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

Preliminary operating characteristics were developed based in part on community input received as to the desired service level for the future network. The operating characteristics shown below should be considered as goals for service, but are subject to change based on funding availability. The primary recommendation on service expansion, beyond providing service to the Palladium/Deep River region, is to expand the operating hours of service offered on weekdays for a minimum of 12 hours on all routes, with extended hours on Routes 10, 11, and 16 to a minimum of 15 hours.

1.0

2.0

3.0

4.0

5.0

6.0

7.0

8.0

The project team heard from the public, agency representatives, employers, and civic leaders that students and workers need transit service beyond 6:00 PM. On Saturdays, service should run for a minimum of 12 hours in order for retail workers to travel from home to work and return later in the day. Should service be offered on Sunday, it would be necessary to provide a minimum of 8 hours of service.

Should additional funds be available in the future, and service span extensions achieved, the frequency of Key Local bus routes (Routes 10, 11, and 16) should be increased from 30 minutes to 20 during the peak periods. This may result in the need to procure additional fleet vehicles to ensure a suitable spare ratio is available, however.

It is not the intent of this plan to commit the City Council of High Point to a specific service operating scenario; rather, the weekday and weekend service scenarios are intended as goals for the future system. The City Council has full discretionary authority over the implementation of service operating plans and policies.

Exhibit 5-5 presents the weekday service operating characteristics, while Exhibit 5-6 presents the Saturday operating characteristics. All numbers shown should be considered approximate.

Exhibit 5-5. 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	15	30	362.7	50	2
11	10.1	30	30	15	30	301.5	46	2
13	7.7	30	60	12	18	132.7	31	1
14	7.6	30	60	12	18	133.7	32	1
16	6.0	30	30	15	30	180.7	31	1
17	11.5	30	60	12	18	203.0	52	2
18	8.8	30	60	12	18	133.0	33	1
19	7.6	30	60	12	18	133.4	30	1
20	5.9	30	60	12	18	102.4	31	1
25	14.8	60	60	12	12	177.7	59	1
PDC	7.4	30	60	12	18	136.5	33	1
Total	92.1	-	-	141	225	1,997.4	-	14

Source: HDR, Inc., 2014

Exhibit 5-6. 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	12	12	108.8	50	1
11	10.1	60	12	12	90.5	46	1
13	7.7	60	12	12	68.3	31	1
14	7.6	60	12	12	68.7	32	1
16	6.0	60	12	12	54.2	31	1
17	13.0	60	12	12	104.4	52	1
18	8.8	60	12	12	68.4	32	1
19	7.6	60	12	12	68.6	30	1
20	5.9	60	12	12	52.7	31	1
25	14.8	60	12	12	177.7	59	
PDC	7.4	60	8	8	70.2	32	1
Total	78.8	-	132	132	1,184.1	-	9

Source: HDR, Inc., 2014

Future Service Expansion Needs

The recommended service scenario discussed above attempts provides a similar level of coverage across High Point while also attempting to capitalize on emerging transit markets that display the right combination of population and employment density, along with work, school, or other characteristics for when and where service is warranted. In effect, the current HPTS system serves current transit markets well, but overlap among transit routes creates inefficiencies in the allocation of resources that could be used to fund service to new areas of the City.

A number of service needs were identified by the public and project stakeholders during the course of this plan's development. As funding becomes available, the following service expansions or improvements are recommended as priorities for the future service network:

- » **Increased Service Span** - By far, the most common concern voiced by study participants was the limited weekday and weekend hours of service. Many study participants expressed the need for service later in the evenings on weekdays, and for extended service hours on Saturday. Analyses of ridership patterns revealed that ridership on most routes is fairly high during the morning peak period, indicating that service is likely needed earlier in the morning, but equally as high during the afternoon peak period, suggesting that service hours should also be extended into the later evening. Comments from workforce development agencies, GTCC representatives, and key local employers (including Ralph Lauren and Bank of America). As funding permits, a top priority should be the expanding operating hours to provide service later into the evening (roughly 6:00AM – 9:00PM).
- » **Increased Service Frequency along Key Local Bus Routes** - Most HPTS 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 20 minutes during peak periods first on major Routes 10, 11, and 16.

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. Preliminary estimates conservatively project an increase in system ridership of approximately 2 to 7%. 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** – Straightening of service along streets served improves

expediency of travel, and also helps create predictability (or legibility) in where service will transport people to and from. Also, reduction of large loops at the end of service runs, particularly where service is least productive, can save operating cost and limit travel times for passengers, even if the bus must wait temporarily at a timepoint to maintain schedule adherence.

- » **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 HPTS have already been discussed, but perhaps the most significant challenge is funding availability. Without additional funds, it will be difficult for the HPTS to maintain current service levels in the near, mid, and long-term futures, particularly as service needs grow. It is recommended that the HPTS 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. Chapter 6 discusses transit funding in greater detail.

5.2 Demand Responsive Service Recommendations

The following recommendations are made for demand-responsive services offered by the HPTS 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 HPTS' 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 HPTS' 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 HPTS 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 HPTS' 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 HPTS 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.

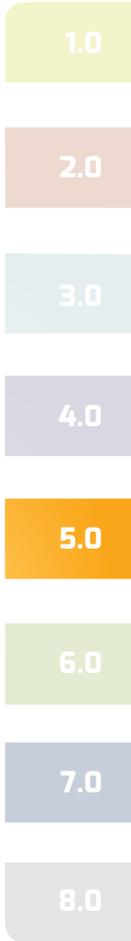
Generally, persons between the ages of 60 and 65 are capable of boarding standard bus vehicles, and the low floor fleet vehicles used by the HPTS currently make boarding relatively easy for all individuals, including those with mobility devices. Of course, there will be individuals below the age of 65 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 HPTS 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 HPTS 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 HPTS 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 HPTS 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 HPTS, 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 HPTS 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 HPTS 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 HPTS 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). Transit providers who have successfully worked with taxi operators often guarantee taxi providers a certain number of ADA-eligible trips.

5.3 Vehicle Fleet Needs

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 5-7). 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.

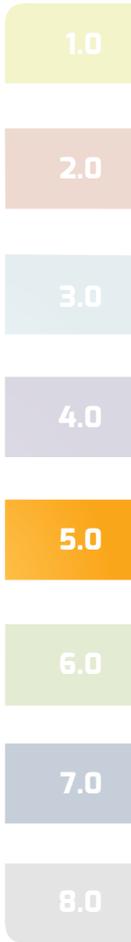
Exhibit 5-7. Estimated Fleet Requirements – Existing and Recommended Service Scenario

Time	Existing Network		Recommended Network	
	Weekday	Saturday	Weekday	Saturday
Peak	12	-	14	-
Off-Peak	7	5	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 Exhibit 5-7. 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 HPTS 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 HPTS should seek to acquire fuel-efficient and low emission buses that employ clean engine technology. Hybrid fuel buses are being deployed across the country with increasing frequency. These vehicles provide greater fuel economy, reduced greenhouse-gas emissions, and can accrue cost savings to the agency over time but they come with added costs for the hybrid technologies they employ, typically about \$100,000 in additional cost per bus. Still, the HPTS should consider the procurement of low-emitting bus vehicles as funding permits.

As the HPTS 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 HPTS 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 HPTS 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 (NOx) 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

Capital facilities and passenger amenity improvements require a longer lead time to plan, design, and construct as compared to service modifications. The lead time necessary limits the ability to implement many capital improvements immediately or in the short-term. Nonetheless, the City of High Point should continue to implement sidewalks and shelter improvements early on in the SRTP's implementation, and it will be especially important that passenger facilities in the areas where new service will be provided.

These capital items should begin as soon as the decision is reached on what service improvements are going to be implemented so that some can be in place at the time of implementation. Among the top priorities should be improved sidewalks and appropriately sized shelters, particularly at high boarding, alighting, and transfer locations, and at public housing complexes and apartments.

Passenger Facilities

As discussed, the central passenger facility of the HPTS 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 HPTS and makes the system more attractive to choice riders.

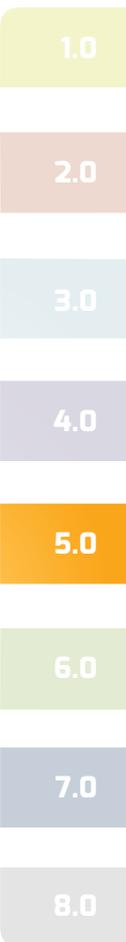
Outside of downtown High Point and the Broad Avenue Terminal, enhanced passenger facilities should be located based on boardings and alightings. These could be considered transit satellite stations at locations where two or more routes connect and could facilitate transfers. These facilities would include 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 HPTS 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 HPTS is the lack of sidewalks in High Point along several transit routes. While the HPTS 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. To maximize the benefit of the passenger shelters, an attractive pedestrian path should be provided connecting the shelter with nearby destinations. It is recommended that the short-term improvements focus on established focal points and major locations where riders will have to walk more than they did previously. The secondary focus should be along the major transit corridors and other major destinations.

As service changes are implemented, it will be important for HPTS to conduct another boarding and alighting count to determine the level of ridership at new stop locations, or existing stops but where service has been realigned. It will be particularly important to measure boardings and alightings along Lexington west of North Main Street, and along the new Palladium/Deep River circulator route

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, HPTS 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.

Broad Avenue Terminal

The Broad Avenue Terminal is the central hub of HPTS service, and will continue to operate as such for the foreseeable future. The facility has ten usable bus bays, along with an uncovered lay-by area that accommodate up to five staging buses and may be used for boardings if absolutely necessary (but it is not recommended as a permanent passenger boarding and alighting area as passengers must cross in front of on-coming buses staged under the canopy). Currently, the lay-by area is used for drop-off parking at the terminal.

Any fixed facility's current size limits the number of buses that can be present at any one time. One of the bays at the Broad Avenue Terminal is used by PART service, effectively limiting the number of covered bus bays to nine that are available for HPTS service during pulse phases (i.e. one set up buses depart at :15 and another set departs at :45 past the hour). Also, with Route 25 utilizing a 40 foot bus as compared to all other routes using 32 foot buses, the additional 10 feet slightly reduces the overall bus bay capacity, but not to a significant enough degree at this point. In effect, nine bus bays equates to eighteen buses being staged at the facility during an hour's time. However, with the realignment of Route 17 as a crosstown service not serving downtown would result in one additional bay being available.

With the recommended service changes, there will be nine routes serving downtown (Route 17 and the new Palladium/Deep River circulator route will not serve the Broad Avenue Terminal). On dual-pulse phasing, two additional routes can be added. Any further route additions would need to stage at the lay-by area near the transit center.

At this time, expansion of the Broad Avenue Terminal is not deemed necessary. While the Broad Avenue Terminal has been retrofitted in recent years, and sufficient capacity exists to add additional routes during the course of the SRTPs life, the capacity of the current facility may become an issue if a greater number of transit routes are added in the next

10 to 15 years. The capacity of the facility may also be an issue with the procurement of new fixed-route fleet vehicles, should they be larger than the current 32-foot fleet vehicles used. As such, while it may be beyond the timeframe of this plan to consider expansion of the facility, it is still important to consider expansion needs.

Across the United States, cities are focusing on the overall context in which facilities like the Broad Avenue Terminal are located to capitalize on transit-supportive development. Ideally, a transit center is located in a pedestrian-friendly area, with multiple destinations within walking distance. In High Point, the Broad Avenue Terminal is situated appropriately in downtown, with convenient access to downtown destinations and the Amtrak rail terminal.

Any improvements can take advantage of many technologies that have developed since the transit center was originally constructed. These can include a “next bus” display indicating when the next bus on a route could be expected to arrive. An automatic vehicle location (AVL) system could be implemented on the buses showing graphically their location around the city, with a map prominently displayed at the transit center.

Finally, should the Broad Avenue Terminal need to expand in future years, it is prudent to consider revenue generation opportunities that may be accrued with the facility in the name of commercial space. Many cities are building commercial space into their transit centers as a way to provide amenities to transit patrons and gain additional income. Durham, North Carolina opened their new downtown transit center with outparcel space specifically reserved for commercial tenants. In Charlotte, the downtown transit station includes retail space, while Rocky Mount included a sandwich shop as part of their renovated bus station.

Operations and Maintenance Facility

The current HPTS operations and maintenance facility is in very good condition, but requires parking of some transit vehicles outside. The maintenance facility consists of four bays with two in-ground lifts, one above ground lift, and one tire bay. A separate wash bay is located in the out-building. Diesel fueling is done on site.

A looming need is for the additional vehicle storage capacity at the HPTS operations and maintenance center. Based on the service improvements proposed, the HPTS 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 HPTS operations center, which is strategically located to help minimize deadhead mileage. For planning purposes, it is appropriate to consider a 25-vehicle facility.

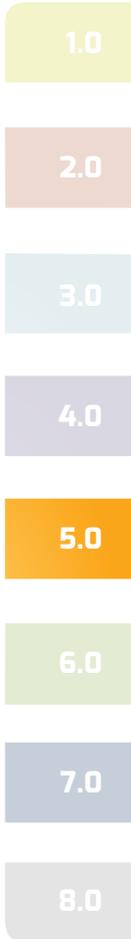
Expansion in the fleet will require additional outdoor storage space for buses. Indoor storage helps extend the life of transit vehicles and also makes them easier to start, particularly in cold weather conditions. With a total current fleet size of 17 buses, the peak pullout cannot exceed 12 buses and 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 HPTS will need to explore and create additional indoor bus parking with bus lift facilities at or adjacent to this facility. The HPTS 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 HPTS 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 HPTS 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 HPTS 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 HPTS has been investigating technology enhancements to improve efficiency, convenience, and customer service with respect to the passenger experience on board HPTS vehicles and at stop locations. The recent renovations to the Broad Avenue Terminal greatly improved the image of the HPTS, and both City of High Point and HPTS 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 HPTS staff to develop a GPS-based bus location application to inform passengers of arrival times, it is recommended that HPTS 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 HPTS 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 HPTS 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. HPTS 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 Image Enhancement

As part of finalizing the preferred scenario, the HPTS 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. A public open house was held in early January, 2015, to present the preferred scenario and receive feedback from the public on proposed service modifications and what other service enhancements they deemed necessary. Summary documents (available in the appendices to this plan), 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. Agency staff contact information was also provided to encourage people to call the team directly with comments. In total, the project team received 37 comment sheets, with 1 letter, 2 emails, and a petition with over 240 signatures for extended hours of service throughout the entire system and 100 signatures for service along Lexington Avenue and Westchester Drive. The High Point Enterprise, the local online and print newspaper, published an editorial on the SRTP and the recommendations.

Among the comments received during this period, several suggestions were made to maintain a focus on serving transit-dependent riders first and foremost. The majority of comments received focused on extending service into the evening hours on weekdays, with extended service spans on Saturdays and the introduction of service on Sundays. Comments on stop infrastructure were also received, with passengers requesting more sheltered waiting spaces, sidewalks and level waiting areas were also identified as important features the community wished to see. Some comments reflected a desire for better integration with the bicycles to improve multimodal travel opportunities. General comments on the overall performance HPTS services were also received.

The study team discussed the comments received with HPTS staff. The SRTP was updated to reflect the general theme of comments received to the extent possible. For example, additional efforts were made to ensure the focus of the service design reflects the needs and desires of the transit-dependent markets, and provide enhanced passenger facilities at major boarding, alighting, and transfer locations.

5.7 Public and Stakeholder Comment

As part of finalizing the preferred scenario, the HPTS 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. A public open house was held in early January, 2015, to present the preferred scenario and receive feedback from the public on proposed service modifications and what other service enhancements they deemed

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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. Agency staff contact information was also provided to encourage people to call the team directly with comments.

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of comments received to the extent possible. For example, additional efforts were made to ensure the focus of the service design reflects the needs and desires of the transit-dependent markets, and provide enhanced passenger



Hi tran bus

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 most significant challenge facing the HPTS 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 be implemented without additional funding to at least mitigate the trend of rising costs through economic inflation. The transit funding element of the SRTP is intended to provide perspective on the costs associated with the recommended service enhancements and capital improvement projects.

This chapter provides a general estimate of the funding levels required to operate the HPTS in the future. An optimized plan for individual route recommendations was provided in Chapter 5, while this chapter attempts to estimate the costs associated with operating the HPTS, including agency administrative elements. 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. It is important to note that several assumptions are built into the estimates shown.

Decisions on the operating program and funding levels are the responsibility of the City Council of High Point. Therefore, the costs shown should be considered as order-of-magnitude costs, and are subject to change.

6.1 Funding Challenges

Perhaps the most severe constraint on system growth is the ability of the City of High Point to contribute funds for the operation of HPTS service. 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 these sources.

While essential sources of funding, the amount available from these sources has been reduced or held constant over the past several years. Local and state contributions are needed to match the federal funding that may be used to help pay for service. But with increasingly limited state funds, local funding is increasingly relied upon. However, local government's primary source of funding are property taxes, a revenue source that faces both limits on how much can be collected and tremendous demands for its use.

Additionally, the system has only a limited ability to influence changes to these funding sources. Consequently, the HPTS, like other 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 the following critical reasons:

- » Transit costs are largely driven by operator wages, fuel, and insurance costs. The HPTS 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

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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 HPTS. 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 HPTS looks to 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 Estimated System Operating Costs

The SRTP calls for the implementation of the service and capital improvement program discussed in Chapter 5, and the recommendations made were developed in light of the current HPTS funding structure. In order to forecast potential costs for future fiscal years, the project team was provided with the FY2014 operating costs per revenue mile and revenue hour (Exhibit 6-1), the latest available cost information at the time of the SRTP's development.

Estimates for system operating expenses anticipate annual escalations in costs for budget line items such as staff wages, fringe benefit costs, vehicle parts, fuel, insurance, and facilities, among other costs. In general, a rule-of-thumb measure for cost increases commonly used in the transit industry is a modest 3.0% annual inflation rate. This inflation rate was applied to the FY2014 for the operating cost per revenue mile provided by HPTS staff and reported to the National Transit Database. Exhibit 6-1 provides the FY2014

operating cost information and the estimated FY2015 and FY2016 costs by cost category. The 3.0% escalation factor was applied to the FY2015 escalated costs shown to estimate FY2016 costs. The FY2016 costs shown below serve as the basis for all system cost estimates projected out to FY2020.

Exhibit 6-1. Weekday Estimated Operating Costs – Enhanced Frequency or Service Span

	FY2014	FY2015	FY2016
Cost per Revenue Mile	\$4.75	\$4.89	\$5.04
Cost per Revenue Hour	\$66.54	\$68.54	\$70.59

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

For cost estimation purposes in this document, the cost per revenue hour was used as the basis of all cost estimates shown. Using cost per revenue hour to forecast general operating costs is a common industry practice for systems like the HPTS. The cost per revenue mile is also an important metric that enables a closer look at specific system efficiencies, but the cost per revenue hour helps account for a wider spectrum of cost categories, including administrative costs. This also tends to be a more conservative metric.

Recognizing the challenges associated with transit funding discussed above, several funding scenarios were constructed in order to provide flexibility to both HPTS staff and the City Council when making financial decisions with respect to transit service. These scenarios included:

- » **Base Funding Scenario:** Under this scenario, the recommended services would operate in-line with current funding levels, assuming no additional funds are available. This scenario is used later in this chapter as basis of cost comparisons for service in future fiscal years.
- » **Incremental Cost Increase Scenario:** If additional financial resources are available, assumptions were made for service frequency and span adjustments to routes, with a focus the routes identified as Key Local bus routes.

- » **Service Span Increase Scenario:** In this scenario, all routes would operate for a minimum of 15 hours of service on weekdays, and 12 hours of service on Saturdays. While service frequencies differ for routes on weekdays (peak versus off-peak periods), this scenario assumes consistency in service span across the system.
- » **Service Frequency Increase Scenario:** This scenario increases the service frequency on all bus routes on weekdays only. Key local routes are increased to 20 minute service during peak periods, and service on local routes currently operating hourly in off-peak periods is increased to every half hour on weekdays.

The basic operating characteristic assumptions for each scenario are displayed in Exhibit 6-2 below. As noted above, the operating characteristic assumptions play a critical role in estimating costs. The project team attempted to develop reasonable operating characteristics to strike a balance between current and desired operating conditions. However, there is flexibility in these assumptions that would change the operating costs shown.

It is important note the number of service days assumed in each scenario. Currently, HPTS offers service on weekdays and Saturdays only. The total operating days do not sum to the number of days in a calendar year because of public holidays when service is not offered.

Exhibit 6-2. Operating Characteristic Assumptions by Funding Scenario

Operating Characteristic	Funding Scenario			
	Base	Incremental	Service Span	Service Frequency
Service Days				
Weekdays	251	251	251	251
Saturdays	52	52	52	52
Weekdays + Saturdays	303	303	303	303
Frequency				
Key Local Peak	30	30	30	20
Local peak	30	30	30	30
Key Local Off-Peak	30	30	30	30
Local Off-Peak	60	60	60	30
Span				
Key Local Peak	6	6	6	6
Local peak	5.5	5.5	6	6
Key Local Off-Peak	6	9	9	6
Local Off-Peak	6	6.5	9	6
Total Daily Miles	1,793	1,997	2,237	2,448
Total Daily Hours	131	146	163	178

Source: HDR, 2015

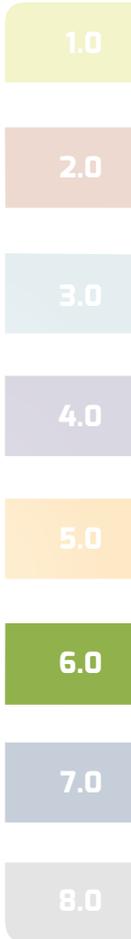


Exhibit 6-3. Estimated Weekday Operating Costs by Route and Funding Scenario (FY2016)

Route	Funding Scenario			
	Base	Incremental	Service Span	Service Frequency
10	\$354,500	\$443,200	\$443,200	\$443,200
11	\$322,600	\$403,200	\$403,200	\$403,200
13	\$157,600	\$162,200	\$194,600	\$222,400
14	\$158,700	\$163,300	\$196,000	\$224,000
16	\$222,700	\$278,400	\$278,400	\$278,400
17	\$258,800	\$266,400	\$319,700	\$365,400
18	\$163,500	\$168,300	\$202,000	\$230,800
19	\$152,000	\$156,500	\$187,800	\$214,600
20	\$153,300	\$157,800	\$189,400	\$216,400
25	\$201,200	\$209,900	\$262,400	\$314,800
PDC	\$167,800	\$172,800	\$207,300	\$236,900
Totals	\$2,312,700	\$2,582,000	\$2,884,000	\$3,150,100

Source: HDR, 2015

Based on City of High Point, High Point Transit System FY2014 Operating Cost per Revenue Hour data, 2014

Exhibits 6-3 through 6-5 display the estimated FY2016 gross costs associated with implementing the recommended service network outlined in Chapter 5 by route and by funding scenario for weekday, Saturday, and Sunday service. It was assumed that there would be no difference in routing patterns made on any service day. Also, Route 25 previously only operated on weekdays, but in accordance with this plan and requirements of the FTA, this route will operate on Saturdays (and Sundays, assuming service is offered on Sundays in the future).

As noted, the costs shown are generalized and subject to price fluctuation, and therefore are intended for illustrative purposes only. It should be noted that frequency enhancements would likely require additional fleet vehicles, particularly 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 an overall 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.

Exhibit 6-5 provides a roll-up of the estimated costs shown in Exhibits 6-3 through 6-4 for the funding scenarios constructed by route. Exhibit 6-6 provides estimates for Sunday service by funding scenario. The HPTS currently does not offer service on Sundays or public holidays. Costs were forecast for Sundays in the event service may be added in the future.

Exhibit 6-6 provides estimates for Sunday service by funding scenario. The HPTS currently does not offer service on Sundays or public holidays. Costs were forecast for Sundays in the event service may be added in the future.

Based on City of High Point, High Point Transit System FY2014 Operating Cost per Revenue Hour data, 2014

Finally, assuming the 3.0% cost escalation factor discussed above, gross operating costs for the HPTS network were forecast out to FY2020. Exhibit 6-7 provides these costs, separated by days of the week. The costs shown are based on the Base Funding Scenario only, but the method used to forecast these costs could be applied to the other funding scenarios described previously. Again, until Sunday service is provided, the “Total” row sums weekday and Saturday costs only; the costs shown for Sunday would be added to the costs for weekday and Saturday service if implemented.

Exhibit 6-4. Estimated Saturday Operating Costs by Route and Funding Scenario (FY2016)

Route	Funding Scenario			
	Base	Incremental	Service Span	Service Frequency
10	\$24,500	\$36,700	\$36,700	\$73,500
11	\$22,300	\$33,400	\$33,400	\$66,800
13	\$15,400	\$15,400	\$23,000	\$23,000
14	\$15,500	\$15,500	\$23,200	\$23,200
16	\$15,400	\$23,100	\$23,100	\$46,100
17	\$25,200	\$25,200	\$37,800	\$37,800
18	\$15,900	\$15,900	\$23,900	\$23,900
19	\$14,800	\$14,800	\$22,200	\$22,200
20	\$14,900	\$14,900	\$22,400	\$22,400
PDC	\$16,400	\$16,400	\$24,500	\$24,500
Totals	\$180,300	\$211,300	\$270,200	\$363,400

Source: HDR, 2015

Based on City of High Point, High Point Transit System FY2014 Operating Cost per Revenue Hour data, 2014

6.2.1 Estimated Net System Costs

The exhibits above are intended to provide an overview of the estimated operating cost only, but often a question is how fares and other revenue sources contribute to the bottom-line cost of providing transit service. On the operating side, there are expenses associated with continuing operation of current services, expansion of service into new markets, improvements or modifications to routes, administrative support services, parts, insurance, and other costs over the five years of the SRTP.

Over time, changes in operating costs can be observed that enable transit planners to forecast what price increases will look like with some level of consistency year-over-year.

Exhibit 6-5. Estimated Weekday and Saturday Combined Operating Costs (FY2016)

Route	Funding Scenario			
	Base	Incremental	Service Span	Service Frequency
10	\$379,000	\$479,900	\$479,900	\$516,700
11	\$344,900	\$436,600	\$436,600	\$470,000
13	\$173,000	\$177,600	\$217,600	\$245,400
14	\$174,200	\$178,800	\$219,200	\$247,200
16	\$238,100	\$301,500	\$301,500	\$324,500
17	\$284,000	\$291,600	\$357,500	\$403,200
18	\$179,400	\$184,200	\$225,900	\$254,700
19	\$166,800	\$171,300	\$210,000	\$236,800
20	\$168,200	\$172,700	\$211,800	\$238,800
25	\$201,200	\$209,900	\$262,400	\$314,800
PDC	\$184,200	\$189,200	\$231,800	\$261,400
Totals	\$2,493,000	\$2,793,300	\$3,154,200	\$3,513,500

Source: HDR, 2015

Based on City of High Point, High Point Transit System FY2014 Operating Cost per Revenue Hour data, 2014

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But forecasting revenues presents a more difficult challenge. 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. If gas prices increase, shifts are observed in the number of transit trips taken, as transit presents a more economical mode of travel daily. Service provided to new areas of the City is expected to attract new riders to the system, and service later into the evening hours would also attract more riders. Improved fleet efficiencies and routine preventative maintenance can help system operating control costs.

Conversely, State and federal funds that contribute to operating costs have fluctuated in recent years, but generally declined as a source of revenue. Fare increases, discussed later in this chapter, would increase revenues to offset operating costs. Other costs have consistently increased, such as the cost of insurance. Staff wages also fluctuate, but generally increase over time.

Exhibit 6-6. Estimated Sunday Operating Costs by Route and Funding Scenario (FY2016)

Route	Funding Scenario			
	Base	Incremental	Service Span	Service Frequency
10	\$24,500	\$49,000	\$24,500	\$49,000
11	\$22,300	\$44,600	\$22,300	\$44,600
13	\$11,500	\$11,500	\$15,400	\$30,700
14	\$11,600	\$11,600	\$15,500	\$30,900
16	\$15,400	\$30,800	\$15,400	\$30,800
17	\$18,900	\$18,900	\$25,200	\$50,500
18	\$12,000	\$12,000	\$16,000	\$31,900
19	\$11,100	\$11,100	\$14,800	\$29,600
20	\$11,200	\$11,200	\$14,900	\$29,900
25	\$21,700	\$21,700	\$29,000	\$56,000
PDC	\$12,300	\$12,300	\$16,400	\$32,700
Totals	\$172,500	\$234,700	\$209,400	\$416,600

Source: HDR, 2015

Based on City of High Point, High Point Transit System FY2014 Operating Cost per Revenue Hour data, 2014

Exhibit 6-7. Estimated Gross Operating Cost, Fiscal Years 2016-2020

	FY2016	FY2017	FY2018	FY2019	FY2020
Weekday	\$2,312,700	\$2,382,100	\$2,453,500	\$2,527,200	\$2,603,000
Saturday	\$209,300	\$215,600	\$222,000	\$228,700	\$235,600
Total	\$2,522,000	\$2,597,700	\$2,675,600	\$2,755,900	\$2,838,500
Sunday	\$172,500	\$234,700	\$209,400	\$416,600	\$172,500

Source: HDR, 2015

Based on City of High Point, High Point Transit System FY2014 Operating Cost per Revenue Hour data, 2014

Exhibit 6-8. Forecast System Operating Costs and Revenues by Fiscal Year

Operating Costs and Revenues	Fiscal Year				
	2016	2017	2018	2019	2020
Expenses					
Operating Expenses	\$2,522,000	\$2,597,700	\$2,675,600	\$2,755,900	\$2,838,500
Personnel Costs	\$1,531,500	\$1,577,400	\$1,624,800	\$1,673,500	\$1,723,700
Employee Benefits	\$612,600	\$631,000	\$650,000	\$669,400	\$689,500
Capital Improvements	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000
Total Estimated Expenses	\$4,916,100	\$5,056,100	\$5,200,400	\$5,348,800	\$5,501,700
Revenues					
Inter Governmental Revenues	\$1,076,000	\$1,076,000	\$1,076,000	\$1,076,000	\$1,076,000
Government Fees	\$425,400	\$425,400	\$425,400	\$425,400	\$425,400
Fare Revenues, Concessions, and Assistance	\$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
Transit Capital Projects Fund	\$155,700	\$155,700	\$155,700	\$155,700	\$155,700
Total Estimated Revenues	\$4,434,200	\$4,434,200	\$4,434,200	\$4,434,200	\$4,434,200
Estimated Net Operating Cost	\$481,900	\$621,900	\$766,200	\$914,600	\$1,067,500

Source: HDR, 2015

Based on City of High Point, High Point Transit System FY2014 Operating Cost per Revenue Hour data, 2014

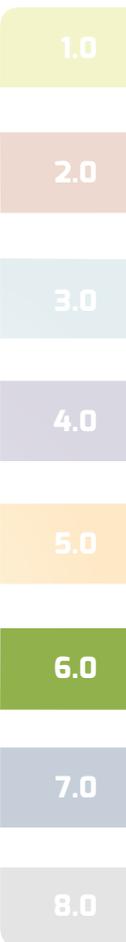
Operating and maintenance expenses are assumed to be funded through a combination of fare revenues, local vehicle registration fees, state and federal grants. Financial partnerships with local governments or employers are discussed later. The financial plan includes the following assumptions about revenue availability for operations and maintenance:

- » In general, based on available information, HPTS revenues are assumed to be consistent across all future fiscal years. While population growth, increases in fares, expanded service hours, or other factors could contribute additional revenues, it is difficult to forecast these changes in the later fiscal years of the SRTP.
- » State and federal formula grant revenues (State Maintenance Assistance Program (SMAP) and Section 5307) is expected to decrease over the life of the plan.

- » The fare recovery for fixed-route and demand-responsive services will continue to be roughly 20%.
- » No advertising revenue will be available to the system.

Exhibit 6-8 shows estimated net system costs by fiscal year. These costs reflect the difference between estimated expenditures and revenues, including passenger fares and other revenue sources currently available to the HPTS. The costs for operating expenses shown reflect costs for weekday and Saturday service collectively, shown in Exhibit 6-7.

The financial element of the SRTP assumes that all current and future services would be operated directly by the HPTS. Fares for fixed-route service, demand-responsive, and ADA-compliant paratransit services are included in the "Fare Revenue, Concessions, and Assistance" row. Any costs



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.

not covered by the revenue sources listed would be the responsibility of the City of High Point.

The totals shown in Exhibit 6-7 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. It is possible that some expenses are overestimated (such as personnel costs and employee benefits also being included in the operating expenses row), but it is better to over estimate rather than under estimate expenses.

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 HPTS 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 HPTS 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 sheltered stop installations (typically costing approximately \$10,000 per stop), 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 the HPTS 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.

6.2.2 Transit Mode Share

A key ingredient in the forecast of future system costs is ridership. According to HPTS 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 indicate 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 HPTS 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.

Several factors affect future transit mode share. As the HPTS 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

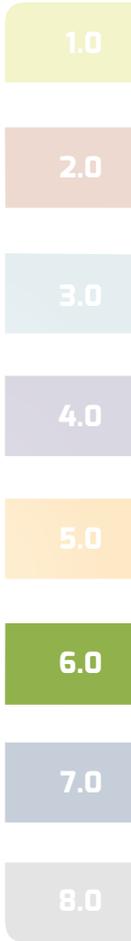
The following discussion presents a brief description of potential federal, state, local, and public/private sources of funding commonly used by transit agencies to help offset the public subsidy costs of providing service. Transit agencies are looking for creative means to raise revenues to offset increasing 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 to 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. For example, a common fare recovery threshold used by transit agencies is 25 percent.

To ensure that farebox revenues provide an adequate level of support for the system, while avoiding placing undue burden on riders, the High Point Transit System could consider using a farebox recovery ratio threshold as a trigger for consideration of a fare increase. For example, a policy could be established that if farebox recovery drops below 25%, a \$0.25 fare increase would be considered, unless service changes can be made to increase ridership and farebox recovery. This does not mean that a \$0.25 fare increase is automatically instituted, but is an option for consideration to help ensure that fares provide a consistent level of system support to help cover operating costs. This also does not preclude the possibility of raising fares at other times, as warranted.

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.

No changes are recommended to the base cash fare for High Point Transit System services in the short-term; it will remain at \$1.00. Discounted fares will continue to be offered at the level of half of the full fare price for all fare categories. However, a fare elasticity study is recommended in the short-term to determine whether a fare increase in the mid- to long-term of this plan is necessary.

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 HPTS 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 HPTS, and increased if possible.
- » **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 SRTTP 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 the HPTS’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 employee 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 HPTS 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.

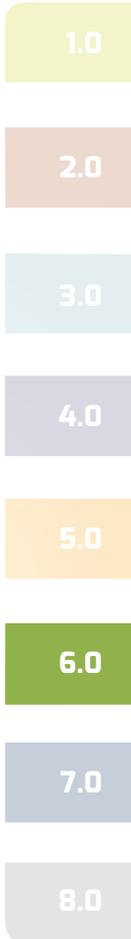
Advertising Revenues

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 HPTS as a fiscally responsible agency. Ultimately, this allows the HPTS to provide better products and services. The HPTS 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 HPTS, 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 the HPTS, 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 the HPTS presents a strong community based image.

Congestion Mitigation Air Quality Funds

New services in the HPTS service area could be funded through a Congestion Mitigation and Air Quality Improvement Program (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 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 would presumably be responsible for the full cost of the service. This places a burden on the City 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,



Recommendations

It is recommended that serious consideration be given to extending the span of service, particularly on weekdays, but also on Saturdays. Extending the weekday service span is seen as the most likely catalyst to add riders on the system, particularly among shift workers and students.

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.

Summary

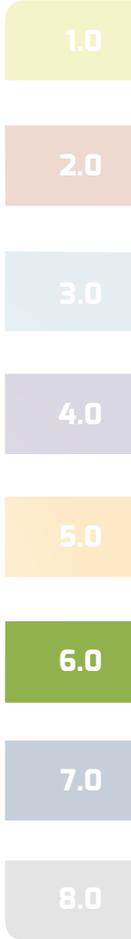
It has been clear for many years that the current funding mechanism for public transportation is insufficient to support the expanded transit system that most High Point residents believe is needed. Through expanded use of federal funds and diligent work at the local level to increase local contributions, the HPTS has managed to pursue its mission to the extent possible. There is no means of raising revenue that will be completely painless for all parties. However, the ambitious agenda in this SRTP is impossible without a significant change in the funding structure. The imperatives of supporting economic vitality, reducing traffic congestion, improving air quality, and enhancing mobility for all citizens argue strongly for a much more robust public transportation system.

The funding scenario discussed in this chapter is not intended to commit the elected leadership of the City of High Point or HPTS staff to the dollar values shown. Rather, the finances shown are scenario based. Decisions on enhanced frequencies or extended service spans are the prerogative of the City Council, and should be based on need along the route.

It is recommended however, that serious consideration be given to extending the span of service, particularly on weekdays, but also on Saturdays. Extending the weekday service span is seen as the most likely catalyst to add riders on the system, particularly among shift workers who may be working later than the bus currently runs. Student populations, particularly at GTCC High Point, would also benefit significantly from service later on weeknights.



High Point Showplace





Chapter 7.0

7.0 SHORT-RANGE TRANSIT PLAN IMPLEMENTATION

The Short Range Transit Plan is a central guidance document for the HPTS, specifying investments in service and capital facilities to be made over the next five fiscal years. It will also serve as the transit element of other city plans, as necessary. This final chapter of the SRTP summarizes the policy recommendations and specific service improvements as well as outlines a strategy for implementation. Implementation of the SRTP is designed to be achieved over a five-year period, allowing ample time for final service planning, scheduling, and implementation to occur. Envisioned from the start as a “living document,” implementation of the SRTP is intended to provide flexibility to the City of High Point in the event service expansion or contraction of the system occurs, and guidance on setting up an on-going service evaluation framework.

The initial focus is centered on implementing service changes to existing routes, while later phases are focused on expansion of service to new areas of High Point. Investments in passenger amenities, the pedestrian environment, and facilities that support transit service operations should be based on needs, with a separate improvement schedule for fixed facilities created.

The recommendations provided in the implementation timeline do not need to be made all at once; rather, the

timeline is intended as general guidance. As a living document, and maintaining the importance of a community-driven planning effort, actions may be taken at different times to reflect changes in community values and needs.

General SRTP Implementation Timeline



IMMEDIATE (1-6 MONTHS)

- » Conduct final service planning for recommended route changes. This involves finalizing route patterns, timing, and making sure draft schedules are accurate and identifying time points for passenger schedules. (Route adjustments may be implemented over years 1-3, depending on funding availability).
- » Provide public notice for intended cancellation of Routes 12, 15, and 21.
- » Conduct evaluation of technology and in-street improvements for transit. Identify technologies to communicate real-time bus arrival and schedule information with travelers. This may be best achieved through the procurement of a technology consultant to assist in the development of mobile applications, web-based solutions, and the use of GPS technology.
- » Implement new service hierarchy, identifying Routes 10, 11, and 16 as Key Local Bus routes (or other preferred nomenclature), and consider specialized marketing of these routes.



SHORT-TERM (6-18 MONTHS)

- » Cancel Routes 12, 15, and 21.
- » Re-align Route 17 to serve Lexington Avenue and Pendleton Street.
- » As funding allows, enhance service span on all routes. Establish a target for initial service span expansion (service operating to 7 or 8 PM on weekdays, and expansion of service on Saturdays). A focus should be on extending service span on Key Local Routes first, followed by all other routes based on demand.
- » Implement Palladium/Deep River circulator route, with infrastructure for a temporary transfer point for connecting Hi tran and PART services. Conduct planning and design assessment of permanent transfer facility.
- » Evaluate the potential for a fare increase.
- » Assess market demand and opportunity to provide service on Sundays.
- » Consider a new branding strategy. This may be best achieved through the procurement of a marketing/branding consultant to develop a plan for re-branding the system and service.
- » Enhance marketing efforts to communicate service changes and encourage ridership along routes serving new markets. Ensure that published materials are distributed throughout the community.
- » As changes to service are implemented, monitor route performance and make adjustments as necessary.
- » To the degree possible, identify federal and state grant opportunities to help finance service improvements or capital infrastructure needs.
- » Capital projects to consider: implementation of sheltered stops at boarding and alighting locations with higher passenger volumes, and on routes where a limited number of sheltered stops currently exist. Example locations include the intersection of Lexington and Main, or added shelter locations along South Main, Montlieu Avenue, North Centennial Street, East Green Drive, and Westchester Drive.
- » Work with other City departments and divisions to identify locations where sidewalk investments (maintenance of existing and new extensions) may

be made to improve accessibility and connections with bus stops.

- » Conduct fare elasticity analysis to identify whether a fare increase is necessary, and what the potential impact to system ridership would be.
- » Increase span of service on identified Key Local Bus Routes, with planned service enhancements on other local bus routes (as funding permits).
- » Reassess downtown parking policies and strategies.
- » Continue to conduct annual boarding and alighting ride-check counts at all stop locations, along with a bus stop inventory, to develop an improvement prioritization schedule at bus stops. This information should be stored digitally and be mapped regularly to help identify where investments are made spatially in the City to help ensure an equitable distribution of improvements.



MID-TERM (18-36 MONTHS)

- » As funding permits, expand service span for all routes, with a target of providing service to 9 or 10 PM on weekdays. Evaluate potential for providing enhanced service span on Saturdays, or frequency enhancements on Key Local Routes on Saturdays.
- » Implement passenger facility improvements (e.g., shelters, public furniture, streetscape improvements) as funding becomes available
- » Add additional sheltered stops along Lexington, Washington/Gordon, Kivett/Triangle Lake, English, and West Green/Elm.
- » Design and construct a permanent transfer facility in Palladium/Deep River region.
- » Continue to monitor service performance.

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**LONG-TERM (36-60 MONTHS)**

- » As funding permits, enhance the frequency of service along Key Local Bus Routes 10, 11, and 16. Target should be minimum of 20 minutes during peak periods.
- » Add service on Sundays, focused along Routes 10, 11, and 16. Routes may follow more modest routing patterns to save operating cost, while providing service.
- » Continue marketing program to promote transit usage.
- » Evaluate long-term feasibility of merging HPTS services with PART and/or other regional providers (GTA) to help share operating costs and create a regional transit service linking the entire Piedmont-Triad region.

The SRTP developed a combination a high-level policy recommendations about how the bus services should be designed and operated, along with practical and applied service improvement recommendations about

**Next Steps**

A strong investment in the HPTS will help grow the existing ridership base and set the stage for a more sustainable City transportation system in the future by customers with more flexible, comfortable, time- and money-saving transportation choices.

the design and operation of individual bus routes. The recommendations include modest re-organization of the current radial service design by distinguishing key local bus routes where service improvements should be initially targeted (as funding permits), the creation of a crosstown transit route, and a future transit terminal in northeast High Point for HPTS services to connect with PART shuttle services in the Palladium/Deep River region (location to be determined). Other capital elements included in the plan include the expansion of sheltered stop locations based on demonstrated need, expansions to the operations center (as needed), replacement of the current fixed-route bus fleet (already underway), and/or installation of emergency call beacons at key bus stops to help improve the image of transit as a safe public service. The recommendations reflect the preferred service scenario, which is documented in more detail in the previous chapter. The preferred service scenario and implementation approach outlined above accomplishes the following:

- » Provides an easy-to-use and understandable service to existing riders.
- » Simplifies the system by straightening routes and eliminating duplicative services.
- » Organizes fixed-routes in a clear hierarchy of services built around a core network of bus routes that offer fast and direct service between major locations. Secondary bus routes provide less frequent service, but offer important connections between neighborhoods and city destinations, and intersect with key local routes.
- » Provides service to new markets while maintaining service to existing markets.
- » Matches service types and levels to reflect demand.

While the HPTS is committed to maximizing the availability of service given current funding levels, the possibility exists that funding could be reduced in the future given competing public priorities.

As discussed, the recommended service scenario and the financial plan outlined in Chapters 5 and 6 is specifically designed to allow flexibility to increase or reduce service levels according to budgetary needs. Service reductions are never easy and an inconvenience to riders. Still, fiscal realities must be accounted for.

7.2 Performance Monitoring

Performance monitoring is increasingly important in transit system planning to help ensure the strongest return on investment for a community. All transit service providers strive to provide quality transit service in a cost-effective manner. In effort to accomplish this goal, the HPTS must regularly make a number of competing decisions on where demand is greatest, the type of service that would best perform and be most appropriate, and where increasingly limited financial resources are best invested and should be used. In order to be able to make these decisions effectively, it is important to establish performance indicators that provide a consistent means of measurement to evaluate system and service performance.

To this end, the following service performance evaluation methods are recommended. These and other performance measures have been used to develop the SRTP service recommendations. The HPTS already maintains these and other service performance records, and as such, should continue to employ these performance measures to evaluate services regularly. The use of performance measures is vital when making service planning decisions. Identifying routes or services that are underperforming can enable HPTS staff to make modifications to routes and facilitate discussions with the public and City Council on improvements to boost service performance. Therefore, they are designed to provide flexibility to respond to varied customer needs throughout the service area.

- » Total Boardings, Revenue Miles, and Revenue Hours
- » Boardings per Revenue Mile and Revenue Hour
- » Operating Cost per Revenue Mile and Revenue Hour
- » Average Fare
- » Farebox Recovery Ratio

- » Load Factors
- » On-time Performance
- » Subsidy per Boarding

7.3 Conclusions and Next Steps

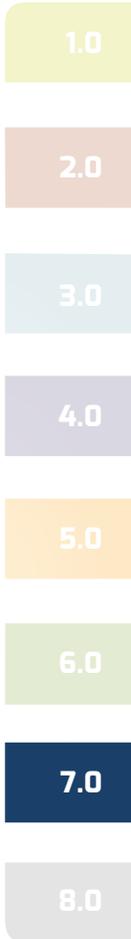
In addition to the action items listed above, the City Council, city management, and HPTS staff will move forward with the specified initiatives. These initiatives will assist with obtaining the public support necessary to implement improvements in the SRTP which will further the HPTS's ability to provide public transport services to those most in need or who choose to ride transit.

Public transportation in the United States continues to evolve as the transit industry responds to shifting community demographics, preferences for housing and lifestyles, an increasing environmental awareness, and in response to changes in technologies for elements such as vehicle fleets and public communication capabilities (e.g., mobile phone applications). These external forces influence how people view public transportation and how they want to travel.

In addition to the larger socio-economic trends, transit providers are also being directly impacted by changes in the way services are funded. As the federal government recovers from the recession and begins to implement



High Point Train Station – Photo Credit: Tom Dills Photography (tomdills.com)



new transportation legislation, such as the Moving Ahead for Progress in the 21st Century (MAP-21) Act, the funding practices and policies for federal agencies such as FTA are likely to change, but also state for local agencies. State funds also decreased substantially during this time for many of the same reasons.

As noted in Chapter 6, the primary hurdle facing the growth of HPTS services is the limitation on funding resources. Providing additional service span, enhanced frequencies, or extending service to currently unserved areas of High Point are all elements the public voiced preferences for and are highly unlikely without an infusion of money. There was considerable consensus among the public to provide more financial resources to the HPTS in order to meet both fixed-route and demand-responsive service needs.

Public transportation, consistent with all forms of transportation, is developed with support from government resources, typically including local, state, and federal sources. User fees (fares) are also part of a typical funding program, as are financial resources from advertising or partnerships with local agencies, businesses, or institutions. All of these funding sources are used for both service operations and capital projects. The federal government has traditionally been an important funding resource for transit agencies, especially for developing new services in urban areas.

Transit providers have historically received federal funds through a combination of formula programs and Congressional earmarks. For many providers, the elimination of earmarks means funding programs follow a more predictable, transparent, and arguably more equitable process. However, the loss of earmarks has also means many transit agencies no longer have access to large, one-time grants and instead are receiving funding as smaller annual grants. In addition to federal funds, state funds have provided a source of funds for public transportation in North Carolina for many years. Like federal funding, the amount of funds North Carolina designates to support public transportation has changed significantly over the past decade. Decreases

in state funding have limited the ability of local areas to support transit operations (as discussed in Chapter 6).

But many of the sources of funding available from both the federal and state governments are dependent in part on local funding sources and contributions from municipalities providing service. Without additional funding source, the only means to pay for service expansion is additional contributions from the City's general fund. While the HPTS has been successful in winning competitive grant awards from federal and state resources in the past, this can be a slow process in the award of funding, and typically requires a local match of 20 percent (approximate).

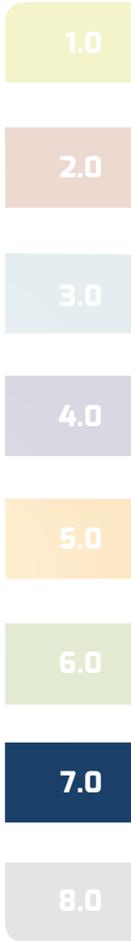
Other options exist that may be prudent to explore with respect to funding and providing transit service in High Point. For example, the consolidation of HPTS with regional transit providers such as PART, may be considered in the future. A complete merger would have PART assume full responsibility of HPTS. The HPTS would be an operating division of PART serving the greater High Point area.

The consideration of a merger is a complex issue that requires focused study. An early task will be to determine how HPTS fits within the PART organization. This includes developing an organizational chart delineating the functions needed to operate PART's current service menu in addition to local services within High Point. A legal review concerning the assignment of HPTS operations to PART may expose procedural and labor contractual issues. However, the consolidation of the agencies is worthwhile to consider as a means of improving transit for riders across the region and improving efficiencies, so long as more efficiencies are identified over the alternative of keeping the agencies separate.

The discussion of costs and benefits of public transportation typically focuses on the financial aspects of operating the transit service, the number of riders, fare revenue, and other easily calculated values. However, the impacts of transit go well beyond these figures alone. Several sections of this

SRTP have highlighted the important role public transportation plays in the economic vitality and environmental sustainability of High Point. The mobility afforded to all residents and workers is also a critical benefit offered by the HPTS, and economically important to the local economy of High Point. The environmental benefits of public transportation, with respect to energy consumption, air quality, and even land development, are increasingly quantifiable, and can accrue real cost savings to communities.

Many of the recommendations discussed in the SRTP necessitate additional financial resources to accelerate the development and growth of public transportation. A strong investment in the HPTS will help grow the existing ridership base and set the stage for a more sustainable City transportation system in the future by customers with more flexible, comfortable, time- and money-saving transportation choices. In the long term, these investments will be money well spent.



SHORT RANGE TRANSIT PLAN



8.0: APPENDIX

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