4.0 DEVELOPMENT OF ALTERNATIVE TRANSIT SERVICE OPTIONS

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

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

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

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

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

4.1 Service Design Principals

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

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

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

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

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

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

4.2 Core Service Network

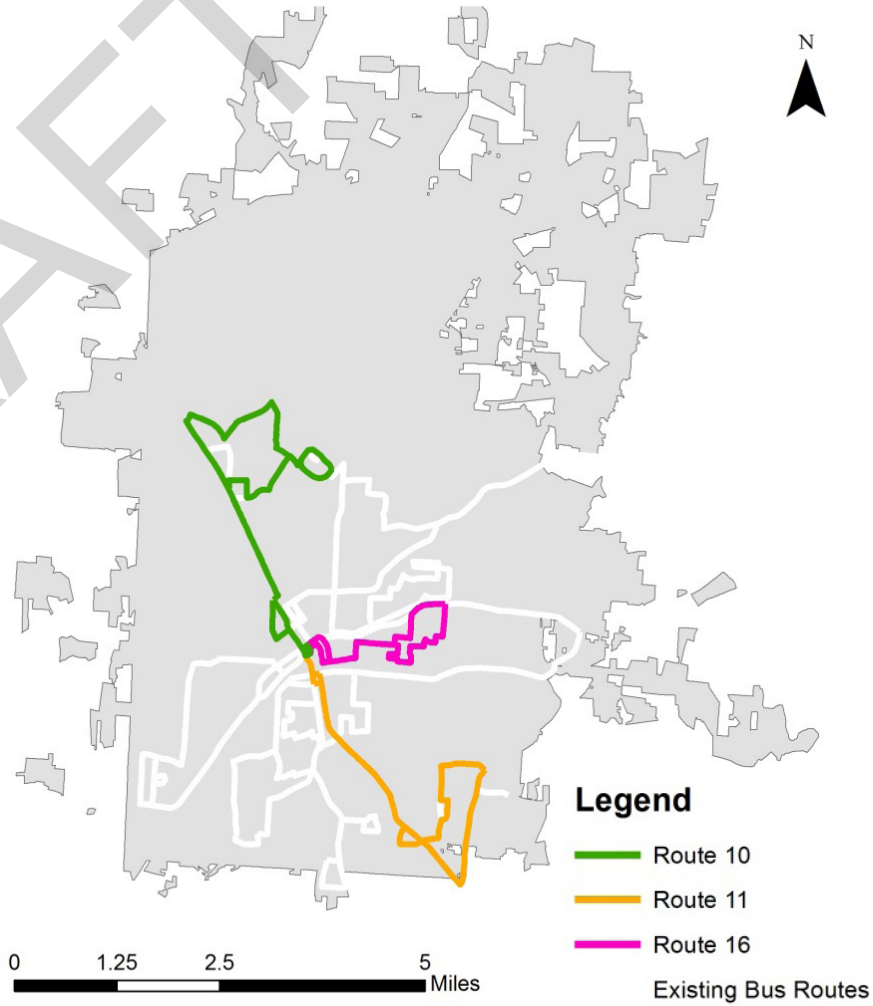
At the start of the service planning process, the project team sought to identify the "core services" of the High Point Transit System network. Core services generally refer to the "backbone" of the service network. These are routes and/or corridors with the greatest levels of transit productivity (e.g.,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

The goal of this effort is to help the High Point Transit System balance available resources to maximize cost and mobility efficiencies so both the high demand corridors and the high need areas receive appropriate levels of service. Once identified, the corridors and bus routes were carried forward and incorporated into the design of different operating scenarios, and the evaluation process also considered how well these corridors would be served. The primary corridors and corresponding bus routes are identified below:

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

These corridors are illustrated in Exhibit 39 below.

Exhibit 39. Hi-Tran Core Service Network



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4.3 Development of Alternatives Service Scenarios

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

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

- Elimination of underperforming routes
- Changing route lengths
- Consolidating overlapping services
- Adjusting service frequencies
- Modifying hours of operation

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

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

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

Given the limited availability of current financial resources, each service scenario was developed under a fiscally constrained neutral funding scenario. This assumes that funding levels will remain constant over the life of the 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):

Public outreach

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

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- **Closure of Montlieu Avenue**: A critical challenge affecting service development and design is the closure of Montlieu Avenue between College Drive and Centennial. This portion of Montlieu Avenue was strategically important to transit operations as a linkage between residential neighborhoods and civic institutions on the east side of College Drive with downtown. The closure constrains crossing locations of College Drive, and forces duplicative service operations in this region.

- **Circuitous Street Network and Street Design Standards**: The circuitous street network results in transit traveling on more circuitous paths. This increases operating costs, particularly in areas with minimal development and low ridership productivity. While the street network will not change in the immediate or long-term future, designing a system that provides the most point-to-point service helps to minimize operating cost and improve expediency of service. Also, as upgrades to street infrastructure are made, opportunities may be possible for larger bus vehicles to serve streets that currently are not designed to physically support larger vehicles, or are not wide enough for larger vehicles to operate along.

- **Limited Pedestrian Infrastructure:** As noted, the lack of sidewalks presents a significant challenge to service productivity, particularly at stop locations. All transit users are pedestrians at one point of their trip. Therefore, underlying pedestrian infrastructure is important to the operation of transit service, enabling passengers to safely board and alight transit vehicles and connect with destinations along a route without having to walk in the street.

4.4 Evaluation Process

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

As part of the evaluation process, the Steering Committee and Sounding Board were asked to review the proposed service scenarios during two workshops. Other outreach and engagement activities included a public open house and comment period. The meetings were advertised publically in local newspapers, direct-messaging emails to stakeholders and the study's contact list. In total, approximately XX persons participated in the public meetings, and over XX written comments were received on the scenarios.

4.5 Service Scenarios Considered

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

Service Scenario 1

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

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

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

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

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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 services[1]. Currently, service is provided on many streets in south and east High Point that is roughly one-third of one mile (or less) apart from each other, resulting in duplicative service coverage without providing more frequency for the users. Duplicative service results in an oversaturation of transit service, competition between routes for riders, lower overall performance, and costly uses of resources that could otherwise be reinvested.

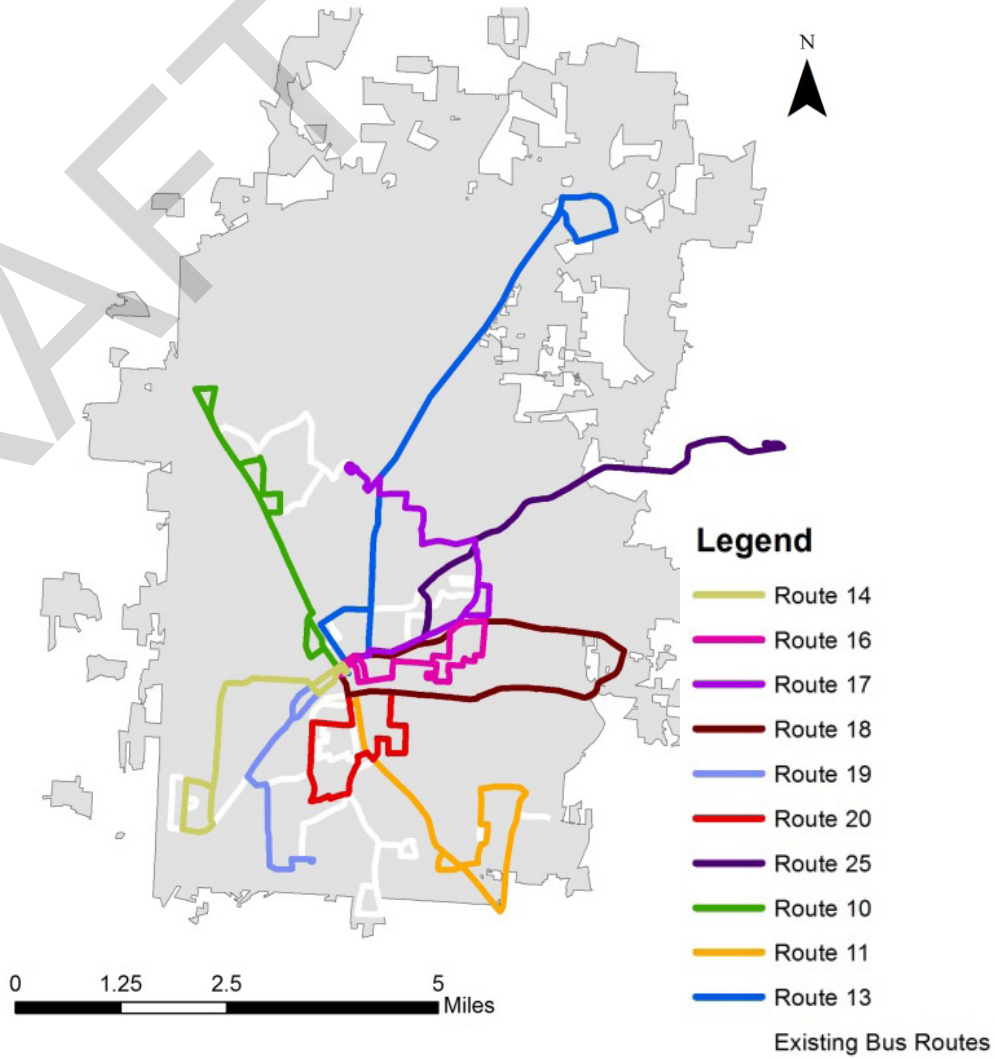
Under this scenario, Routes 12 and 21 would be eliminated, but coverage would be provided to the areas of south High Point that demonstrated good transit productivity. Route 19 would continue to serve English Road between downtown and Ward Avenue, but turn east on Ward Avenue and subsequently south on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

The cost savings accrued from the elimination of Routes 12 and 21 on weekdays were subsequently reinvested into the High Point Transit System to fund the extension of service to the Palladium/Deep River region, and used to pay for extensions of other routes, frequency or span enhancements.

Given the tight pulse-based schedule, this service scenario attempted to design routes in order to maintain their current schedules and to provide some cycle time that could be used to extend service to new areas.

Exhibit 40 illustrates this service scenario.

Exhibit 40. Service Scenario 1



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Service Scenario 2

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

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

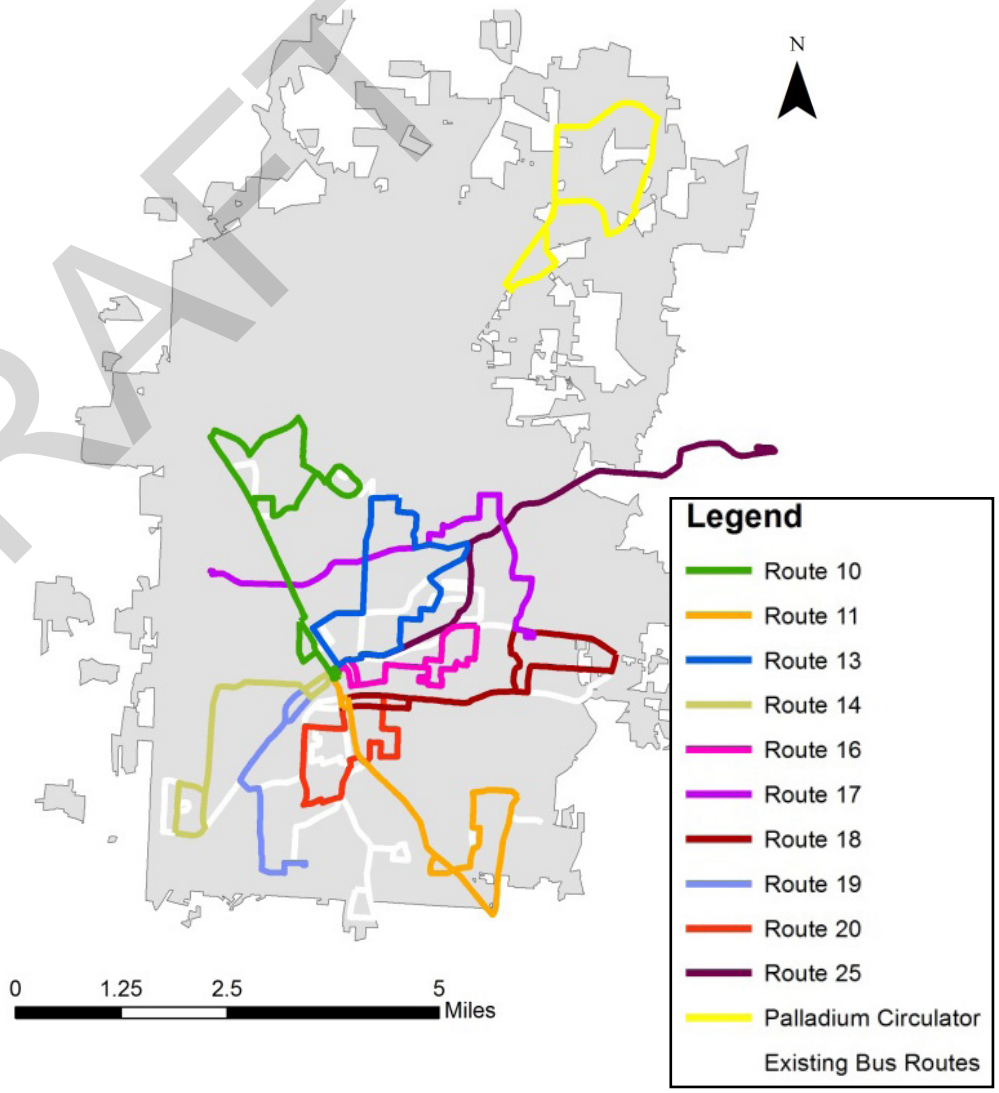
There is insufficient residential or employment density to justify fixed-route service beyond where the service is planned. Also, comments were received regarding the lack of service to west High Point, particularly along Lexington Avenue to Westchester Drive. In general, members of the Steering Committee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

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

Unlike current services that pulse out of the Broad Avenue Terminal, Route 17 would not connect with this facility under this operating plan, instead allowing passengers to transfer to other routes that would provide service to downtown. Route 13 would be realigned slightly to provide service to neighborhoods Route 17 currently serves on inbound trips.

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

Exhibit 41. Service Scenario 2



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

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

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