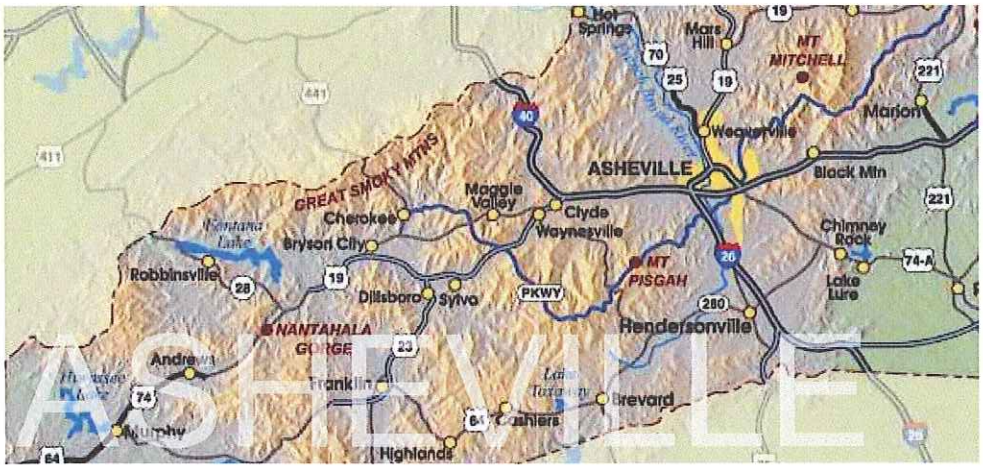
ASHEVILLE

City of Asheville

Final Transit Master Plan

October 2009

Submitted By: HDR Engineering, Inc. of the Carolinas



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Executive Summary

Introduction

In August 2008, the City of Asheville, North Carolina contracted with HDR Engineering of the Carolinas (HDR) and its partners to conduct the *Transit Master Plan* for public transportation in Asheville and neighboring areas of Buncombe County. This report presents the findings and recommendations of that plan.

The overall goals for the *Transit Master Plan*, as established with the Steering Committee are:

- More frequent service on the main travel corridors
- Marketing to choice riders
- Improving service for captive riders
- More environmental consciousness
- Target tourism market
- Emphasize the health and welfare aspects
- Make transit part of the community lifestyle

To accomplish this purpose, several tasks are included in a three-phased approach:

- Evaluation of existing demographic and transit conditions
- Development of an overall vision for transit services in Asheville and surrounding communities
- Creation of a five-year implementation plan and 10-year vision plan

Existing Service

ATS offers four different types of routes in its system. The majority of the 24 routes are daytime local routes, some of which have "owl" or nighttime variations. Additional "college" and "intercity" routes are provided.

Summary

- 60 minute service on each; pulse operation twice per hour at downtown transit center
- Geographic service coverage is good
- Five major corridors of service
  - Tunnel Rd, Biltmore Ave, Haywood Rd, Patton Ave, Merrimon Ave
- Ridership has shown tremendous growth since 2003, mostly due to night service and 90-day free service trial. Night ridership service appears to have had spillover affect to more daytime riders
- Total daily ridership is 5,371 boardings
  - Top routes: 1 Haywood, 11 Montford/Klondyke/Hillcrest, 2 Merrimon, 13 Tunnel Road/ Oteen/ Haw Creek, 15 Patton Avenue/Deaverview
- Saturday ridership is nearly as high as weekday ridership

- 15 locations, including transit center and downtown as a whole account for 53% of ridership
  - Top 4 locations: transit center, downtown, Pisgah View Apartments, Hillcrest Apartments
- Riders like fare, safety, operator courtesy, and cleanliness
- A peak pullout of 16 buses with a total fleet of 21 buses
- Total cost ~ $5 million; $75 service hour

Concerns

- On-time performance is an issue, as much as for early trips as late trips
- Overlapping services do not have coordinated schedules
- Slow service due to multiple deviations, variations, and on request areas
- Capacity constraints at transit center (9 buses); maintenance facility (21 peak buses)
- 16 of 21 buses are older than their lifetime, but 10 of these are scheduled for replacement
- Only areas of Asheville not well covered are Malvern Hills Park east of Patton. Remaining areas are outside of the City – to the west, southeast, Woodfin, Swannanoa

Major Goals and Requested Changes

The Steering Committee composed of community stakeholders, established at the outset several goals for the revised transit system.

- More frequent service on major corridors
- Marketing to choice riders
- Improving service for captive riders
- More environmental consciousness
- Target tourism market
- Emphasize health and welfare aspects
- Make transit part of the community lifestyle

Major Requests

- Sunday service (most requested)
- More frequent service (second most requested) [major reason for non-riding]
- Sidewalks and shelters [also issue for non-riders]
- More evening service until midnight
- Additional transfer points without having to come downtown
- New routes, including express [also issue for non-riders]

Recommended Service Changes

For routing changes, the following principals were established:

- More frequent service on heaviest corridors
- Additional transfer locations outside of downtown
- Improve on-time performance
- Reduce the number of deviations on a route; build sidewalks instead
- Eliminate dial-a-ride or convert to a fixed route
- Speed up longer routes
- Keep it simple for new users

For schedules, these guiding principals were established:

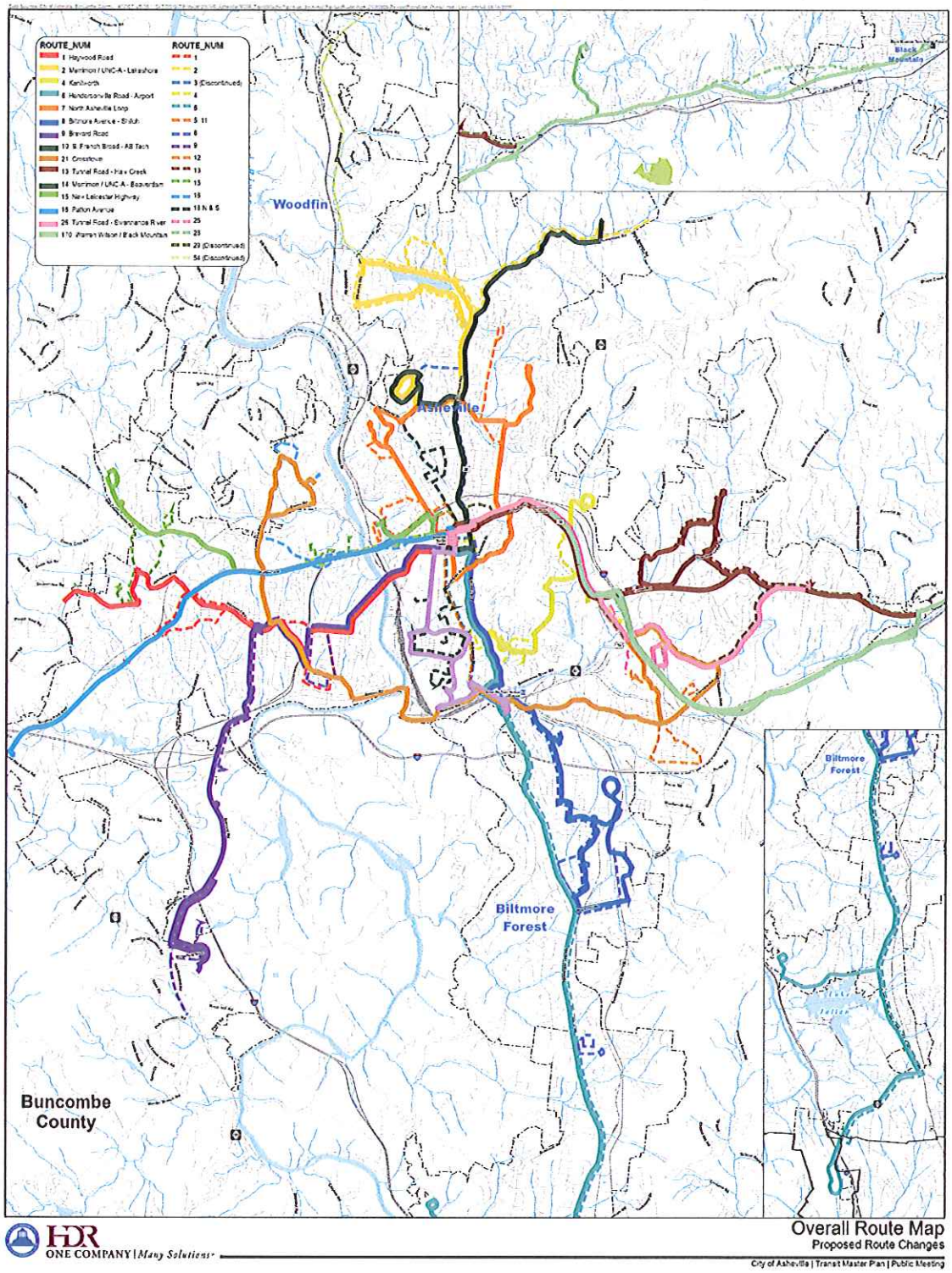
- All routes should offer at least 12-hour service from 6 AM to 6 PM
- Additional trips added based upon demand
- Every route should have at least hourly service
- Evening route should be combined with its daytime route
- Sunday service added for 9 hours on the most productive routes
- Saturday service eliminated on less productive routes

Short-Term Results

- 5 corridors gain 30 minute service Monday – Saturday; hourly service until 10 PM;
    - Tunnel, Biltmore, Haywood, Patton, Merrimon
- Evening services combined with daytime routes
- New southern crosstown service introduced; new North Asheville Loop introduced
- Saturday service discontinued on 3 routes (4,5,11) due to poor ridership
- Sunday service for 9 hours added to 6 routes (1,2,8,15,26,170); requires ADA expansion
- Service extended to new areas
    - New Leicester Highway to Land-of-Sky
    - Patton Avenue to AB Tech-Enka
    - Tunnel Road to ABCCM
    - Long Shoals Road
- Warren Wilson and Black Mountain combined and gain all day service – 7 days/week
- Weaverville service discontinued due to lack of funding
- Significant expansion in sidewalk and shelter construction
- New "brand" for system building upon new routes and buses

The resulting transit system is shown in **Exhibit ES-1.**

Exhibit ES-1
Short-Term ATS System



Implications

Major Advantages

- Five transit corridors identified for system and city – faster, frequent, 7-day service
  - 30-minute service 6 AM – 6 PM, Monday – Saturday,
  - hourly service until 10 PM Monday – Saturday,
  - hourly service 10 AM – 7 PM Sunday
- Faster travel along all corridors
- Pisgah View and Hillcrest Apartments gain 30 minute service directly to and from downtown
- Hendersonville/Airport gains hourly service
- New areas gain service (AB Tech-Enka, New Leicester Highway, East Tunnel Rd, Long Shoals, Medical Plaza, Social Security)
- Sunday service added
- More service to UNC-A
- All day service to Warren Wilson and Black Mountain
- New crosstown service East/South/West; new loop route on North
- Better equipment with new buses
- Greater chance to integrate transit into community through "branding" effort

Potential Issues with Recommendations

- Saturday service discontinuation on 3 routes
- 1 Haywood riders concerned about serving Pisgah View on the periphery
- Pisgah View Apartments now have 1 stop on edge
- Many apartments and shopping centers lose internal service
- Not as much service to Walmart
- Sulphur Springs Road loses service in one direction (Patton Avenue within short walk)
- Saturday service loss: Kenilworth, Grove Park Inn, Montford
- Longer travel time to airport with service on Long Shoals
- Potential concern with loss of dial-a-ride service (few riders)
- Some streets with downtown service reoriented to crosstown service
- Service out west reoriented – will require learning time
- One corridor on north, Broadway, loses service; one corridor on south, McDowell, loses service
- Desire for longer hours of service on Sunday
- Capacity constraints for further extensions – transit center and maintenance facility

Implications for Other Departments/Agencies

- Major increase in sidewalk and shelter construction
- Increase in roadway connections to shorten routes
- HACA locations and capital improvements
- Other social service agency locations
- Implications for land use plan along corridors
- Cost sharing with other jurisdictions for further extensions

Cost Impacts and Funding

The estimated operating costs and revenues for the short-term program, is compared with the 2010 budget in **Exhibit ES-2**.

Exhibit ES-2
FY 2011 Operating Costs

Operation Costs and Revenues	Existing	Short-Term
FY	2010	2011
Existing Service	$4,549,000	$4,524,000
Network Redesign	$0	$492,000
Frequency Increase	$0	$0
Sunday Service	$0	$208,000
Shuttles	$0	$0
Express / Park & Ride	$0	$0
Intercity	$583,000	$329,000
ADA	$308,865	$297,000
Total Service Cost	**$5,440,865**	**$5,850,000**
Marketing	$0	$293,000
Data Collection/Analysis		
Total Operating	**$5,440,865**	**$6,143,000**
Fare Revenue	$568,000	$772,000
ADA Fare Revenue	$55,000	$57,000
Operating Deficit	**$4,817,865**	**$5,314,000**
Federal Share (Section 5307)	$1,457,000	$997,000
Non-Federal Share	**$3,361,000**	**$4,317,000**
State Funds (SMAP)	$1,017,000	$1,043,000
State Funds (Intercity)	$476,000	$231,000
Advertising	$70,000	$72,000
Local Governments	$24,000	$14,000
Sponsorship	$77,000	$79,000
City Share	**$1,697,000**	**$2,878,000**

Any costs not covered by other revenue sources will be the responsibility of local sources, labeled as the "City Share". Due to the conservative estimates reflected above, the City share shows an increase of $1.18 million. This is a large amount to be sure, representing a 70 % increase in the City funding levels. It is important to realize that even if NO changes were made to the existing service and no money spent on marketing, the City share would still increase by $400,000 due to the effect of inflation and the loss of federal funds, without benefit of the additional fare revenue from riders on the new services. Without the fare increase for passes and tickets, another $210,000 would also be required. **Exhibit ES-3** summarizes the causes of the City Share increase.

Exhibit ES-3
Increased City Share Components

Category	Amount
Network Redesign	$490,000
Sunday Service	$210,000
Marketing	$290,000
LESS Minor Service Adjustments	-$30,000
Net Operating Cost Increase	$940,000
LESS Additional Fare Revenue	-$210,000
LESS Inflationary SMAP increase	-$30,000
PLUS Loss of Federal Funds	$460,000
EQUALS Increase in City Share	$1,180,000

For the $1.18 million investment, the City gets in return the maintenance of the existing level of service plus more frequent service to the airport and along the five major corridors; the addition of Sunday services on five routes; and the creation of a new transit "brand" to build upon a multimodal and sustainable future for the City.

During the current fiscal year, Asheville did not budget for any capital investments in the transit system. **Exhibit ES-4** shows the projected capital investment costs for the ATS system in the short-term.

Exhibit ES-4
FY 2011 Capital Costs and Funding

Capital Plan	Existing	Short-Term
FY	2010	2011
Vehicles	$0	$4,769,000
Maintenance Facility		$500,000
AVL		$57,000
Transit Center	$0	$0
Shelters	$0	$103,000
Signs	$0	$16,000
Sidewalks	$0	$163,000
Total Capital	**$0**	**$5,608,000**
Federal Share (Section 5307)	$0	$998,000
Assumed Fed Share (Sec. 5309)	$0	$3,488,000
Non-Federal Share	**$0**	**$1,122,000**
State Funds	$0	$561,000
City Share	**$0**	**$561,000**

Capital expenses during the upcoming year primarily reflect the purchase of 10 new buses. For the maintenance facility, a projected $500,000 has been included to cover roof repairs, the acquisition of land for additional bus parking, and the construction of an expanded outdoor parking area. The AVL line item reflects the additional cost for equipping the new buses with Automatic Vehicle Locators, necessary for the display of real-time bus schedule information. The additional line items reflect an assumed recurring cost for 10 shelter installations per year, the replacement of 150 bus stop signs per

year, and the construction of a half-mile of sidewalks per year. Note: The sidewalk costs are assumed to be in addition to the regular sidewalk program already in place by the City as part of the implementation of the *Pedestrian Plan*. No costs are included in the short-term for transit centers; these costs will incur in later years.

Potential New Funding Sources

Fare Increase

Riders should pay for a portion of the transit service. Studies have shown that people value items in proportion to their costs; a free service would, over time, be viewed as worthless to riders. Riders cannot, however, be expected to pay the full cost of the service. If transit services could still cover their costs through fares, the service would have remained in private hands and not become a governmental service along with all other forms of the transportation infrastructure.

The most appropriate fare level provides a balance between paying for the system cost and maintaining ridership. No increase is proposed in the $1.00 base cash fare, but an increase is proposed in the discounted ticket and pass prices. The current discounts are upwards of 76 % - far in excess of national average discounts.

To provide more funding for the system while maintaining a substantial advantage for riders that pre-purchase their fares, the discounts for tickets and passes are recommended to be lowered to 15-25 % discount, phased in over time. Larger discounts are offered for the longer duration fares. The first of these increases is recommended for 2011.

During the 2009 legislative session, the General Assembly passed House Bill (HB) 148, which upon the Governor's signature became Session Law 2009-527[1]. This law provides two new or increased funding sources dedicated to transit service – a new sales tax and an increase in the motor vehicle registration fee.

New Sales Tax

This law gives all counties in the state, outside of the three major metropolitan areas, the ability to raise money dedicated to transit by allowing county residents to vote on increasing the sales tax by ¼ %, or $0.25 for every $100 purchased. The sales tax can only be imposed after a vote in the entire county – Asheville cannot conduct its own election, and the vote must pass in the entire county to be implemented. The County Commissioners would need to then formally adopt the sales tax after a favorable public vote.

To provide decision makers with an idea of the revenue potential for this tax, the sales tax revenue in Asheville and Buncombe County for 2007 and 2008 was examined. Based upon this review, a ¼ % sales tax could annually raise in

Buncombe County	$7,200,000
Asheville	$1,900,000
Biltmore Forest	$ 90,000

[1] http://www.ncga.state.nc.us/Sessions/2009/Bills/House/PDF/H148v6.pdf

Black Mountain	$ 120,000
Montreat	$ 40,000
Weaverville	$ 110,000
Woodfin	$ 50,000

This dedicated tax could generate about $7.2 million in the county as a whole to fund transit services, or more than three times what Asheville currently spends as its local share. These revenues would need to be shared with Mountain Mobility, but could be used for any operating or capital expense. These funds can only be used to supplement existing funding of public transportation and cannot be used to supplant or replace existing funding.

New Vehicle Registration Fee

Session Law 2009-527 also provides for the ability of counties to levy up to a $7.00 fee on vehicles registered within the county, with the proceeds dedicated toward public transportation. This fee can be imposed without requiring a vote of the residents.

Information on the number of registered vehicles in the county was not available, but the City of Asheville has budgeted in 2010 $310,000 for its $5 vehicle registration fee. Assuming a proportion increase from $5 to $7, the new fee in Asheville could generate $434,000. If the vehicle proportions follow the population proportions for the county, all of Buncombe County could generate $1,160,000 from the vehicle registration fee.

Future Years Enhancements

The service program beyond the first year is more tentative. The appropriate service changes will be dependent upon how the extensive service changes implemented in the first year perform.

Near Term Enhancements

Near-term improvements cover those improvements in Years 2 through Year 5. The prioritization of the service additions are based upon current circumstances, but should be considered as flexible to allow for changing circumstances.

2012 Enhancements

- Additional Frequency on 21 Crosstown. As a top priority, an additional bus should be added to the 21 Crosstown to provide a 30-minute headway.
- Expanded hours of Sunday Service. Sunday service hours should be extended to a 10 hour span, roughly 9 AM to 7 PM on all five routes with Sunday service during Year 2 if Year 1 was successful.
- Continue Marketing Program. The marketing program should continue at a high level to further establish the new brand.
- Purchase Two Additional 30-foot Buses. With this purchase, two of the oldest buses should be retired, maintaining the fleet at 22 buses.
- Construct One 4-Bay Neighborhood Transit Center. One off-street transit center should be constructed at one of the western focal points.

- Continue Installing 10 Shelters, 150 Bus Stops, and Half-Mile of Sidewalk.
- Maintain Fares at 2011 Levels.

2013 Enhancements

- Pisgah View to Hillcrest Apartment Circulator. With the Implementation of this route, Routes 1, 4, 9, and 15 should be examined for extensions using their existing number of peak buses.
- Adjust Marketing Levels to "Normal". After two years of expanded marketing efforts, the amount spent on marketing should drop to 3 % of operating costs and stay at this level.
- Conduct Rider Count. A boarding & alighting count of all routes should be conducted to gauge the results of the 2011 changes.
- Make Modest Improvements to Downtown Transit Center. In order to prolong the life of the transit center until a replacement is constructed, modest improvements and repairs should be made to the central location of transit service.
- Purchase 4 30-foot Buses. With this purchase, all 16 of the oldest buses in the fleet will have been replaced. Two of the oldest buses should be retired, resulting in an overall fleet of 24 buses.
- Continue Installing 10 Shelters, 150 Bus Stops, and Half-Mile of Sidewalk.
- Continue Pass Fare Adjustment. As a second step in increasing these fares to national discounts, the average fare amount should be increased $0.15 ($0.70 for monthly pass per-use fare, and $0.65 for annual and PassPort per-use fare.

2014 Enhancements

- Additional Frequency on One Trunk Corridor. One of the four trunk corridors (not including Biltmore) should have its frequency doubled to every 15 minutes (every 30 minutes on each of the routes).
- Continue Marketing Program.
- Purchase 4 30-foot Buses, and 2 35-foot Buses. These purchases will allow the retirement of the last three of the oldest buses in the fleet. The total fleet size will be 27 buses.
- Continue Installing 10 Shelters, 150 Bus Stops, and Half-Mile of Sidewalk.
- Maintain Fares at 2013 Levels.

2015 Enhancements

- Malvern Hills/West Asheville Estates/Virginia Ave Shuttle. This shuttle service fills in a gap in the service coverage.
- Long Shoals Road Express. This service will be the first express route as opposed to an intercity route. With this change, modifications to the 6 Hendersonville Road may be appropriate.
- Conduct New Transit Master Plan. In 2015, it will have been 5 years since the last Transit Master Plan. The new plan should carefully review the performance of the previous changes and identify new priorities for the next 5-10 years.
- Continue Marketing Program.
- Purchase 1 30-foot and 2 35-foot Buses. No buses are retired with this purchase, bringing the total fleet to 30 buses.
- Design New Maintenance Facility. The planning and design of the replacement facility should be undertaken, with construction occurring in the following year.
- Construct One 4-Bay Neighborhood Transit Center. One off-street transit center should be constructed at one of the western focal points.
- Continue Installing 10 Shelters, 150 Bus Stops, and Half-Mile of Sidewalk.

- Increase Base Fares to $1.25 And Modify Other Fares. To continue to provide funding for the ongoing expansion, the base fare should be increased. This is the first increase in the cash fare. The other fare categories should all have a corresponding increase to provide the same percentage discount, and the passes should have their final adjustment to provide a 20 % discount for monthly passes and 25 % for annual passes and the PassPort program.

Long Term Enhancements

In the long term, assuming the capacity issues have been resolved, additional services can be added. Most of the remaining potential service expansions are outside of the current Asheville city limits, but are within the potential annexation area. As the annexation plan is developed, the priority of the potential service additions can be set.

Asheville should actively work during the long term to reshape the land use. Higher intensity development should be promoted along the five corridors. Social service and other agencies targeted to the transit dependent should all be located where they can easily be served. The older HACA properties should be disposed of and the residents relocated to areas with high frequency transit service.

The following summarizes the year-by-year enhancements.

2016 Enhancements

- Add One Additional Sunday Route. If the Sunday service addition program has been successful, additional routes should receive Sunday service.
- Add One Additional Shuttle Route. One of the potential shuttle routes noted in Section 6.1.3.2 should be added, principally based upon any changes to the Asheville city limits.
- Continue Marketing Program.
- Purchase Two 30-foot Buses and One 35-foot Bus. With this purchase the total fleet size increase to 33 buses, and both the 30-foot and 35-foot subfleets now will have 20 % spares.
- Construct New Maintenance Facility. The replacement facility should be constructed during this year to provide continuing capacity for the fleet.
- Design Replacement Downtown Transit Center. The planning and design for the new downtown transit center is programmed for this year, with construction in the following year.
- Continue Installing 10 Shelters, 150 Bus Stops, and Half-Mile of Sidewalk.
- Maintain Fares at 2015 Levels.

2017 Enhancements

- Additional Frequency on One Trunk Corridor. One of the three trunk corridors (not including Biltmore) should have its frequency doubled to every 15 minutes (every 30 minutes on each of the routes).
- Continue Marketing Program.
- Purchase 2 30-foot Buses, and 2 35-foot Buses. With these purchases, three of the 2006 model-year buses should be retired. The total fleet size will be 34 buses.
- Construct New Downtown Transit Center. A new 10-bay transit center should be constructed to reinforce the new image of the system and to maintain customer service levels.
- Continue Installing 10 Shelters, 150 Bus Stops, and Half-Mile of Sidewalk.
- Maintain Fares at 2015 Levels.

2018 Enhancements

- Add One Additional Sunday Route.
- Add One Additional Shuttle Route. One of the potential shuttle routes noted in Section 6.1.3.2 should be added, principally based upon any changes to the Asheville city limits.
- Add One Additional Express Route. One of the potential express routes noted in Section 6.1.3.2 should be added.
- Continue Marketing Program.
- Purchase 2 30-foot Buses, and 4 35-foot Buses. With these purchases, the remaining two of the 2006 model-year buses should be retired. The total fleet size will be 38 buses.
- Construct One 4-Bay Neighborhood Transit Center. One off-street transit center should be constructed at the northern or eastern focal points. The Biltmore Village focal point will receive a transit center in conjunction with the NCDOT construction of the new Asheville Train Station.
- Continue Installing 10 Shelters, 150 Bus Stops, and Half-Mile of Sidewalk.
- Maintain Fares at 2015 Levels.

2019 Enhancements

- Add Two Additional Shuttle Routes. Two of the potential shuttle routes noted in Section 6.1.3.2 should be added, principally based upon any changes to the Asheville city limits.
- Add One Additional Express Route. One of the potential express routes noted in Section 6.1.3.2 should be added.
- Continue Marketing Program.
- Purchase 1 30-foot Buses, and 4 35-foot Buses. With these purchases, the total fleet size will be 43 buses.
- Construct One 4-Bay Neighborhood Transit Center. One off-street transit center should be constructed at the northern or eastern focal points.
- Continue Installing 10 Shelters, 150 Bus Stops, and Half-Mile of Sidewalk.
- Maintain Fares at 2015 Levels.

2020 Enhancements

- Additional Frequency on One Trunk Corridor. One of the two trunk corridors (not including Biltmore) should have its frequency doubled to every 15 minutes (every 30 minutes on each of the routes).
- Add One Additional Sunday Route.
- Conduct New Transit Master Plan. In 2020, it will have been 5 years since the last Transit Master Plan.
- Continue Marketing Program.
- Purchase 3 35-foot Buses. With these purchases, the total fleet size will be 46 buses.
- Construct One 4-Bay Neighborhood Transit Center. One off-street transit center should be constructed at the northern or eastern focal points.
- Continue Installing 10 Shelters, 150 Bus Stops, and Half-Mile of Sidewalk.
- Increase Base Fares To $1.50 and Modify Other Fares. To continue to provide funding for the ongoing expansion, the base fare should be increased. This is the first increase in five years.

The costs for these changes are all within the funding capability of a ¼ cent sales tax and $7.00 vehicle registration fee.

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1 Background & Introduction

In August 2008, the City of Asheville, North Carolina contracted with HDR Engineering of the Carolinas (HDR) and its partners to conduct the *Transit Master Plan* for public transportation in Asheville and neighboring areas of Buncombe County. This report presents the findings and recommendations of that plan.

The City's Transportation Department (formerly the Transportation & Engineering Department) is responsible for overseeing the provision of public transit service. It contracts with the Asheville Transit System (ATS) for the operation of 24 bus routes providing service to all sections of Asheville, with extended service to the communities of Weaverville and Black Mountain. Additional service in the county is provided by Mountain Mobility, a division of Buncombe County's Planning Department, and to the Asheville Airport from Henderson County by Apple Country Transit. Both of these services connect with ATS routes.

1.1 Study Purpose

The purpose of the plan is to chart a new vision for transit service delivery over the coming years. The system has made incremental changes over the years, but this plan assumes a comprehensive review.

The overall goals for the *Transit Master Plan*, as established with the Steering Committee are:

- More frequent service on the main travel corridors
- Marketing to choice riders
- Improving service for captive riders
- More environmental consciousness
- Target tourism market
- Emphasize the health and welfare aspects
- Make transit part of the community lifestyle

To accomplish this purpose, several tasks are included in a three-phased approach:

- Evaluation of existing demographic and transit conditions
- Development of an overall vision for transit services in Asheville and surrounding communities
- Creation of a five-year implementation plan and 10-year vision plan

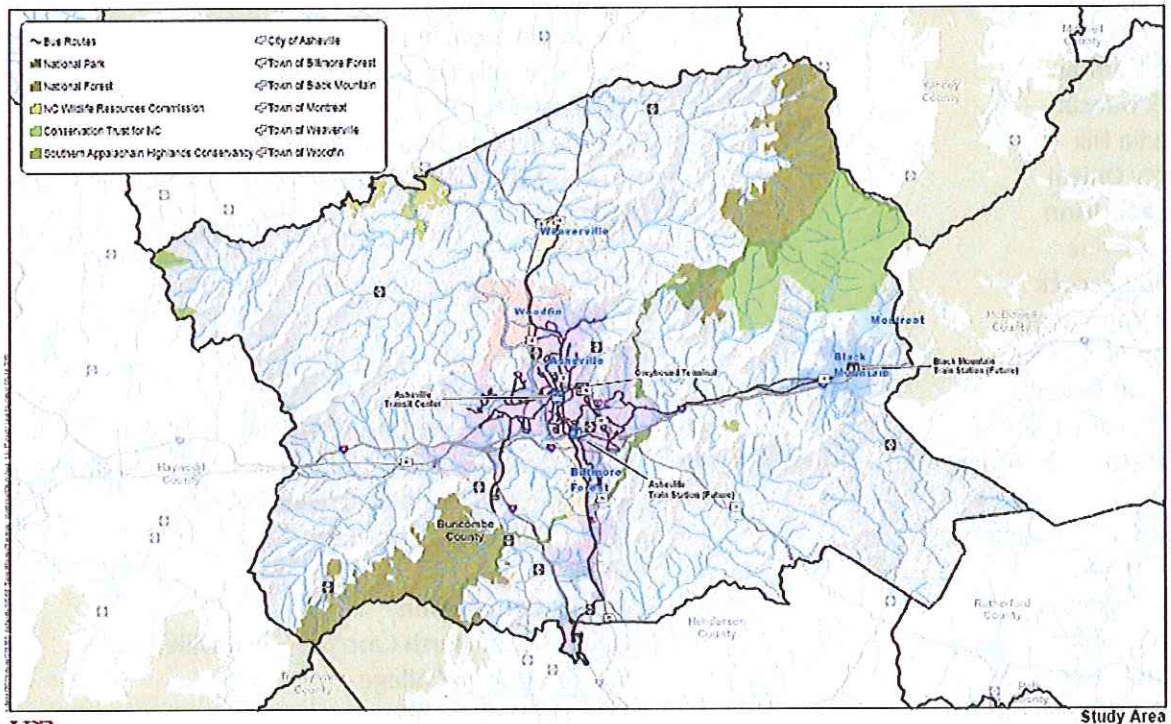
The results of the *Transit Master Plan* will chart the course for ATS for the next 10 years and beyond. This study is one of many undertaken in recent years by Asheville that are designed to keep the city as a vibrant urban area where people want to live. Among the other recent studies are the 2000 *City of Asheville Smart Growth Policy*, 2002 *Asheville City Development Plan 2025*, 2005 *Pedestrian Plan*, the 2007 *Sustainability Management Plan,* the 2008 *Affordable Housing Plan*, the 2008 *Comprehensive Bicycle Plan*, and the 2009 *Downtown Master Plan*. Each of these plans touches in some way on the public transit system, and a major challenge of this *Transit Master Plan* is to ensure that these overlapping issues are addressed.

The *Transit Master Plan* should be viewed as a guideline for the growth of transit service within the city. It sets the vision for future services, but leaves many of the implementation aspects flexible to allow for the uncertainty of growth patterns over time. Short-term recommendations are more specific in their details, but longer term recommendations are general in nature. This approach is deliberate to reflect that the *Transit Master Plan* should be viewed as a "living" document. As the first changes are implemented, the effects should be evaluated before the next phases are implemented. The flexibility also permits adjustments based upon available funding and does not commit future City Councils to specific service changes.

1.2 Study Area

The study area for the *Transit Master Plan*, shown in **Exhibit 1-1** is principally the city limits of Asheville. ATS, however, runs several services outside of the city limits, most notably to Weaverville, Warren Wilson College, and Black Mountain, so much of the analysis considered Buncombe County as a whole. Large swaths of the county are within the Pisgah National Forest and the Burnett Reservoir conservation area, and were not a factor in the analyses.

Exhibit 1-1
Study Area



1.3 Project Team

To ensure the goals and recommendations of the *Transit Master Plan* reflect the interests and considerations of all persons throughout Asheville and the surrounding areas, there was considerable effort to incorporate the input of public officials, representatives of key civic organizations and public agencies, and the general public. Participants in the study process include the groups listed below, as well as the general public who were provided the opportunity to participate in the transit study through advertised public meetings and public comment period. Further information on the public involvement can be found in Chapter 4.

1.3.1 Study Steering Committee

The work of the study was guided by a steering committee composed of representatives of the major stakeholders. The study would not have been possible without the long hours and dedication shown by these individuals.

Mariate Echeverry, Chair	City of Asheville Transportation Planning Manager
Edna Johnson	Asheville Transit System General Manager
Stephanie Monson	City of Asheville
Ken Putnam	City of Asheville
Shannon Tuch	City of Asheville
Lori Hembree	Mountain Mobility
Mac Houck	Mountain Mobility, alternate
Tom Herman	NCDOT Public Transit Division
Clark Duncan	Asheville Chamber
Claudia Nix	Bicycle & Pedestrian Task Force
Marcy Onieal	Town of Black Mountain
Bette Jackson	Citizen
Ellen Levine	Citizen
David Peacock	Citizen
Paul Van Heden	Citizen
Susan Anderson	Haywood County
Hope Bleecker	Henderson County
Gene Bell	Housing Authority City of Asheville
Carrie Runser-Turner	Land-of-Sky Regional Council/French Broad River Metropolitan Planning Organization
Heather Strassberger	LOSRC/FBR-MPO Alternate
John Hayes	NAACP
Josh O'Conner	Transit Commission
Stephen Baxley	University of North Carolina – Asheville
Ian Robertson	Warren Wilson College
Michael JaVan Morgan	Town of Weaverville

1.3.2 Consulting Team

The consulting team for this study was led by HDR Engineering of the Carolinas (HDR). Assisting HDR were the firms of AJM Consulting for data collection, and Cherry Consulting of the Carolinas (3C) for public participation. The following were the principal team members on this project.

Robert Bush	HDR Project Manager
Brett Wallace	HDR
Drew Zimba	HDR
Andy Mundew	AJM
Rebecca Cherry	3C

1.4 Report Organization

This report is organized into eight chapters. In this first chapter, the purpose of the study and the people responsible for its development are introduced. In Chapter 2, the operating environment of the transit network is described. This description includes overviews of Buncombe County residents, how they have changed over time, major employment and other locations, worker travel patterns, and identification of those areas of the county most likely to be able to support transit service. This chapter includes a review of the multiple plans that have been prepared for Asheville that have relevance to how and where transit service is provided. A major challenge for the City will be to maintain consistency among these plans. In Chapter 3, the existing ATS services are described and analyzed. New data collection efforts of the boarding & alighting count and rider survey are detailed and analyzed. ATS' facilities, people, and finances are reviewed.

In Chapter 4, the public input is reviewed, focusing primarily on what changes are desired to the ATS system, and what aspects should be left intact. Chapter 5 analyzes the results of the public input and data gathering from the previous chapters and presents the initial service concept for transit in Asheville. Chapter 6 refines the concept into an implementable set of changes in services, capital facilities, and the development of a new brand for the system. Chapter 7 takes these recommended changes and develops an implementation schedule. Chapter 8 describes the costs for implementing the plan.

2 Buncombe County Characteristics

An important first step in evaluating the market demand and potential for expanded transit service within Asheville and Buncombe County is the preparation of a detailed demographic profile. The purpose of this profile is to gain a better understanding of the existing demographic conditions and characteristics of the county. Familiarity with the transit market and its change over time is useful in continuing to provide an attractive transportation alternative.

Historical population figures are important to establish a trend, which is useful in projecting future needs. For instance, expansion of fixed-route transit into declining rural areas is not economically feasible considering projected decreases in population and, thus, ridership. In comparison, extending transit services into developing areas where the residents have the characteristics associated with transit usage presents a much higher potential for successful transit services.

As important is a review of previously prepared plans that affect the need and productivity of transit service in Asheville and Buncombe County. A summary of these plans and their implications is given at the end of this chapter.

2.1 Population Trends

2.1.1 Overall Trends

Within the study area for the *Transit Master Plan*, there are 14 municipalities (in whole or part) or Census Defined Places (CDP). **Exhibit 2-1** shows the changes in population for Buncombe County and its municipalities from 1980 to 2000, as reported by the Census Bureau. Many of the CDPs did not have reported population in 1980 nor were projections available for 2006.

Exhibit 2-1
Population Change 1980 – 2006

Location	1980	1990	2000	2006	% Annual Change		
					1980-2000	1980-2006	1990-2000
Asheville city	54,022	61,607	68,889	83,019	1.22%	1.67%	1.12%
Avery Creek CDP		1,144	1,405				2.08%
Bent Creek CDP		1,487	1,389				-0.68%
Biltmore Forest town	1,499	1,327	1,440	1,518	0.82%	0.05%	0.82%
Black Mountain town	4,083	5,418	7,511	7,667	3.09%	2.45%	3.32%
Canton town	4,631	3,790	4,029		-0.69%		0.61%
Fairview CDP		1,830	2,495				3.15%
Fletcher town		2,787	4,185				4.15%
Montreat town	741	693	630	698	-0.81%	-0.23%	-0.95%
Royal Pines CDP		4,418	5,334				1.90%
Swannanoa CDP	5,586	3,538	4,132		-1.50%		1.56%
Weaverville town	1,495	2,107	2,416	2,529	2.43%	2.04%	1.38%

Location	1980	1990	2000	2006	% Annual Change		
					1980-2000	1980-2006	1990-2000
West Canton CDP		1,119	1,156				0.33%
Woodfin town	3,260	2,736	3,162	3,317	-0.15%	0.07%	1.46%
Buncombe County	160,934	174,821	206,330	222,174	1.25%	1.25%	1.67%

Source: *US Census* SF 1

Buncombe County has shown a growth of 45,396 persons, or 5.4 % from 1980 to 2000 with 31,509 of these from 1990 to 2000. This growth represents a compounded annual growth rate of 1.25% from 1980 to 2000. Asheville remains the largest municipality in the county, growing by 14,867 persons from 1980 to 2000, or a compounded annual growth rate of 1.22%, about the same as the county as a whole. Asheville's share of the total population of the county remained steady. In 1980, it was 34% of the county's population, while in 2000, it was 33%. The 2006 projections, however, anticipate that Asheville's share will increase to 37% of the county's population.

The last column may be the most telling since it compares the annual growth rate for all jurisdictions from 1990 to 2000. It shows that the places with the most recent growth are Fletcher, Black Mountain, Fairview and Avery Creek. The remaining places all had an annual growth rate of less than 2%, with Montreat and Bent Creek actually losing population. Asheville continues to show good growth, but not at the rate of Buncombe County as a whole, or most of the other places. If the 2006 projections prove to be true, however, more residents will have chosen to locate in the principal city. This trend seems to hold true when compared with the projected population patterns developed as part of the *Asheville City Development Plan 2025* prepared in 2002. This plan is described further in Section 2.5.

2.1.2 Demographic Comparison to United States

The Census Bureau periodically performs the American Community Survey to allow areas to update their information more frequently than the decennial Census. For the period 2005-2007, Asheville's demographics were different from the US as a whole in several regards as noted below. For other characteristics, Asheville was not estimated to be much different than the US as a whole.

- The population was more educated, with 38.3% having a Bachelor's degree or higher compared with the US average of 27.0%.
- Asheville had fewer foreign born residents – 5.7% versus 12.5%; and fewer that speak a language other than English at home – 7.9% versus 19.5%.
- Asheville has fewer married individuals – 46.1% of the males and 38.4% of the females are now married compared with 52.6% of the males and 48.5% of the females.
- Asheville has a higher poverty rate, with 11.5% of the families and 17.6% of the individuals living below the poverty level compared with 9.8% and 13.3%.
- Asheville has a larger proportion of renters (45.1%) and a lower proportion of homeowners (54.9%), than does the US as a whole with 32.7% renters and 67.3% homeowners.
- Asheville has an older population, with 80.9% 18 years and older and 16.7% 65 years and older compared with 75.3% and 12.5% respectively
- Asheville is more White and less Hispanic than the US as a whole – 82.0% White versus 74.1% for the US, and 4.2% Latino versus 14.7% for the US.

- Buncombe County as a whole is similar to Asheville except that the population is less educated, has fewer singles, has a lower poverty level, and has more homeowners and fewer renters.

Several of these differences favor transit, while others do not. The presence of more singles, lower income, and renters are probably partially reflective of the presence of UNC-Asheville (UNC-A) and its student population. An attractive service designed for their needs can be highly successful. In North Carolina, Chapel Hill and Greenville have very successful transit services for their university students.

A challenge for Asheville is the percentage of older residents. Asheville is becoming a larger retirement community, and as residents age, they are less able to drive themselves, or walk longer distances and wait longer for transit. More frequent service located near concentrations of elderly residents will be required. Transit has a major role to play for these older individuals to help prevent their world from contracting as they become less mobile.

2.2 Employment Levels

According to the Asheville Chamber and Buncombe County, in 2008, the largest employers with more than 500 estimated employees in the area are shown in **Exhibit 2-2**.

Exhibit 2-2
2008 Largest Employers in Buncombe County

Employer	Industry	# of Employees
Mission Health & Hospitals	Hospitals	6,990
Buncombe County Public Schools	Educational Services	4,000
Ingles Markets (home office)	Food & Beverage Stores	3,050
Buncombe County Government	General Government	1,670
The Biltmore Company	Museums	1,580
City of Asheville	General Government	1,150
VA Medical Center	Hospitals	1,140
The Grove Park Inn	Accommodation	1,100
Eaton Corp – Electrical Division	Electrical Equip., Appliance & Component Mfg	1,010
BorgWarner Turbo	Transportation Equipment	830
UNC – Asheville	Educational Services	803
CarePartners	Nursing & Residential Care	750
Asheville City Schools	Educational Services	686
Arvato Digital Services	Computer & Electronic Product	650
Thermo Fisher Scientific	Machinery Manufacturing	550
MB Haynes Corp	Construction of Buildings	514

Source: 2008 Buncombe County Comprehensive Annual Finance Report using data from the Asheville Area Chamber of Commerce and direct research.

Many of these employers are located at scattered sites within Asheville or Buncombe County. The exceptions are Ingles Markets, whose headquarters and distribution center are located in the Grovestone area, just west of Black Mountain; Borg Warner, located off Brevard Rd north of Long Shoals Rd; Eaton Electrical, located off Hendersonville Rd in Arden; Arvato Digital Services (formerly Sonopress) located in Weaverville; and Thermo Fisher Scientific located near Biltmore Square Mall. All of these

locations, except for Borg Warner and Eaton Electrical, are served by ATS. Eaton Electrical is approximately two-thirds a mile from service on Hendersonville Rd.

According to the 2000 Census, the major industries in Asheville in order were:

- Education, health & social services
- Retail trade
- Manufacturing
- Arts, entertainment, recreation, accommodation and food services

The first category accounted for about 24% of the employment, while each of the other categories accounted for about 12%.

2.3 Ridership Propensity

The Census data can be used to identify locations that are most likely to need and to use transit service, based upon the demographic characteristics of the residents.

For this examination, HDR examined the 2000 Census data on a Census Block Group basis to identify those areas that had the characteristics most likely to support transit service. The Block Group level is the smallest area for which the Census Bureau reports the demographic data used in the analysis. In Buncombe County, the 142 Block Groups range in size from 0.14 square miles to 39.68 square miles. Five of the block groups were over 20 square miles, undoubtedly due to the effect of the Pisgah National Forest.

Transit Propensity is the concept that measures the inclination or likelihood of using public transit. Propensity is an economic term used to measure consumer behavior. A higher propensity toward an action means a greater likelihood to do the action. Propensity can be quantified such that someone with a propensity of "2" is twice as likely to do something, such as take transit, as someone with a propensity value of "1".

To identify the transit propensity for each of the 142 Block Groups, nine demographic factors were considered. They were carefully selected based upon industry research regarding the potential users of transit. The background analysis is contained in Transit Cooperative Research Program[2] (TCRP) *Report 28: Transit Markets of the Future, The Challenge of Change*. The specific factors examined were:

- Population density
- Percentage of households without cars
- Percentage of persons with mobility limitations
- Percentage of persons with work disabilities
- Percentage of persons who were not White, non-Hispanic
- Percentage of low-income households
- Percentage of recent (< 10 years) immigrants
- Percentage of female persons

[2] The Transit Cooperative Research Program is part of the Transportation Research Board of the National Research Council. Its extensive publications are available free on the internet at www.tcrponline.org.

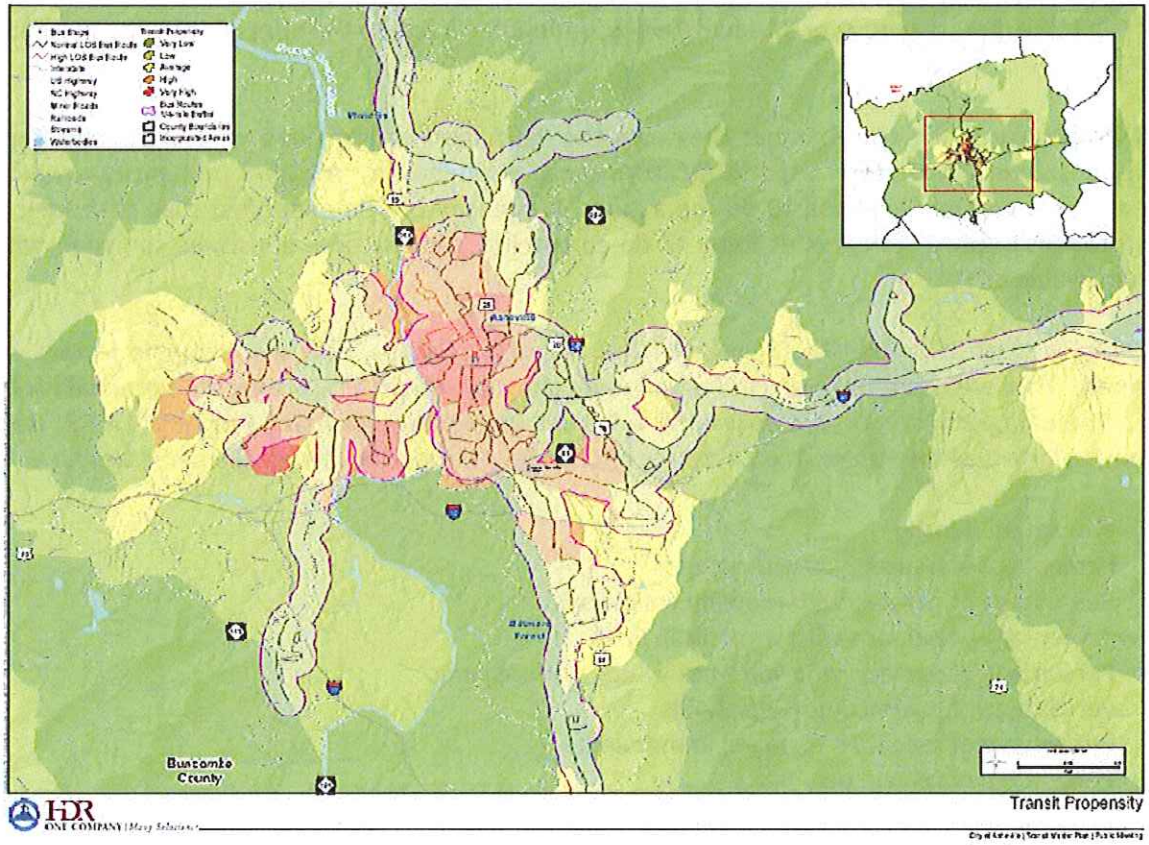
- Percentage of persons in the workforce age 65 or older

An index for each of these factors was developed that determined the relative rank of the Block Group compared with the highest ranked Block Group for that factor. These indexes were then weighted to develop a Composite Score for each Block Group. The weights for each factor are based upon the industry research.

The Composite Scores were then statistically grouped into five categories, from "Very Low" to "Very High" based upon their relationship to the scores of the other Block Groups. The results indicate that the residents of a "Very High" Block Group are 150 % more likely to use transit than residents of a "Very Low" Block Group.

Exhibit 2-3 shows the relative ranking of the Block Groups for Buncombe County for transit propensity. There were 47 Block Groups (33.1%) that ranked "Very Low," and 9 Block Groups (6.3 %) that ranked "Very High". As the exhibit illustrates, the concentration of the residents with the highest propensity to use transit service is the central area of Asheville, east of the French Broad River; the area north of Fairview; the Pisgah View Apartments area; and areas on either side of Patton Ave south of Haywood.

Exhibit 2-3
Buncombe County Propensity



THE READER SHOULD NOTE that this above analysis is limited to household locations – the only data available at this level from the Census. Equally important are concentrations of employment or other major destinations. These locations are more confined and can be taken into account during the service planning process.

2.3.1 Transit Supportive Areas

The transit literature gives some guidance on how to determine if an area is "transit supportive". This analysis is described in the TCRP *Report 100: The Transit Capacity and Quality of Service Manual*. "Transit Supportive" areas are identified by the density of the population and employment within the block group. The higher the density, the more intensive the transit service that can be supported. This source 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.

Based upon the Census analysis above, which only examined the residential side, no areas met the threshold for hourly bus service. This result should not lead to the conclusion that no transit is warranted in Asheville, just that further analysis including employment levels should be conducted. Note: This analysis is based upon the 2000 Census; the 2010 Census may show different results. The City and County should work closely with the North Carolina Department of Transportation (NCDOT), which develops the travel demand model for the area, to ensure that population and employment levels are properly reflected in the model.

One other conclusion that can be drawn is that even though the above analysis is limited, it does indicate that even the most populous of the Block Groups did not have sufficient overall density to be highly supportive of transit service. If Asheville desires to increase transit usage, the land use planning for the City needs to consider the intensity of development that is desired. This objective is reinforced by the *Asheville City Development Plan 2025*, the *Sustainability Management Plan*, and the *Affordable Housing Plan for the City of Asheville*.

2.3.2 Unserved or Over-served Locations

The propensity and density analysis conducted above also permits the identification of any areas that are unserved by transit and that should be considered for service expansion. Since no areas were strictly identified as "transit supportive", there are no definitive areas where transit service should be extended.

When considered more broadly, the locations of "High" and "Very High" propensity Block Groups can serve as a surrogate for areas that are in need of service. The good news is that ATS already provides good geographic coverage of most areas with a transit need. "Coverage" here is defined as providing at least hourly service for 12 or more hours per day within one-quarter mile of an area. The propensity analysis showing this route coverage clearly indicates that most areas have service.

A few small areas do indicate that some additional geographic coverage may be warranted. One area is in the vicinity of Malvern Hills Park, east of Patton. Another area is around the Deaverview and Pisgah

View Roads. This area is located just west of the Asheville city limits. Other than these two locations, there were no areas of "High" or "Very High" propensity that did not have service.

On the opposite side of the coin, there are a few areas that on the surface appear to have service where the density does not support it. These areas include Beaverdam Rd; the area north to Weaverville; Brevard Rd south of I-40; and the Warren Wilson College area. In some cases, this result is negated by major destinations – a major employer in Weaverville; Biltmore Square Mall on Brevard; or Warren Wilson College. The caution to the service planner is that in each of these cases, the major destination is at the end of the line and the bus must travel long distances with little passenger activity. The end destination must generate enough trips to offset these "dead" zones.

2.3.3 Major Locations

Besides the major employers noted above, additional major locations include UNC-A, with an enrollment in excess of 3,500; the "super regional" Asheville Mall with over 900,000 square feet (estimated employment of 800 to 1200); the Asheville-Buncombe Technical Community College (AB Tech) with a 9,500 enrollment; the Biltmore Village area; and an emerging development at Long Shoals Rd and I-26.

2.4 Transportation Patterns

2.4.1 County-to-County Worker Flows

Exhibit 2-4 lists the Buncombe County inter-county work-commute traffic flow in 1990 and 2000. "Inflow" shows the number of commuters coming into Buncombe County, while "outflow" shows the number of commuters leaving Buncombe County. The last row shows the internal Buncombe County work commuting levels. Only the most active counties are shown.

Exhibit 2-4
Buncombe County Inter-county Worker Flow 1990 - 2000

	1990		2000	
County	Inflow	Outflow	Inflow	Outflow
Haywood	3,485	741	4,096	879
Henderson	4,347	3,810	6,775	4,990
Jackson	291	82	232	286
McDowell	911	441	1,670	621
Madison	3,241	620	3,986	837
Transylvania	360	283	718	491
Yancey	390	53	679	104
Buncombe	76,474		88,637	

Source: *US Census Journey-to-Work*

As shown, the majority of work trips originated and terminated in Buncombe County – 89% of the work trips originating in the county never left in 2000. Henderson County was the largest supplier (inflow)

and attractor (outflow) of work trips outside of Buncombe County in both 1990 and 2000. No other county attracted more than 1,000 work trips from Buncombe County. Buncombe County attracted a sizable number of workers from other counties, primarily Haywood, Madison, and McDowell. These four adjacent counties offer the greatest potential for cross-county transit service, such as intercity, park & ride or express services, and Henderson County offers the potential for commuting service in both directions.

2.4.2 1990 Commuting Zone Profile

The US Department of Agriculture conducted a study of commuting patterns for all counties in the US from the 1990 Census[3]. The purpose of the study was to identify groups of counties with strong commuting ties. Using a cluster analysis, counties were grouped into Commuting Zones based upon the predominate commuting pattern.

Buncombe County is the center of the Commuting Zone encompassing Haywood, Henderson, Madison, and Transylvania Counties. McDowell and Yancey both fall into a Commuting Zone centered on Morganton, and Jackson County is part of a small cluster around Cullowhee.

Unfortunately, the Department of Agriculture did not update this evaluation for the 2000 Census. Judging from the absolute numbers in Exhibit 2-4, it is reasonable to assume that the zonal orientation stayed the same.

2.4.3 2008 Rider Survey Zip Codes

As part of the *Transit Master Plan*, a Rider Survey was taken. This survey will be described in more detail in Chapter 3, but the zip code travel matrix is shown in **Exhibit 2-5**. Shaded cells are those where riders originated and departed in the same zip code.

Exhibit 2-5
Existing Rider Zip Code Travel Matrix

Work	CBD	Biltmore	Merrimon	Tunnel	W Ashe
Home	28801	28803	28804	28805	28806
28801	1095	312	114	108	352
28803	374	238	90	94	69
28804	316	8	78	28	28
28805	127	6		205	56
28806	588	186		154	540

Source: 2008 Rider Survey

Not unexpectedly, the most central zip code, 28801, had the highest number of riders remaining within the zone, followed by internal West Asheville riders (28806). A high level of ridership was from all zip

[3] *US Commuting Zones and Labor Market Areas: A 1990 Update*, US Dept. of Agriculture -- Economic Research Service, 1996

codes to downtown, particularly from West Asheville. These travel patterns a probably more reflective of the service provided than necessarily representative of the city as a whole.

2.5 Other Studies

Several studies have been prepared in the Asheville/Buncombe County region in recent years that either directly addressed public transportation needs, or included associated recommendations for enhanced services. The following provides a summary of the plans reviewed. Where specific changes or other observations of the study team are noted, these are included in [square brackets].

2000 *City of Asheville Smart Growth Policy*

Included in the *City of Asheville Pedestrian Plan* is a summary of the 2000 *City of Asheville Smart Growth Policy*, which called for several transportation policies that affect transit:

- Where feasible, new development projects should be designed to connect to the existing street network at multiple points; cul-de-sac development and gated communities should be avoided except where unreasonable due to topographical conditions or inadequacy of surrounding roadways to handle the volume and/or type of traffic generated by the development.
- Where possible, multimodal transportation interconnectivity between neighborhoods and to destination areas such as parks and neighborhood shopping locations should be encouraged.
- New development projects should incorporate mass transit features where appropriate.
- Improvements to the transit system should be completed in accordance with the established capital improvement program.

Pedestrian infrastructure is necessary to provide a means whereby people may choose to walk instead of drive, reducing the number of cars on the road. It is also essential to support a user-friendly and accessible transit system. In coordination, transit and pedestrian infrastructure can provide a seamless means for citizens to move throughout the city without necessarily utilizing a vehicle and the City is actively pursuing the investment of additional funds toward sidewalks and crosswalks that service local transit stops.

2001 NCDOT *Western North Carolina Passenger Rail Study* and 2002 update

This study was commissioned to determine the feasibility of restoring passenger train service to Asheville along the 139-mile route from Salisbury, known as the Norfolk Southern "S" Line. The most challenging portion of the study corridor is the area around Old Fort known as "The Loops". As the train track rises to cross the Blue Ridge Mountains, it must double back on itself several times to achieve reasonable grades. In this stretch, the track travels 12 miles to go a linear distance of three miles, requiring seven tunnels. The majority of the 139 miles is single track. The operating plan assumed two stations in Buncombe County – one in Black Mountain and one in Asheville near Biltmore Village.

Because of the challenging topography, limited track capacity, and increasing freight traffic, the costs to improve the line to add passenger service is substantial. The 2002 update estimated the cost to just upgrade the track at $135 million. Additional costs would be required to construct or restore stations and purchase equipment.

Recent Updates

Due to these expenses, the State has postponed making the track upgrades, but has taken steps to restore or preserve train stations along the route. Land has been purchased for the Asheville train station at 81 Thompson St at Decatur St. This location is on the north side of the tracks, opposite most of the Biltmore Village development, but is located on the track that would be used for the service. At the time NCDOT was identifying the station site needs, the City requested space for charter bus parking, school bus parking, taxi, regional van service and one or two City bus routes that would "pass thru" the facility. A site for the train station in Black Mountain has also been identified. The Town asked NCDOT to accommodate charter buses, school buses, regional van service and taxis. [Note: With the recommended service plan described in Chapter 6, some adjustments to the transit capacity at these locations may be required and should be reevaluated closer to the time of construction.]

2002 Asheville City Development Plan 2025

The purpose of this plan is to determine how to accommodate the anticipated growth of the city. The plan proposes a land use pattern, transportation network and system of City services and infrastructure that reflects the community desires and wishes concerning the future growth of the City. Transit expansion is reflected throughout the document as part of the creation of a multimodal system that provides multiple options for travel, focusing on moving people rather than cars.

[Note: The plan projected an Asheville population of 76,701 in 2010, while the estimated population in 2006 was 83,019 as shown in Exhibit 2-1. Buncombe County as a whole was projected to have a 2010 population of 236,461, while the estimated 2006 population was 222,174. Most of the individual towns in the county's projected population were relatively close to the estimated population, with the exception of Black Mountain. Black Mountain was projected to have a 2010 population of 11,134 while the estimated 2006 population was 7,667. The overall results indicate that the City of Asheville grew faster than anticipated, while other areas, notably Black Mountain, did not see as much growth as envisioned.]

Increased transit service was viewed as an essential element to managing the growth of Asheville. Among the observations:

- Promotion of transit and other alternatives to the automobile will be important to reduce the need for road system improvements.
- Concentrated pockets of more dense urban development or "urban villages" present an opportunity to provide a better transportation system for the community. These concentrated urban developments and select locations are easier to serve with public transit, and offer the opportunity for people to park once and walk to several destinations.
- Asheville's topography places serious constraints on its transportation network. Existing roadways are not well connected and, in many cases, are constrained from being widened. Consequently, the usual traffic engineering solutions to the problem of roadway congestion are not available. It is necessary to rely more and more heavily on the transit system to overcome these obstacles in order to relieve congestion.
- Technical studies have determined that a minimum density of between 8 and 16 units an acre is necessary for optimum transit performance. [Note: Most industry sources would consider this level of development high, if measured on a gross acre basis (gross acre including land for roads, parks, etc). As noted in Section 2.3.1, "transit supportive" density is 2.5 to 3 dwelling units (DU) per gross acre, which would tend to support hourly bus service. A level of 7.5 to 10 DU/acre

would support 10-minute frequency of service.] Very few areas in Asheville have these levels of density, although the proposed Smart Growth development pattern has the potential of resolving this to some extent along the City's major transportation corridors.

The Land Use and Transportation Goals and Strategies included:

- Permit more intense development in some areas. Areas identified for more intense development could include transit nodes, underdeveloped areas where excess public facilities exist, areas proximate to the Central Business District and targeted infill areas. Development should be in accordance with infill design standards tailored to single family and multi-family residential, mixed use, commercial, and industrial areas.
- Consider the development of a flexible zone that would permit higher density at appropriate locations within a five minute walk [about ¼ mile] of transit stops. The higher density development should be in accordance with design standards tailored for these areas.
- Require the provision of transit shelters in new commercial, office, mixed use and industrial developments that are of sufficient size to attract a significant transit ridership including larger residential developments containing a minimum density of 8 units per acre.
- Pursue a local funding source to support a variety of transportation improvements such as roadway and intersection improvements, greenways, sidewalks, streetscape improvements, and transit enhancements
- Promote a land use policy that is supportive of transit service, such as Urban Villages and nodal pedestrian-oriented development.
- Expand service hours and frequency of service.
- Upgrade and expand amenities at the transit center and bus stops, including system maps, information systems, benches, and shelters.
- Increase community knowledge of the transit system through marketing.

The *City Development Plan* was based upon extensive public input, with the result that the residents envisioned a more transit-friendly and transit oriented development.

2005 *The City of Asheville Pedestrian Plan*

This plan is an update to the 1999 original plan. It notes that in the intervening six years, approximately 20 miles of sidewalks had been constructed. Needs for sidewalks far exceeds the available funding. To prioritize improvements the City uses six criteria areas for measuring project impact and priority:

(1) Zoning jurisdiction;
(2) Proximity to Schools, Parks, and Community Centers;
(3) Proximity to Transit Stops;
(4) Needed linkages that complete a pedestrian thoroughfare or address a safety concern;
(5) Feasibility of construction; and
(6) Major Thoroughfares and Connector Roads.

[Note: There are some inconsistencies in these standards, primarily the buffer area. For criterion 2, a buffer area of one-half mile is used, while for transit stops, a buffer area of one-tenth mile is used. The Pedestrian Plan indicates that a sidewalk must be 48 inches wide to be compliant with the Americans with Disabilities Act (ADA). This appears to be too narrow according to 2006 ADA Standards for Transportation Facilities[4].

[4] http://www.access-board.gov/ada-aba/ada-standards-dot.cfm#a402

403.5.3 Passing Spaces. An accessible route with a clear width less than 60 inches (1525 mm) shall provide passing spaces at intervals of 200 feet (61 m) maximum. Passing spaces shall be either: a space 60 inches (1525 mm) minimum by 60 inches (1525 mm) minimum.]

[Note: The Draft *City Of Asheville Standard Specifications And Details Manual appears to eliminate these inconsistencies.*]

2005 French Broad River Metropolitan Planning Organization (FBR-MPO) *Transportation 2030: The Multi-Modal, Long Range Plan for Buncombe, Haywood and Henderson Counties* [the *Long Range Transportation Plan (LRTP) for short]*

This plan examined the entire transportation network, but was focused primarily upon the roadway network. The plan did include an examination of the transit network that resulted in a number of recommendations.

- The MPO should look for ways to improve the movement of transit vehicles through major corridors through methods such as traffic signal priority for buses or dedicated bus lanes;
- Increase service frequency of fixed-route services;
- Expand service hours of fixed-route services;
- Invest in Park and Ride facilities at strategic locations;
- Expand express and inter-city services to the most promising markets;
- Expand local and neighborhood routes in areas with sufficient density;

The heart of the LRTP is the use of a travel demand model to simulate trip making in a community. For this study, the travel demand model included an expanded transit system along with the improved highway network. [As a cautionary note, this travel demand model, as is true of most such models, especially in smaller urban areas, has limited usefulness as a tool for transit planning. This limitation is caused in part by the lack of local transit data and surveys to calibrate against. Such studies would allow for the refinement of the transit model and introduce the ability for more detailed studies with increased ability for scenario testing.]

The transit improvements tested in the model were the aggressive "the Vision Network" and included:

- Four transfer centers: Downtown, East, West and South. The downtown and east centers are at their existing locations: Aston St. & Coxe Ave.; and the Walmart off of Swannanoa River Rd. The West center would be at the intersection of Haywood Rd. and Patton Ave. and the South center would be at the future Amtrak Station. [These locations are remarkably similar to the major locations identified for transit service in Chapter 5.]
- Express Bus service from the downtown to Mars Hill, via Weaverville and to Black Mountain. Two intercity services are already in service, connecting the Asheville downtown transit center with Weaverville and Black Mountain.
- Hourly intercity bus service: Twelve routes connecting either the downtown or transit center to neighboring communities, including: Weaverville; Black Mountain; Airport; Leicester; Fairview & Fletcher; Woodfin; and Enka. [Only Airport and Enka in Asheville service area.] This basic service also includes two river routes serving the proposed Wilma Dykeman Riverway, a UNC-A – AB Tech intercampus shuttle, and an AB Tech intercampus shuttle.

- Hi-Frequency local service: These six routes would operate up to eight times an hour (a 7.5-minute headway[5]), originating at the downtown transit center and provide backbone service, primarily between transit centers and along major corridors: to West via Patton Ave.; to West via Haywood Rd.; to East via Tunnel Rd; to South via Biltmore Ave; to UNC-A; and to Beaverdam Rd via Merrimon Ave. [Note: The 6th route was up Broadway to UNC-A.]
- Downtown circulator: this free service would operate eight times an hour and circulate only through the downtown.
- Feeder route: The existing Black Mountain feeder route was included in the network.

The plan estimated that approximately 35 buses would be required to operate during the peak hour to provide this coverage. [Given that the existing system requires 16 peak buses to provide hourly service, 35 buses to provide the large expansion in the number of routes and frequency of service appears to be low]. In addition to the expansion of the route coverage and service hours, the future year transit network incorporates 21 park and ride stations throughout the region. These were sited based on expected need and location of existing compatible land use.

While the model was not been intended for fine-grained analysis, the LRTP concluded that several general trends were identified which should be useful in directing future transit planning efforts.

- Overall demand for transit service west along Smokey Park Highway is low. This seems to be, in part, due to the low frequency of service coupled with the relatively low levels of roadway congestion anticipated in the future year.
- Although the model does not indicate much demand for services between UNC-A and AB Tech and between the AB Tech campuses, this is normal in a travel demand model. Travel demand models are limited at being able to predict non-work oriented trips. Planning for these services should be driven by surveys of students and policy decisions of the respective institutions.
- Tourism generated trips are not captured well in a travel demand model for similar reasons. As such, routes for which a high percentage of the riders can expect to be tourists have lower than expected ridership in the model. These include both the Riverway routes and the downtown circulator. Anticipated ridership can be better estimated with fine-grained adjustments to the model or off-model studies. [Note: Asheville already has several tourist-oriented routes. The LaZoom[6] provides "A Comedy Show on Wheels" for an adult price of $22. Grey Line[7] offers about 3-6 daily trolley tours (depending upon the season) for an adult price of $20. The Federal Transit Administration (FTA) does not fund "tourist" services.]
- The two most critical corridors for focused planning are the US 70/I-40 corridor and US 25 south. Both show the potential for large transit ridership. These are subject, of course, to the caveats discussed above, such as the need for transit-friendly development, and the preservation of bus travel times.

2007 NCDOT *Comprehensive Transportation Plan*

- Improvements to all ATS routes, including more frequent and later service;
- Four express routes – Asheville to Black Mountain; Asheville to Mars Hill; Asheville to Waynesville; Asheville to Hendersonville. The CTP included the notation for all four express

[5] Headway is a measure of the time between buses and is expressed in terms of minutes. Frequency of service is similar, but is expressed in terms of bus trips per hour. A route with a 30-minute headway offers 2 trips per hour.
[6] www.lazoomtours.com
[7] www.graylineasheville.com

routes that "Travel along this corridor.continues to increase and it is expected to experience significant increases in the coming years. Express bus service would provide a connection between the many nodes along the corridor with travel times competitive with those of private autos. Such a service would most likely be branded specially, using high comfort buses." [All, except Black Mountain, are beyond the current Asheville service area.]

- Seven local bus routes – on Sweeten Creek/Hendersonville to Fletcher; on Brevard Rd (NC 191) to Mills Rd and Hendersonville; on Long Shoals & Overlook; on Mills Gap to Fletcher; on Leicester Hwy to Leicester; on US 74A (Charlotte Highway) to Fairview and on Cane Creek to Fletcher and the Ag Center. [Only Sweeten Creek/Hendersonville and Long Shoals & Overbrook are in the Asheville service area.]
- Sixteen park & ride lots – Weaverville; New Stock Rd; Woodfin; Leicester; Enka; Biltmore Square Mall; NC 191 & I-40; the Ag Center; US 25 & Gerber Rd; US 74A & Old Fort Rd; Black Mountain; Swannanoa; VA Hospital; Walmart; Asheville Mall; Merrimon & Beaverdam. [Only Enka, Biltmore Square Mall, NC 191 & I-40, VA Hospital, Walmart, Asheville Mall, and Merrimon & Beaverdam are in the Asheville service area. A hop-and-ride exists at Biltmore Square Mall.]
- Bring in rail to Black Mountain & Asheville

2007 Sustainability Management Plan

This plan emerged from ambitious City goals and initiatives to take a leadership role in both the community and the nation to address important issues of resource conservation and climate protection. The Plan allows the City to address the "call to action" regarding sustainable government operation and community development by providing an integrated approach for resource management and addressing the full spectrum of local government services, including transportation, buildings, public facilities, street lighting, water, solid waste, and land use planning. The outcome of the Plan is a consensus-based set of sustainability goals, a comprehensive list of action items, and an implementation plan for moving forward.

- The need to expand transit options is a high priority. Providing alternatives to automobile transportation is central to reducing emissions.
- For every individual who chooses public transportation over driving a personal vehicle, the collective carbon footprint decreases. As more automobiles are left at home, the more greenhouse gas emissions are avoided. Thus, an increase in transit ridership is a key component towards reaching the City of Asheville's greenhouse gas (GHG) reduction goals.
- *Expand Transit Services*: The City of Asheville should develop and support a strategic transit master plan. Nearly 28 % of survey respondents agreed that more convenient bus service would persuade them to change their travel behavior. The master planning process would work with the public as well as City employees to determine where expanded coverage, extended service hours and increased service frequency would be most beneficial.
- *Park and Ride Lots*: Connectivity between the bicycle, pedestrian, transit and roadway networks is a determining factor in modal choice. The City of Asheville should continue to pursue the development of a park and ride network. The lots should be within close proximity to main roadways, and be incorporated not only into the transit network but the bicycle and pedestrian systems as well. Bicycle racks and storage areas should be located within the park and ride facility.
- *Downtown Shuttle Service*: A downtown shuttle, linking park and ride lots, transit stations, and employment and tourist destinations, would enhance the transportation options of residents and visitors. Nearly 48 % of survey respondents are willing to try a City-sponsored shuttle or a park and ride shuttle as a means to commute to work. A shuttle, operating on a high frequency,

would offer employees a means to travel between destinations during the work day. Approximately 39 % of respondents stated that access to a work vehicle during the day could persuade them to leave their own vehicle at home. Thus, if the shuttle could serve as a sort of department vehicle and work to eliminate even a portion of the workday errands conducted, a significant shift in travel habits could be realized.

- *Transit Oriented Development*: Asheville residents and workers are largely dependent on automobiles for transportation in part because of the City's development patterns. In order to reduce auto-dependence—which helps fulfill several of the City's sustainability objectives—it is recommended that future development in Asheville be concentrated in dense nodes that can support and take advantage of public transit. Currently, there are not enough sufficiently dense neighborhoods and nodes to support substantial bus ridership.

2008 FBR-MPO *Coordinated Public Transportation and Human Services Transportation Plan*

The plan identified several issues in general:

- Difficulties getting to and from transit stops, waiting, and getting on and off transit vehicles, including shelters, sidewalks, crosswalks, pedestrian crossing signals, and other walkability issues;
- Park and Ride locations and promotion for carpoolers and for transit users;
- Extended service hours for both fixed route and demand response services, including service on weekends and holidays;
- More frequent service;
- Ability to transfer at points other than the transit center (Asheville Transit);
- Establish a dedicated funding source

In several workshops, participants went through a prioritization exercise similar to the one used for the *Transit Master Plan* – using dots to vote for the five most important issues; as one participant called it, "dotmocracy."

- Extend service hours to include early mornings, nights, weekends and holidays, by far the most important items at all workshops, including the addition of Sunday service;
- Improve the infrastructure around and pathways to and from bus stops, including pedestrian street crossing facilities;
- Bus stop placement, including location of stops in relation to destinations, and distance between stops

The plan also noted that the projected growth of the total population of adults age 60+ in North Carolina is expected to grow from 16% in 2005 to 23% by 2030. The changes will be even more dramatic in Buncombe County. Because of this growth, Buncombe County is one of six counties in North Carolina named in NC Senate Bill 448 (enacted in 2007). The intent of this legislation is to understand how communities can best prepare for the changing aging demographic.

2008 *Affordable Housing Plan for the City of Asheville*

This plan contains one recommendation directly related to transit.

Recommendation Number 22

Affordable housing is one part of an integrated approach to planning. Create transit corridor overlay districts that encourage affordable housing by providing incentives for mixed use development, higher density, sustainability, infill development, and open space. Potential areas for the transit corridor overlay districts are: Patton Ave in West Asheville; Merrimon Ave in

North Asheville; Tunnel Rd in East Asheville; and Hendersonville Rd and Sweeten Creek Rd in South Asheville.

2008 *Comprehensive Bicycle Plan*
This plan contains two recommendations related to transit.

Continue to support Asheville Transit's "Bike on Bus" program that allows bicyclists to bring their bicycles on board buses in order to use them when they disembark at their destination. This program should be expanded as it enhances the viability of both transportation modes. Options for expanding and improving the program include installing high-capacity bicycle racks on buses (i.e.: racks that can hold up to four bicycles on the front of buses) [Note: Few cities carry this many bicycles; most carry 2-3 as does ATS] and increasing bus service frequency especially where bicycle-on-bus service is in high demand. The City should also advertise the service more to students and residents. [Note: In October 2008, operators recorded an average daily usage of 71 bicycles. The only routes with significant usage (more than seven bicycles per day) were the 6 Hendersonville, 1 Haywood Rd., and 2 Merrimon Ave.]

Bike lockers provide added protection from theft and weather. Bike parking is important at destinations such as town centers, historic sites, transit stations and park-and-ride lots. It is also important to provide bike parking near business entrances and at employment centers.

2009 *Downtown Master Plan*
This study envisions the potential development of a downtown shuttle route. According to the 2008 *Comprehensive Parking Study*, there could be a deficit of 700-800 parking spaces downtown [unclear if this is current deficit or for some future year]. The shuttle service could connect remote parking locations to downtown destinations and promote the "park once" approach that eliminates the need to use a personal vehicle for travel to multiple destinations in downtown. Frequent service using "green" vehicles is encouraged.

2009 *Draft City Of Asheville Standard Specifications And Details Manual*
Under these proposed standards, currently (September 2009) posted for review on the City website[8], sidewalks are required to be installed along roadways according to the following guidelines:

> The City of Asheville requires sidewalks to be installed along existing or new roadways when property is developed or redeveloped as defined in the Unified Development Ordinance (UDO) (Chapter 7, Article 11).
>
> ***Sidewalks Requirements on New Streets***
> **Sidewalks on Both Sides of a New Street.** required under any of the following conditions:
> • The new street's width from face of curb to face of curb exceeds 30 feet.
> • The new street's projected average daily traffic exceeds 1,000 vehicles per day.
> • The street is within one-half mile, measured along the centerline of public right-of-way, of a school, public park, library, community center, transit route, or any other pedestrian generation point as identified by the City Traffic Engineer. [Note: This appears to equalize the distances discrepancy noted in the 2005 *Pedestrian Plan*.]

[8] www.ashevillenc.gov/departments/trans_engineering/default.aspx?id=542&ekmensel=12_submenu_0_link_13

• Either sides of the street are zoned Central Business District, Urban Place District, Neighborhood Corridor District, Urban Village District, Urban Residential District, or their successors.

Sidewalks on One Side of a New Street. are required to be installed in all other cases, with grading for a future sidewalk on the other side of the street preferred. Utility poles shall not be located in the sidewalk or future sidewalk location on new streets.

Sidewalks Requirements on Existing Streets

Sidewalks shall be constructed to current standards along adjacent existing public or private streets for all new developments, redevelopment, and expansions of existing developments. Projects that generate less than 100 vehicles per day are exempt from this requirement (unless a new street is constructed).

New sidewalks. Sidewalks shall be constructed in conformance with the design standards for sidewalks. If the sidewalk cannot be contained within the existing right-of-way, a recorded easement or right-of-way must be dedicated to the City of Asheville or NCDOT.

Renovated sidewalks. Existing sidewalks adjacent to the development shall be brought into compliance with current standards, including ADA requirements, crossing ramps, and for obstructions. This compliance does not include upkeep or maintenance of existing sidewalks.

[Note: The proposed guidelines call for a minimum sidewalk width of five feet on local streets, a minimum five feet on suburban collector and arterial streets and 10-12 feet on an urban collector and arterial street.]

Standards are also included for the provision of bicycle facilities.

The Draft Standard Specifications includes the following section on transit facilities.

Multimodal Design Standards - Transit Facilities

Transit facilities consist of two types: transit stops and transit transfer stations. Transit stops generally accommodate a single transit vehicle, typically on a street but occasionally in an on-site location. Transit transfer stations must be designed to accommodate at least three transit vehicles simultaneously.

Transit stop location must take into account three factors:

• Passengers. Stops must be near places where there is an expectation of riders.

• Access. If a stop can not be located where riders are, they must be able to get to the stop conveniently.

• Traffic Characteristics. Buses can not always stop where riders want to be because of complex traffic patterns, especially at intersections.

Therefore, access to transit also involves selecting the appropriate location for stops. The location of bus stops will be determined by the Transportation Manager in consultation with the City Traffic Engineer.

A transit stop should have combination of the following elements: Transit sign, a map holder, a trash can, a bike rack, a bench, and or a shelter. Shelter dimensions are shown in Table 3-21:

Transit Shelter Dimensions. [not reproduced here] [Note: While certainly desirable, some stops may not be active enough for more than a stop sign.]

Transit stops and transit transfer stations should be placed either 40 feet after an intersection or 10 ft before an intersection. Transit stops mid way between intersections are not encouraged. [Note: TCRP *Report 19: Guidelines for the Location and Design of Bus Stops* recommends measuring this distance from the end of the radius. While ATS currently uses 30-foot buses, the placement of stops would provide more flexibility if a standard 40-foot bus was the design standard.]

All shelters should have a seat and transparent sides. Glass panels should be marked to avoid crashes. All shelters will provide space to place a map protected from the elements. The shelter must be maintenance-free (aluminum or anodized). The City's Transit Division and Building Safety Department will consider other materials on a case by case basis. The shelter should provide either a power outlet to allow installation of LED/LCD signs or an alternative source of electricity, such as solar cells. Solar cells are preferred.

The shelter must provide accommodation for handicapped individuals by complying with the Americans with Disabilities Act (ADA) regulations. The location should be parallel and facing curb as specified in the ADA and ABA Accessible Guidelines for Buildings and Facilities. The width should allow for two wheel chairs in the sidewalk at the same time. The shelter should be connected via a concrete path to the sidewalk to provide access to the bus and allow landing and pedestrian movements as shown Figure 3-30: Dimensions of Bus Boarding and Alighting Areas and 3-31: Alternative Accessible Routes [not reproduced here]. Rear door locations must be avoided.

The shelter seating should be oriented to view oncoming traffic, pedestrians and adjacent buildings. The shelter should be visible to motorists, bicycles and pedestrians.

Permit Requirements

Shelters are treated as structures and require the appropriate permits, following building, zoning and engineering standards. Within the City of Asheville, there are applicable City and NCDOT roadways permits and agreements that shall be obtained prior to any construction. The permit requirements will vary according to each jurisdiction.

2.5.1 Common Elements

Several common themes occur throughout all of these documents.

- A more robust transit system is an integral part of improving the quality of life for Asheville. It must be more frequent, run for a longer span during the day, and provide seven-day-a-week service.
- More express and park & ride services should be provided for the longer distance commuters.
- A downtown circulator is desirable.
- More sidewalks must be provided for pedestrian travel and to complete the first and last portions of the transit trip.
- Amenities for riders should be provided at the transit stops.

- Street connectivity should be encouraged to the extent allowed by topography.
- Land use patterns should reinforce transit use by encouraging denser development along major transit corridors and select transit nodes.

All of the above strategies are relatively consistent among the plans and would result in increased transit ridership. The extensive park & ride network may need to be reconsidered. Commuter services such as these work best where downtown employment is high; parking is not free or cheap for employees; and transit can offer similar or better travel times than can the private vehicle. While parking can and should be provided along any transit route, a dedicated park & ride service is a high cost service to provide and needs a substantial employment base to succeed. A downtown circulator could improve mobility downtown and reduce the need to build new parking structures downtown if surplus fringe parking is available. Generally, shuttle services must have a high frequency to be successful, somewhere between every 5-10 minutes. The rider should be able to look down the street and see a bus coming. A partnership with downtown businesses and organizations can make this type of system successful and help offset the expense.

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3 Current Services, Riders, and Facilities

This chapter describes and analyzes the existing services and facilities offer by the Asheville Transit System. Included is an evaluation of the ridership trends and route performance, the results of new data collection as part of this *Transit Master Plan*, existing capital facilities, a review of the organization and staffing, and current financial data.

3.1 Service Types

ATS offers four different types of routes in its system. The majority of the 24 routes are daytime local routes, some of which have "owl" or nighttime variations. Additional "college" and "intercity" routes are provided. **Exhibit 3-1** shows the current routes color coded by their type. Each type is discussed separately below. These routes require a peak pullout of 16 buses.

3.1.1 Local Services

Of the 24 routes in the system, 14 routes are considered "local" routes. Local services are those bus routes that operate throughout daylight hours, providing stops along the way.

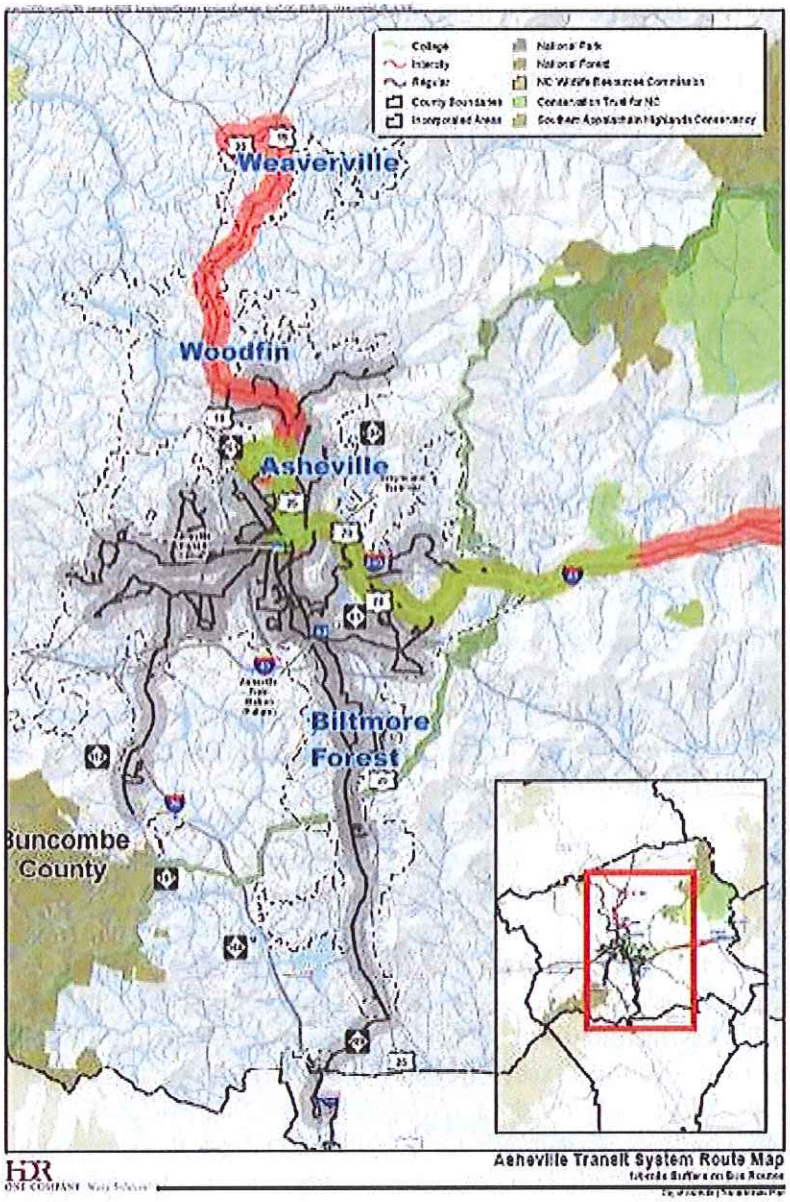
With two exceptions all local routes operate on an hourly headway. [Headway represents the time between buses.] The exceptions are the 11 Montford/Klondyke/Hillcrest, which provides a 30-minute headway throughout the day, and the 6 Hendersonville Road/Airport, which provides a 90-minute headway. Routes generally operate from 6:00 AM to 7:00 PM Monday through Saturday. The same schedule is provided on all days, with the exception of a few individual trips.

The service coverage area of these routes is considered to be one-quarter mile either side of the route, which is about a 5-minute walk. The typical local route provides between six and eight stops per mile. In some instances, ATS bus stops seem more frequently spaced, while in other cases, stops are located further apart. In hilly areas where the street grade is over 5%, more frequent stops may be warranted.

The focal point for the routes is the Asheville Transit Center in downtown opposite Aston St, between Coxe Ave and Asheland Ave. All bus routes meet at this location, with a "pulse" occurring twice during the hour, once at the top of the hour and a second pulse at 30 minutes past the hour. Route 26 Asheville Mall/Tunnel Road is the local route exception – it leaves the transit center at 15 minutes past the hour. Buses may be held occasionally for connecting riders if a bus is late, but unlimited holds are not allowed due to the rippling delay effect they cause. For the last trip of the day, however, buses will be held to ensure riders are able to get home.

Several local routes operate a "dial-a-ride" variation, or what's known as a route deviation or "flexible" route. Upon request, a route will deviate off its standard route to pick up or discharge a passenger. These dial-a-ride variations are limited and are seldom used by riders.

Exhibit 3-1
Route Types



Most routes have one bus assigned to provide the service. Due to their 30-minute round-trip running time, Route 5 Charlotte Street and Route 16 Bingham Heights share one bus so that the resulting combined routes provide a 60-minute headway.

Several local routes operate along the same corridors from downtown, although their specific routing may vary. In some instances, the bus routes are staggered from the transit center, providing a more frequent service along the shared portion of the route. In other cases, the schedules are not

coordinated, and in some cases where they are staggered leaving downtown, their different variations result in an irregular headway to the rider.

The pairs of routes and their departure pulse from the Asheville Transit Center are:

Haywood Road – Route 1 (:00) and Route 9 (:30)
McDowell Street – Route 6 (:00 and: 30) and Route 12 (:00)
Tunnel Road – Route 13 (:30) and Route 26 (:15)
Patton Avenue – Route 15 (:00) and Route 16 (:00)

Of the four shared corridors, only Haywood Rd offers some semblance of a 30-minute headway, but this is deceptive since the two routes do not share the same routing in both directions. Route 1 only serves the Pisgah View apartments in the inbound direction, while Route 9 serves it in both directions.

3.1.2 Night Services

In 2006, ATS began offering nighttime service on some of its local routes. In most cases, the nighttime service operates slightly differently than does its daytime service as a way to provide more coverage to the most active portions of the routes. The six evening routes and their daytime equivalents are:

36 Biltmore Avenue/Shiloh –	covers portions of the 6 Hendersonville/Airport and 8 Biltmore Avenue/Shiloh
38 Erskine/AB Tech –	covers the southern portion of 18 Erskine Street/Flint Street
41 Haywood Rd/Deaverview –	covers the majority of 1 Haywood Road and the outer end of 15 Patton Ave/Deaverview
46 Bingham Heights –	covers the majority of 16 Bingham Heights
51 Montford/Hillcrest –	covers the majority of 11 Montford/Klondyke/Hillcrest
52 Merrimon Ave/UNC-A –	covers portions of 2 Merrimon Avenue

The regular local services return to the Asheville Transit Center shortly before 6:30 PM or 7:00 PM depending upon their pulse cycle. These evening services mostly begin at 7:30 PM, with the exception of Route 38 and Route 52, which leave at 8:00 PM. Service continues until 11:00 PM arrival at the transit center for half of the routes, except Routes 38, 41, and 52 that arrive at 11:30 PM. These schedules are offered weekdays and Saturdays.

Additional evening services are provided on the college routes and one of the intercity routes, but these evening services do not have separate identities.

3.1.3 College Services

ATS offers two routes it classifies as "college services". Each of these routes is designed to serve primarily the needs of the two colleges, but the services have a regular published schedule and are open to all users.

Route 3 Bulldog Express is unique in the ATS system. It only operates on Friday and Saturday evenings, beginning at 7:45 PM and continuing every half-hour until 1:00 AM. This service is funded by UNC-A, and provides service between downtown and the campus along Merrimon Ave.

Route 29 Warren Wilson/Swannanoa offers an even more varied schedule. While this route operates six days per week, the only common service on all days is between 3:30 PM and 8:30 PM. On Fridays and Saturdays, service is extended until a 12:30 AM departure from the transit center, while on Saturdays, service also begins earlier with the first trip from the transit center at 12:30 PM. Service is provided on an hourly basis. Warren Wilson College pays for a portion of this service.

3.1.4 Intercity Services

ATS provides two routes that are classified as "intercity" routes, and that receive special funding from NCDOT for this purpose. Intercity services are eligible for FTA Section 5311(f) program funds for their operating expenses, but certain requirements must be met, such as "providing meaningful connections" with Greyhound or other intercity providers.

Route 28 Black Mountain operates between the transit center and Black Mountain along US 70, offering limited stops along the way. This route provides five trips during the day, with a late evening turnback trip at the VA Hospital. Service is offered six days per week. The two morning trips are 4.5 hours apart, but the three afternoon/evening trips operate on a 3-hour headway. A stop is provided at the Greyhound terminal on Tunnel Rd. Black Mountain pays for a portion of the cost of the route.

Route 54 Weaverville operates between the transit center and downtown Weaverville and Arvato Digital Services, a major employer. Five trips are provided on this route at uneven headways throughout the day. Service is offered six days per week. Weaverville pays a portion of the cost of the route. During the course of this study, the 54 Weaverville was discontinued.

3.1.5 ADA Services

In addition to the fixed route service, the City of Asheville provides the federally required ADA paratransit service for riders who are mentally or physically unable to use a regular transit service. This service is provide by Mountain Mobility under contract to the City and provides curb-to-curb transportation for eligible residents within three-quarter miles of a regular ATS route.

The City goes beyond this minimum required provision to provide the ADA service in a larger geographic area. All of the city limits of Asheville are eligible for the ADA service, whether or not it is within three-quarter miles of a regular bus route. As a practical matter, this extension may make little difference given the fixed-route coverage provided by ATS within the city limits.

The City also extends the ADA boundary to be within three-quarter mile of the 28 Black Mountain, 29 Warren Wilson, and 54 Weaverville routes. These routes operate outside of the city limits of Asheville for a large portion of their routes, and represent a significant expansion in the ADA paratransit coverage area. This additional coverage area, however, is not required since these routes are classified as "Commuter Bus Service". Under 49 CFR Part 37:

§ 37.3 Definitions.
Commuter bus service means fixed route bus service, characterized by service predominantly in one direction during peak periods, limited stops, use of multi-ride tickets, and routes of extended length, usually between the central business district and outlying suburbs. Commuter bus service may also include other service, characterized by a limited route structure, limited stops, and a coordinated relationship to another mode of transportation.

§ 37.121 Requirement for comparable complementary paratransit service.
c) Requirements for complementary paratransit do not apply to commuter bus, commuter rail, or intercity rail systems.

The vehicles used on these routes would need to be accessible, but there is no requirement to provide the additional paratransit service. There is no prohibition, either.

3.1.6 Other Providers

Mountain Mobility, Buncombe County's Community Transportation System provides additional service within the rural portions of the county. Community systems typically provide this service with demand-response service, or service that only operates upon request. Mountain Mobility also provide eight "trailblazer" deviated-fixed routes that all connect with ATS routes. These deviated-fixed routes operate along a defined route, but are allowed to deviate a specified distance upon request. They are:

- The North Buncombe Trailblazer is a series of four routes, which connect with the ATS Routes 2 and 54 at Merrimon Ave and Elkwood Rd. The trailblazer routes operate in Woodfin, Weaverville, and the northern portion of the county. Three of the routes offer one morning and one afternoon trip, while the fourth route offers one afternoon trip.
- The Black Mountain Trailblazer is a single route operating in Black Mountain and Montreat. It connects with Route 28 along US 70. Eight daily trips are offered.
- The Enka-Candler Trailblazer is a series of three routes that connect with Route 1 at Goodwill, or Route 9 at Biltmore Square Mall. One morning and one afternoon trip are offered on each route.

UNC-Asheville offers the BARCS (Bulldog Area Commuter Shuttle) that operates internal to the campus and to select apartment complexes nearby. Service is provided every 20 minutes from 7:30 AM to 5:30 PM.

Intercity service is provided in Asheville by Greyhound Bus Lines and Southeastern Stages. Greyhound's terminal is located at 2 Tunnel Rd off I-240 at Beaucatcher Rd. Both bus companies use this terminal. Three trips are provided daily eastbound and westbound (**Exhibit 3-2**).

In the future, NCDOT is examining the potential to return intercity rail to Asheville. Several service options are being considered, and stations would be located in Black Mountain, and in Asheville near Biltmore Village. The future Black Mountain Train Station will be located at 207 Sutton Ave at NC 9; and the future Asheville Train Station will be located at 81 Thompson St at Decatur St.

Exhibit 3-2
Intercity Bus Service

	Route/ Schedule		Asheville Time	Origin	Destination	Operator
East	427	4840	8:20 am / 8:45 am	Knoxville, TN	Winston-Salem, NC	Greyhound
	427	4846	9:05 pm / 9:15 pm	Knoxville, TN	Charlotte, NC	Greyhound
	2792	120	9:30 pm	Atlanta, GA	Asheville	Southeastern Stages
West	2792	215	9:00 am	Asheville	Columbia, SC	Southeastern Stages
	427	4845	3:35 pm / 3:45 pm	Winston-Salem, NC	Knoxville, TN	Greyhound
	427	4843	9:35 pm / 9:45 pm	Charlotte, NC	Knoxville, TN	Greyhound

Source: *Russell's Official National Motor Coach Guide*, August 2008, verified August 2009

The Asheville Regional Airport (AVL) is served by Airtran, Continental, Delta/Northwest, and US Airways. As of October 2009, 25 arriving flights and 28 departing flights were offered providing direct service to seven cities, an increase from February 2009. The earliest departure is 5:30 AM and the last arrival is at 11:34 PM. Preliminary passenger data for 2008 shows the airport had 279,329 enplanements, about a 4 % decrease from the 292,053 in 2007. In September 2009, United announced it would begin direct service to Chicago in December 2009, adding another airline and destination to the airport service.

3.2 Performance

3.2.1 Historic Ridership Levels

All transit systems in the US are required to annually report their operating information to the National Transit Database (NTD). The NTD allows for the tracking of various measures over time. **Exhibit 3-3** shows the trends in ridership for the past five years.

Exhibit 3-3
Five-Year ATS Ridership Trend

Boardings	2003	2004	2005	2006	2007	Annual %
Weekday	3,399	3,554	3,613	3,802	5,017	10.22%
Saturday	2,937	3,297	3,309	3,779	4,197	9.33%
Annual						
Bus	998,261	1,039,219	1,059,265	1,149,337	1,486,451	10.47%
Demand Response	21,069	22,551	24,127	24,244	23,178	2.41%

Source: National Transit Database

Several items are remarkable about this information. Most notable is the phenomenal 10.2% compounded annual growth rate in average weekday ridership. Such a high growth rate is very unusual in the nation. A closer look explains why. From 2003 to 2006, ridership grew at a much more common annual rate of 3.8% annually; the majority of the growth occurred in the last year when ridership

jumped 32% in one year. This large increase can be attributed to a delayed reaction to the introduction of later evening service on the six routes in July 2006, and the 90-day free fare promotion that ran from mid-August to mid-November 2006. These changes encouraged more riders to use the system. From an analysis conducted by ATS staff in 2007, the increase in ridership was due in equal parts to the fare promotion and the increase in evening service, with a small percent of the growth occurring from normal circumstances.

Ordinarily, the bump in ridership due to the free fare promotion could be expected to decline or disappear once the promotion was over. In Asheville, this reduction does not appear to have occurred. Based upon the results of the boarding & alighting count, it appears that ATS has maintained if not increased its higher ridership levels.

An equally important result is the similarities between the average weekday ridership and average Saturday ridership levels. In 2007, these ridership levels showed some divergence, but for the rest of the four years, Saturday ridership is almost as high as weekday ridership. This result is very unusual in the transit industry where the rule-of-thumb is that Saturday ridership is about half of the weekday ridership. For Asheville to maintain the same level of riders on a Saturday is a good indication that Sunday service may be warranted.

3.2.2 Overall Performance Ranking

The performance of all of the ATS routes was conducted to indentify which routes are clear successes and which routes need to be examined for productivity improvements. To determine the Performance Rank for each route, five factors were evaluated. This evaluation considered weekdays and Saturdays together since all data was not separated by the service day. The factors considered were:

- Passenger Trips/Hour;
- Passenger Trips/Mile;
- Operating Cost/Passenger Trip;
- Operating Cost/Mile; and
- Farebox Recovery Ratio.

For the system as a whole, 27.0 passengers were carried for every hour of bus service on weekdays, and 21.7 passengers/hour were carried on Saturdays, for an overall average of 26.1 passengers/hour. On a per mile basis, weekdays had 1.9 passengers/mile, Saturdays had 1.5 passengers/mile, with an overall average of 1.8 passengers/mile. The average cost per passenger trip was $2.88, while the average cost per mile of operation was $5.32. The average route recovered 15.9% of its operating costs from farebox revenues, which includes the additional subsidies offered by UNC-A, Weaverville, Warren Wilson College, and Black Mountain.

The overall ranking for the system as a whole and the individual routes are given on the following page in **Exhibit 3-4**.

Exhibit 3-4
2008 Route Performance Ranking

	Passenger Trips per Hour				Passenger Trips per Mile				Op Cost / Pax Trip		Op Cost / Mile		Farebox Recovery Ratio		COMPOSITE	
	Wkdy	Sat	Total	RANK	Wkdy	Sat	Total	RANK		RANK		RANK	(w/ spec subsidy)	RANK	SCORE	RANK
1 Haywood	38.4	27.7	36.7	1	3.2	2.3	3.1	1	$2.05	1	$6.26	18	24.2%	4	25	1
11 Montford/Klondyke/Hillcrest	35.7	26.7	34.2	2	2.9	2.2	2.8	2	$2.20	2	$6.15	16	17.4%	9	31	2
2 Merrimon Avenue	31.3	23.4	29.9	4	2.1	1.6	2.0	7	$2.51	4	$5.01	6	16.2%	11	32	3
13 Tunnel Road/Oteen/Haw Creek	30.3	24.4	29.3	5	2.2	1.8	2.1	6	$2.57	5	$5.48	10	18.5%	7	33	4
15 Patton Avenue/Deaverview	28.9	25.3	28.3	6	2.0	1.8	2.0	8	$2.66	6	$5.22	8	19.6%	6	34	5
5 Charlotte Street	28.3	22.5	27.3	7	1.9	1.5	1.8	10	$2.75	7	$5.06	7	16.7%	10	41	6
16 Bingham Heights																
9 Brevard Road/Biltmore Square	28.1	23.2	27.3	8	1.4	1.2	1.4	15	$2.76	8	$3.81	2	17.8%	8	41	6
29 Warren Wilson/Swannanoa	23.3	27.8	24.5	12	1.2	1.4	1.2	16	$3.07	12	$3.78	1	47.4%	2	43	8
18 Erskine Street/Flint Street	33.3	20.7	31.2	3	2.8	1.7	2.6	3	$2.41	3	$6.23	17	12.6%	18	44	9
6 Hendersonville Road/Airport	26.7	17.4	25.1	11	1.5	1.2	1.4	14	$2.99	11	$4.25	4	19.7%	5	45	10
12 Oakley/River Ridge	26.9	21.5	26.0	10	1.9	1.6	1.9	9	$2.89	10	$5.45	9	15.1%	12	50	11
26 Asheville Mall/Tunnel Road	25.9	26.5	26.0	9	2.5	2.5	2.5	4	$2.89	9	$7.12	19	14.6%	14	55	12
28 Black Mountain	20.0	20.7	20.1	16	1.2	1.0	1.1	17	$3.75	16	$4.21	3	26.6%	3	55	12
28A																
8 Biltmore Avenue/Shiloh	24.1	15.9	22.8	14	1.8	1.2	1.7	11	$3.31	14	$5.66	12	14.6%	15	66	14
4 Kenilworth/Asheville Mall	24.3	22.6	24.0	13	2.4	2.2	2.4	5	$3.13	13	$7.49	20	14.0%	16	67	15
41 Haywood Road/Deaverview	20.8	21.8	20.9	15	1.5	1.6	1.6	12	$3.59	15	$5.61	11	13.1%	17	70	16
54 Weaverville	13.1	10.8	12.7	18	0.8	0.6	0.8	21	$5.92	18	$4.44	5	14.8%	13	75	17
51 Montford/Hillcrest	19.8	20.4	19.9	17	1.5	1.5	1.5	13	$3.79	17	$5.71	13	8.3%	19	79	18
52 Merrimon Avenue/UNCA																
3 Bulldog Express	8.8	7.7	8.2	21	0.9	0.8	0.8	19	$9.14	21	$7.59	21	101.2%	1	83	19
38 Erskine/AB Tech	11.7	11.8	11.7	19	0.9	0.9	0.9	18	$6.43	19	$5.81	14	6.6%	20	90	20
46 Bingham Heights																
36 Biltmore Avenue/Shiloh	9.8	9.4	9.7	20	0.8	0.7	0.8	20	$7.75	20	$5.92	15	6.1%	21	96	21
TOTALS	27.0	21.7	26.1		1.9	1.5	1.8		$2.88		$5.32		15.9%			

The evaluation considered Route 5 Charlotte & Route 16 Bingham Heights as a single route since one bus operates this pair and the information is reported together. Similarly, Route 38 Erskine/AB Tech & Route 46 Bingham Heights and Route 51 Montford/Hillcrest & 52 Merrimon Avenue/UNC-A are reported together.

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

- 1 Haywood
- 11 Montford/Klondyke/Hillcrest
- 2 Merrimon
- 13 Tunnel Road/Oteen/Haw Creek
- 15 Patton Avenue/Deaverview

None of these routes is particularly surprising given the density of development along the way. Route 2 Merrimon does perform better than might have been expected given the relative low density on the outer ends; it appears that the level of ridership along Merrimon was sufficient to improve the overall route's performance. In planning route changes, these routes represent the strongest performers upon which a more successful system can be built.

The bottom 25% of the routes are:

- 36 Biltmore Avenue/Shiloh
- 38 Erskine/AB Tech – 46 Bingham Heights
- 3 Bulldog Express
- 51 Montford/Hillcrest – 52 Merrimon Avenue/AB Tech
- 54 Weaverville

It is worth noting that five of the routes are nighttime variations of daytime routes. Route 51 Montford/Hillcrest is particularly notable given that the daytime version is among the highest performers. In general, it is not surprising that evening services perform poorer than do daytime services given the usual lower level of ridership. As noted in the historic ridership section, even though these evening services do not perform high, they may be indirectly contributing to the success of the daytime routes.

The 3 Bulldog Express is a poor performing route even considering the subsidy provided by the university. The high farebox recovery ratio was not sufficient to bring up the poor performance of the other factors.

The 54 Weaverville suffers from its long distance and infrequent schedule. The demand in Weaverville and at Arvato Digital Services is not sufficient to offset the costs of the route.

3.2.3 Frequency and Span Level-of-Service

One technique to evaluate the performance of individual routes and the overall system is to examine the frequency of service and the span of service provided against a series of national standards. The *Transit Capacity & Quality of Service Manual* has a classification for the level-of-service (LOS) provided

by bus routes. The LOS levels are similar to that for roadways, and range from LOS "A" to LOS "F". A "passing grade" is LOS "D", which calls for a minimum peak headway of every 30 minutes and at least hourly service for 12 or more hours during the day.

Under this classification, only the 11 Montford/Klondyke/Hillcrest route has a passing grade. This is the only route to offer a 30-minute peak headway during both the morning and afternoon peaks. Most local services do meet the standard for providing a 12 hour span of service, with the exception of the Route 6 Hendersonville Road/Airport, which only offers an 11-hour span.

The caution with this evaluation is that these standards are based upon national guidelines. While the rationale is sound – most riders would not view one bus an hour as an attractive choice for getting to work, the standards do not take into account the size of the system. While Asheville may wish to have a "passing" grade, it must balance this desire with actual ridership levels and financial resources. In Asheville's case, the City would need to double its service during the peak to get a passing grade.

3.2.4 On-Time Performance

One issue that was brought up by both riders and the operators was the on-time performance of the routes. The implication was that the running times were too tight, resulting in buses running behind schedule, and pressure on the operators to make up the lost time.

The boarding & alighting count that was conducted for this *Transit Master Plan* allowed for a comprehensive analysis of whether buses were on time or not. To determine a systems' on-time performance, many properties will use a sample of routes and timepoints that may or may not have been randomly selected. For ATS, the boarding & alighting count provided a 100% sample of how well the system did on the survey day.

As with the frequency and span of service measures, the *Transit Capacity and Quality of Service Manual* provides guidelines on what is an acceptable performance. The first question that must be addressed is the definition of "on-time." All transit modes allow for some variation between the published time and actual time to account for normal variation in traffic, boarding patterns, and the like. The airline industry, for example, considers a trip "on-time" if it arrives at its gate no more than 15 minutes late.

In the transit industry, the most common definition of "on-time" is for the bus to depart the timepoint zero minutes early to five minutes late. Departing a timepoint early is considered a major sin because the passenger arriving on time will not know if the bus has already left, and could end up waiting the entire length of the headway (60 minutes for ATS) for the next bus. 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.

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

The boarding & alighting count recorded the actual departure time of every bus trip at every timepoint along its way. The results were that of the 23 routes checked (Route 3 Bulldog Express was not counted), nine routes had a failing grade when considering both directions of a route. The routes and their grades are given in **Exhibit 3-5**.

Exhibit 3-5
On-Time Performance

Route	%	LOS
1 Haywood	91%	B
2 Merrimon Avenue	69%	F
3 Bulldog Express		N/A
4 Kenilworth/Asheville Mall	77%	E
5 Charlotte Street	83%	D
6 Hendersonville Road/Airport	90%	B
8 Biltmore Avenue/Shiloh	21%	F
9 Brevard Road/Biltmore Square	70%	F
11 Montford/Klondyke/Hillcrest	92%	B
12 Oakley/River Ridge	91%	B
13 Tunnel Road/Oteen/Haw Creek	90%	B
15 Patton Avenue/Deaverview	96%	A
16 Bingham Heights	81%	D
18 Erskine Street/Flint Street	66%	F
26 Asheville Mall/Tunnel Road	77%	E
28 Black Mountain	60%	F
29 Warren Wilson/Swannanoa	54%	F
36 Biltmore Avenue/Shiloh	81%	D
38 Erskine/AB Tech	88%	C
41 Haywood Road/Deaverview	80%	D
46 Bingham Heights	92%	B
51 Montford/Hillcrest	92%	B
52 Merrimon Avenue/UNC-A	88%	C
54 Weaverville	60%	F

Source: 2008 Boarding & Alighting Count

The detail information on each trip provides more insight into why some routes did not have a good on-time performance. Contrary to the expectation that it was due to buses running late, the actual observations indicated that many trips were leaving the timepoints early. The 2 Merrimon had a number of trips early rather than late; the 4 Kenilworth was entirely due to early trips; the 8 Biltmore Avenue has a clear lack of running time, but the 9 Brevard's performance was entirely due to trips running early. The 18 Erskine Street and 26 Asheville Mall were entirely due to trips running early, while the 28 Black Mountain, 29 Warren Wilson, and 54 Weaverville do not have enough running time.

3.3 Boarding & Alighting Count

The major data gathering effort of this *Transit Master Plan* was the conducting of a complete boarding & alighting count for ATS. A boarding & alighting count is the most intensive data gathering effort a system can do since it requires a counter to be on the bus during all hours of operation over a single day. Most transit systems only conduct this count on an infrequent basis do to the labor effort required, with a timeframe of conducting such a count every two to five years. More frequent checks are made when major changes occur to a route.

The count was conducted during the week of October 27, 2008. 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.

3.3.1 Daily Ridership

Daily ridership, defined as total boardings, for the Asheville system was 5,371. Alighting information was also recorded to identify active destination locations. **Exhibit 3-6** shows the route-by-route results for the total count. The route numbers shown reflect the public route number, with a "0" or a "1" added at the end to reflect the direction of travel. The top five routes in terms of total daily riders are:

- 1 Haywood Road
- 11 Montford/Klondyke/Hillcrest
- 18 Erskine Street/Flint Street
- 15 Patton Avenue/Deaverview
- 2 Merrimon Avenue

Generally, the top ridership routes are the same as the top performing routes discussed above. The one difference is that the 18 Erskine Street replaced the 13 Tunnel Road/Oteen/Haw Creek as one of the top five routes.

Not unexpectedly, the lowest ridership routes are all evening routes. The ridership levels reflect not only the lower usage per trip, but also the shorter span of service for these routes compared with their daytime counterparts.

The total ridership shown for all routes, excluding the 3 Bulldog Express that was not checked, is 5,371 daily boardings. This amount is higher than the reported amount of 5,017 for 2007, which likely indicates a continuing growth in the system ridership, but is below the operator manual count during the boarding & alighting count week of 5,867.

Exhibit 3-6
Daily Ridership

		By Direction			Complete Route			
#	Route	Ons	Offs	Total	Ons	Offs	Total	Rank
10	Haywood Road OB	261	207	468				
11	Haywood Road IB	260	314	574	521	521	1,042	1
20	Merrimon Avenue OB	263	210	473				
21	Merrimon Avenue IB	126	179	305	389	389	778	5
30	Bulldog Express	Not checked						
40	Kenilworth OB	201	164	365				
41	Kenilworth IB	95	132	227	296	296	592	10
50	Charlotte Street OB	70	52	122				
51	Charlotte Street IB	29	51	80	99	103	202	16
60	Hendersonville Rd OB	218	175	393				
61	Hendersonville Rd IB	136	179	315	354	354	708	7
80	Biltmore Avenue OB	175	125	300				
81	Biltmore Avenue IB	110	160	270	285	285	570	11
90	Brevard Road OB	150	140	290				
91	Brevard Road IB	158	168	326	308	308	616	9
110	Montford OB	261	117	378				
111	Montford IB	196	340	536	457	457	914	2
120	Oakley OB	170	117	287				
121	Oakley IB	147	200	347	317	317	634	8
130	Tunnel Road OB	210	172	382				
131	Tunnel Road IB	158	196	354	368	368	736	6
150	Patton Avenue OB	245	135	380				
151	Patton Avenue IB	162	272	434	407	407	814	4
160	North Louisiana OB	110	70	180				
161	North Louisiana IB	55	91	146	165	161	326	14
180	Erskine Street Loop	417	417	834	417	417	834	3
260	Tunnel Road OB	161	130	291				
261	Tunnel Road IB	123	154	277	284	284	568	12
280	Black Mountain OB	115	87	202				
281	Black Mountain IB	62	90	152	177	177	354	13
290	Tunnel Road OB	73	71	144				
291	Tunnel Road IB	89	91	180	162	162	324	15
362	Hendersonville Rd OB	34	24	58				
363	Hendersonville Rd IB	10	20	30	44	44	88	19
382	South French Broad L	27	32	59	27	32	59	22
412	Haywood Road OB	89	70	159				
413	Haywood Road IB	8	27	35	97	97	194	18
462	Patton Avenue OB	14	7	21				
463	Patton Avenue IB	1	3	4	15	10	25	23
512	Montford OB	22	9	31				
513	Montford IB	20	34	54	42	43	85	20
522	Merrimon Avenue OB	33	27	60				
523	Merrimon Avenue IB	8	13	21	41	40	81	21
540	Weaverville OB	60	52	112				
541	Weaverville IB	39	47	86	99	99	198	17
	SYSTEMWIDE	5,371	5,371	10,742				

Source: 2008 Boarding & Alighting Count

3.3.2 Major Ridership Locations

From the stop level ridership information, the major activity locations for the system can be identified. The top location, not surprisingly, is the downtown transit center. There were 2,056 boardings and 1,774 alightings, which combined are 36% of all of the trip ends in the system. The second top location, again, not surprisingly, is downtown as a whole. Not including the transit center, there were 233 boardings and 422 alightings, or 6% of all trip ends. The imbalance between the boardings and alightings at these locations, and their imbalance in opposite directions, indicates that many people will get off their bus at their destination in downtown, but will walk to the transit center to board their bus for their return trip.

The next top locations can be considered as the BIG 7. These locations and their corresponding activity levels are:

Pisgah View Apartments –	130 boardings, 110 alightings
Hillcrest Apartments –	120 boardings, 108 alightings
Walmart (on Tunnel) –	107 boardings, 103 alightings
Haywood & Louisiana area –	103 boardings, 95 alightings
Asheville Mall –	87 boardings, 110 alightings
Mission Hospital –	86 boardings, 104 alightings
UNC-A –	84 boardings, 94 alightings

Collectively, these seven locations accounted for just over 12% of the trip ends.

Following the BIG 7, there is a group of the LITTLE 6 that represents another clear grouping of activity locations. These locations are:

Biltmore Village –	67 boardings, 61 alightings
VA Hospital –	62 boardings, 57 alightings
Klondyke Apartments –	42 boardings, 41 alightings
AB Tech –	46 boardings, 33 alightings
Deaverview Apartments –	42 boardings, 32 alightings
Innsbruck Mall –	35 boardings, 32 alightings

The LITTLE 6 account for just over 5% of the trip ends.

Taken all together, the Asheville Transit Center, downtown as a whole, the BIG 7, and the LITTLE 6, almost 53% of the trip ends are accounted for. Improvements and marketing efforts at these locations will reach the majority of the current riders.

3.3.3 Major Corridors

The stop level activity can be aggregated into major corridors. Several routes overlap for a portion of their service on a limited number of streets from downtown. The following summarizes the activity level for each corridor outside of downtown (defined as the edge of the free fare zone):

Tunnel Rd to Walmart –	414 boardings, 378 alightings
Haywood Rd to Brevard –	245 boardings, 276 alightings
Biltmore Ave to Biltmore Village –	107 boardings, 134 alightings
Patton Ave to North Louisiana –	103 boardings, 120 alightings
Merrimon Ave to WT Weaver –	78 boardings, 98 alightings
McDowell St to Biltmore Village –	89 boardings, 73 alightings
Montford Ave to Zillicoa –	66 boardings, 74 alightings
S. French Broad to Oakland –	58 boardings, 60 alightings
Charlotte/Macon to Grove Park Inn –	44 boardings, 51 alightings
Broadway/Flint to WT Weaver –	26 boardings, 21 alightings

These results show that the Tunnel Rd corridor is the most heavily used corridor in the system. This corridor is densely developed along its length and includes two major destinations of Asheville Mall and Walmart. Interestingly enough, the routes along this corridor were not the highest performers, in part due to the number of routes that share this roadway (13, 26, 28, 29). Haywood Rd is the second most used corridor, but its ridership is about half of Tunnel Rd.

The remaining corridors all have lower ridership, in part reflecting the number of corridors in close proximity to one another. While the east side of town only has one main corridor (Tunnel Rd), and the west side has two main corridors (Haywood Rd and Patton Ave), the south side of town has three corridors (Biltmore Ave, McDowell St, and S. French Broad), and the north side has four corridors (Merrimon Ave, Montford Ave, Charlotte/Macon, and Broadway/Flint). Operating service on so many corridors in close proximity dilutes the effectiveness of providing more frequent service on a fewer number of corridors.

3.3.4 Load Factors

Each bus trip had a maximum passenger load calculated. This max load is used to ensure that the buses are properly sized for the passenger loads, and to identify routes where more frequent service is warranted.

Trips were examined to identify any trips where the number of passengers on board at any point exceeded 30 passengers, which would indicate that some passengers had to stand. While standees are typically permitted during peak hours, an excessive number of standees should be avoided, and generally every passenger should have a seat during off-peak hours. This examination indicated that only six trips (out of 441) had max loads in excess of 30 passengers, and that no trips exceeded 36 passengers.

The routes that did have max loads in excess of 30 passengers were Route 1 Haywood Road (2 trips); Route 6 Hendersonville Road (1 trip); Route 12 Oakley (1 trip); Route 26 Tunnel Road (1 trip); and Route 28 Black Mountain (1 trip). From operator reports, Route 29 Warren Wilson can also suffer from overloads, especially on the first evening trip from the college. Oftentimes, a second bus must be dispatched to pick up the extra passengers.

3.4 Rider Survey

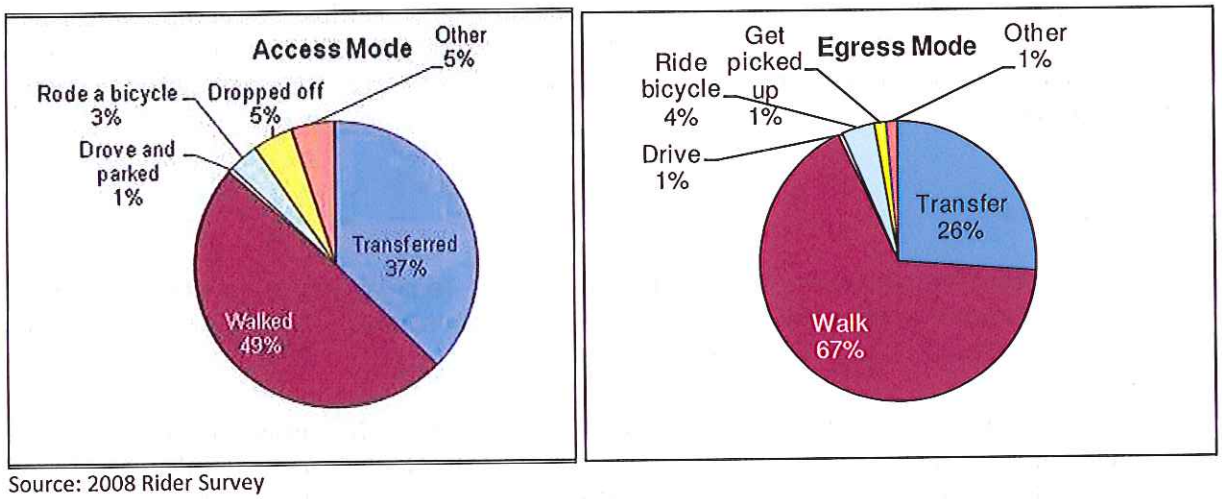
The second major data gathering effort for the *Transit Master Plan* was the surveying of existing riders. To do so, the bus operators handed out survey forms to everyone boarding their bus during the week of November 17, 2008. Surveys were available with English on one side and Spanish on the opposite side. One weekday and one Saturday were selected for the distribution. The survey asked questions regarding the riders' trip, demographic information, and recommendations for improvements. This section discusses the trip information and demographics of the riders. Recommendations for improvements are covered in the Public Involvement chapter.

Overall, 873 total responses were received. This sample size is accurate at the 95% level, plus or minus 3% for systemwide statistics. For the results presented below, the totals have been factored up to reflect total system ridership.

3.4.1 Trip Characteristics

The rider survey asked riders how did they get to their surveyed bus, and what mode they were going to use when they got off. **Exhibit 3-7** shows the responses. Approximately half of the riders walked to the bus and two-thirds walked away from the bus, reinforcing that most transit users are pedestrians on one or both ends of their trip. An adequate pedestrian network is essential for attracting riders.

Exhibit 3-7
Access and Egress Modes



Source: 2008 Rider Survey

For the trip purpose, riders were asked "Where did you come from before getting on this bus?" and "Where are you going now?" The **Exhibit 3-8** crosstab shows the linkages between the origin and destination points.

Exhibit 3-8
Origin/Destination Trip Purpose Matrix

From /To	Work	College	Medical	Social	Other	Home	Shopping	NA	Total
Work	341	45	24	47	136	1,200	131	54	1,979
College	34	18	10	36	55	227	120	14	514
Medical	7	-	39	34	30	231	123	6	470
Social	-	62	-	89	32	451	86	6	727
Other	67	37	-	26	182	416	154	11	892
Home	1,766	491	163	532	674	758	1,017	70	5,472
Shopping	31	10	29	-	70	431	90	-	661
NA	-	-	-	-	7	-	12	6	25
Total	2,245	663	264	765	1,187	3,715	1,733	167	10,739

Source: 2008 Rider Survey

As shown, the major link was from people going from home to work (1,766) closely followed by riders going from work to home (1,200). Other major trips were riders going from home to shopping (1,017), from home to other activities (674) and from home to social activities (532). From home to college was also significant at 491 trips.

The results show some oddities, such as the 758 people who went from home to home; they obviously did not understand the question and reported their answer for their round trip rather than the one-way trip of interest. The survey also shows 341 riders went from work to work, which could be the result of the same misunderstanding, but may actually represent riders who use transit to travel between jobs.

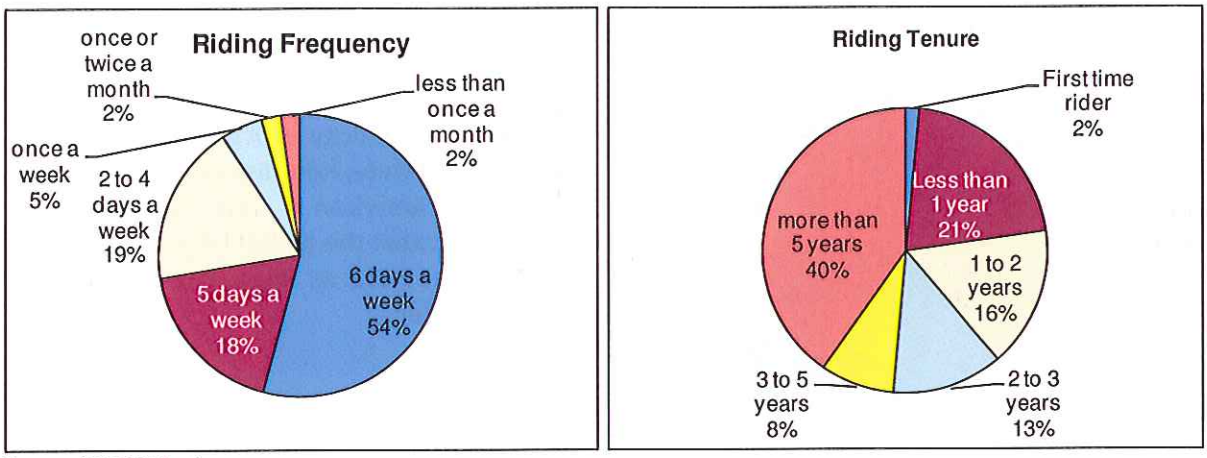
Altogether, trips involving work on one end or the other accounted for 39% of the trips; the largest purpose of all trips. Second were shopping trips, accounting for 22% of all trips. Social trips were 14% of all trips, and college were 11% of all trips. (Note: Totals will not equal 100% since the trip purpose can show up under more than one category.) The conclusion is that 61% of all trips were either to make money or spend money.

3.4.2 Rider Habits

Riders were asked about how frequently they use the bus service. The majority of the users, as shown in **Exhibit 3-9**, do indicate that they ride the bus six days per week, reinforcing the earlier finding that Saturday ridership is almost as high as weekday ridership.

Riders were also asked about how long they have been riding the bus. The answer to this question provides an idea of the turnover of the ridership. Nearly half of the riders have been riding for more than three years. Just as importantly, almost one-fourth of the riders is riding for the first time or has been riding for less than one year, which is not unusual for a transit system. ATS must hold on to these riders if it wants to grow its system. 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.

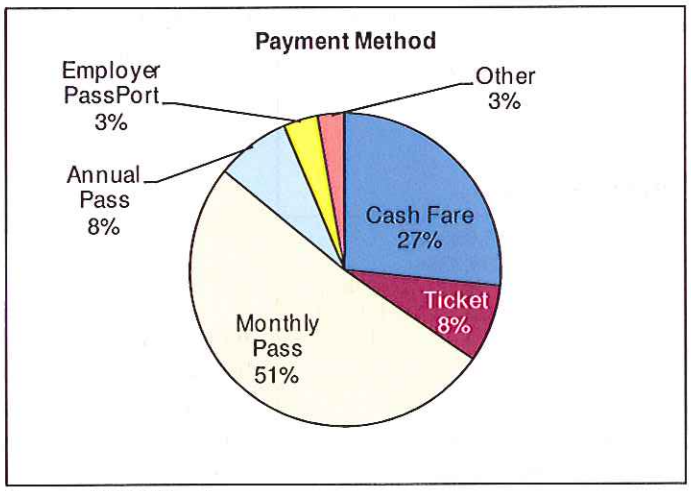
Exhibit 3-9
Riding Frequency and Rider Tenure



Source: 2008 Rider Survey

Riders were asked "How did you pay for your bus fare?" The majority of riders indicated that they used a monthly pass to do so. Approximately one-fourth of the riders paid cash (**Exhibit 3-10**). The Passport program is a prepaid program offered to major employers that allows their employees to ride by showing an employee badge or similar ID. Some of the major employers in the county are members, notably the City of Asheville, Buncombe County, and Grove Park Inn.

Exhibit 3-10
Fare Payment Method

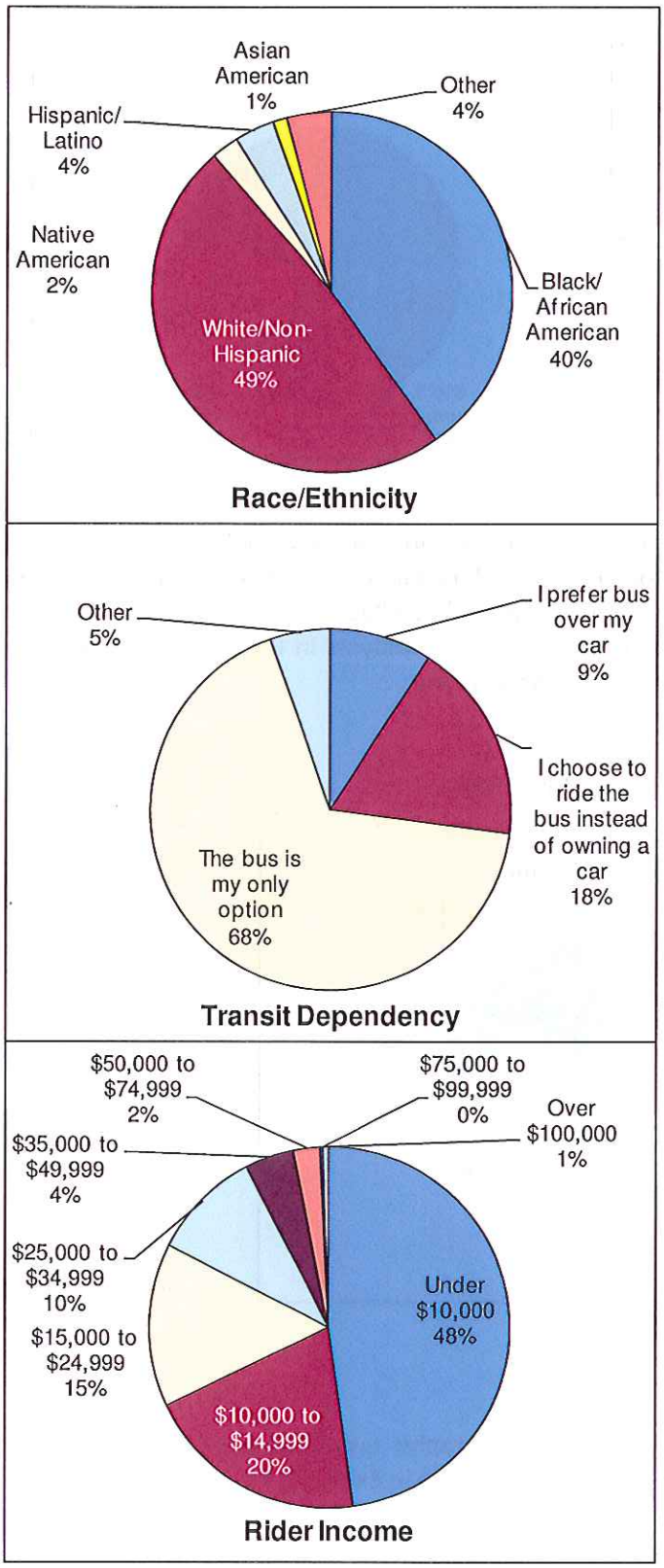


Source: 2008 Rider Survey

3.4.3 Rider Demographics

To gain an understanding of who uses the bus, three demographic questions were asked – ethnicity, transit dependency, and household income. The results are shown in **Exhibit 3-11**.

Exhibit 3-11
Rider Demographics



The race/ethnicity of ATS riders is nearly one-half White, non-Hispanic, with 40% as African American. This breakdown is different that the typical US system, which does not have as large a percentage of White riders.

The question on transit dependency was phrased differently to determine if riders were using the bus because they had no other option, or because they chose not to have a car instead. As with most cities, the majority of users did not have another option for traveling, but what is surprising is that nearly one out of five riders deliberately chose not to own a car, but to take transit instead and one out of 10 riders prefer taking the bus instead of their car.

As with most transit systems, the household income level for the users is under $15,000 annually. In the case of ATS, this lower income number is probably influenced by the number of students, and the number of retirees that reside in Asheville. Neither of these groups could be expected to have the highest income levels.

3.5 Capital Facilities and Fleet

3.5.1 Downtown Transit Center / Other Passenger Facilities

The central passenger facility is the Asheville Transit Center located at 49 Coxe Ave, between Coxe Ave and Asheland Ave across from Aston St. It was built in 1996. This facility has nine usable bus bays plus a small waiting area/customer service center and public restrooms. It is located on about a half-acre parcel. The middle six bays are 45 feet in length, long enough to accommodate a 35-foot bus. The remaining bays are long enough to accommodate a 30-foot bus, except for the northwest bay, which is too short and is not currently being used.

ATS has approached Greyhound in the past about co-locating at the transit center. The space, however, does not work for Greyhound. There is insufficient office space, package handling capability, and bus bay space. They are interested in reopening discussions should ATS expand the transit center. There are no designated taxi stands at the transit center, but this would be a desired multimodal connection.

ATS promotes two "hop & ride" locations – one at Biltmore Square Mall and one at Goodwill on Patton Ave. Usage information is unavailable, but anecdotally the usage is low.

There are numerous "top-a-stop" covered benches throughout Asheville that have been erected by a civic group. These structures are undergoing modifications to ensure they meet the ADA requirements. Other stops have larger glass and aluminum shelters.

3.5.2 Operating & Maintenance Facility

ATS has one central operations and maintenance facility located on the west side of downtown on a 3.5-acre parcel. The facility is designed so that the buses can be parked inside the building as a protection from the winter weather. Up to 20 buses can be parked inside, when all bays, including the wash bays, are used. There is room to park five additional buses outside.

The maintenance facility consists of five bays in the repair area of the shop – three on the front side of the building and two on the rear side. The bay on the far right of the shop is used mainly for body repairs or any repair that a bus will be down for an extended period of time. The two middle bays are used mainly for Preventative Maintenance repairs and Brake Repairs. The two bays to the far left, from the front are used for any other short term repairs.

The facility was built in 1971, making it 39 years old. FTA considers the economic lifespan of an operating facility to be 50 years, indicating that the facility will reach the end of its lifespan in 2021. The fifty-year lifespan assumes the facility has been well maintained over the years. This has not always been the case; roof repairs have been needed since 2000.

3.5.3 Fleet Characteristics

ATS' fleet consists of 21 30-foot buses. Sixteen of the buses were purchased in 1996 and have already past their economic lifespan (considered to be 10 years). The remaining buses were purchased in 2006 and have about 7 years left in their lifespan. All buses have bike racks on the front that hold two or three bikes.

An additional 8 buses are under contract for ADA paratransit service, operated by Mountain Mobility.

The City of Asheville is purchasing five 30-foot low-floor diesel-electric hybrid buses with Section 5309 funds and the corresponding State and local match. The City is receiving $2.0 million in an American Reinvestment and Recovery Act (ARRA) grant. This grant will be used to purchase five 35-foot low-floor diesel buses, and 10 bus shelters. The new buses will include updated fareboxes that will include the ability to count riders, eliminating the need for the operators to make manual counts.

3.6 Organization & Staffing

The Transportation Planning Division is a part of the City's Transportation Department, which has recently been reorganized from the previous Transportation and Engineering Department. One of its functions is the administration of the transit service. There are three full-time equivalent employees in the division dedicated to transit.

The fixed route transit service is operated under contract by First Transit, which assumed operations on July 1, 2008 from the previous firm of Professional Transit Management (PTM). Bus operators and other employees work for an independent company (Asheville Transit System – ATS) since North Carolina law prohibits municipal governments from engaging unions in collective bargaining. First Transit is the responsible agency for negotiating the union contract.

The City of Asheville separately contracts with Mountain Mobility, a division of the County's Transportation Department, to provide the federally mandated ADA paratransit service. This service is a demand-response service, that is, it only operates upon a specific passenger request. Mountain Mobility operates most of its rural county service in this manner and was better equipped to provide this service.

The Transit Division staff are assisted in their efforts by the Transit Commission, an Asheville City Council appointed body. The Transit Commission's seven members serve as an advisory board to the City of Asheville and ATS staff.

3.7 Financial Data

3.7.1 Passenger Fares

ATS offers several fares based upon the category of rider and the fare instrument purchased. **Exhibit 3-12** provides the fare table.

Exhibit 3-12
ATS Fare Structure

Type	Cash Fare	Ticket Booklets	Monthly Pass	Annual Pass
Adult	$1.00	11 tickets for $7.00	$15.00	$120.00
Senior Citizen (65+)	$0.50	11 tickets for $3.50	$7.50	$60.00
Handicapped*	$0.50	11 tickets for $3.50	$7.50	$60.00
Student (grades 1-12)		10 tickets for $5.00		
ADA	$2.00			

* Handicapped Fare: Riders must have a Medicare card or an Asheville Transit Reduced Rate Card.
Children age five and under: Ride free with an accompanying adult
Transfers: Transfers are free and require a paper transfer slip from the driver

As discussed in Section 3.4.2, based upon the 2008 Rider Survey, roughly half of the riders pay their fare with a monthly pass, while one-fourth pay cash. The Passport program is still modestly used with only 3% of riders choosing this option. The average fare paid under that program to ATS is $0.49, offering a half-priced fare to companies that choose to participate.

Fare Free Zone
Asheville Transit has designated portions of the central downtown area as a "Fare-Free Zone." This area contains almost all of the businesses, restaurants and attractions downtown. Riders can take any bus in the system within the Free Zone at no charge. If riders go beyond the Free Zone area, they are required to pay a regular fare. **Exhibit 3-13** shows the boundaries of the zone.

Exhibit 3-13
Downtown Fare Free Zone Boundaries

Note: The Asheville Visitor Center is now located on Montford.

3.7.2 Operating Costs and Revenue

The cost of operating the ATS system is approximately $5 million annually, not including capital expenses. **Exhibit 3-14** shows the breakdown of costs by general category. Division 2701 Transit Administration reflects the cost of City of Asheville employees, while Division 2702 Transit Operations reflects the cost of the contracted management company.

Exhibit 3-14
ATS Operating Costs FY 2009

Line Item	Annual Budget
Div. 2701 - Transit Administration	
Salaries & Benefits	$172,199
Contracted Services	$103,455
Supplies and Materials	$1,109
Interfund Charges	$6,252
Utilities	$16,736
Other Expenses	$126,410
Debt Service - Interest and Fees	$15,000
Div. 2702 - Transit Operations	
ATA Monthly Management Fee	$154,500
Operations	$4,399,005
TOTAL	$4,994,666

Source: Estimated from 6 months actual expenditures

ATS has several sources of funding. The major sources are Federal and State grants, Asheville general fund, and fare revenue. **Exhibit 3-15** shows the funding levels.

Exhibit 3-15
FY 2008-2009 Adopted Transit Budget

Category	Annual Revenues	Percent
Operating Revenue	$796,755	15%
Federal/State Grants	$1,848,527	34%
Operating Pass Through	$502,125	9%
General Fund Subsidy	$1,566,197	29%
Parking Fund Subsidy	$248,116	5%
Transfer from Capital Fund	$100,000	2%
Motor Vehicle License Fee	$333,540	6%
TOTAL	$5,395,260	

Source: FY 2009 Adopted City Budget

ATS receives funding from four sponsoring jurisdictions. UNC-A pays for the cost of Route 3 Bulldog Express, approximately $22,000. Warren Wilson College pays for 60% of the cost of its route,

approximately $55,000. Black Mountain contributes a flat rate of $13,500. Weaverville contributes a flat rate of $10,000. These funds are included in the "Operating Revenue" category.

3.7.3 Cost Allocation Model

A Cost Allocation Model was developed for Asheville Transit based upon the adopted budget for 2008-2009. This cost allocation described below is somewhat uncertain since 2008-2009 is the first year of operation with a new contractor, making past years' costs inappropriate to consider. Also, the union contract will be undergoing renegotiation soon, which will further change the cost structure.

The allocated costs are determined by dividing the annual "operations" cost by the annual hours of service provided. Based upon the annual budget, the operations cost per hour is $4,399,005 divide by 66,391 annual hours of service for a cost per hour of $66.26. This amount represents the cost for operators, mechanics, fuel, and other supplies. In addition to these costs, there are administrative costs incurred, both by the contractor, First Transit, as well as the costs associated with the City of Asheville staff. These administrative costs are about 14% of the operations cost. Total costs per bus hour are therefore:

$66.26 operations cost * 1.14 overhead = $75.23 total cost per bus hour.

This $75.23 is the amount of additional expense that will be incurred for every additional hour of bus service offered. So, for example, if you add 9 hours of Sunday service on one route with one bus, the cost is 9 hours * $75.23 = $677.07 per Sunday * 52 Sundays and 8 Holidays per year = $40,624.20, which assumes a Sunday schedule is operated on the eight designated holidays.

This cost should be recalculated annually as actual expenditures are known. The actual costs/hour can be used to determine the costs of any contract services and invoice the appropriate amount to the funding agency.

4 Public Involvement

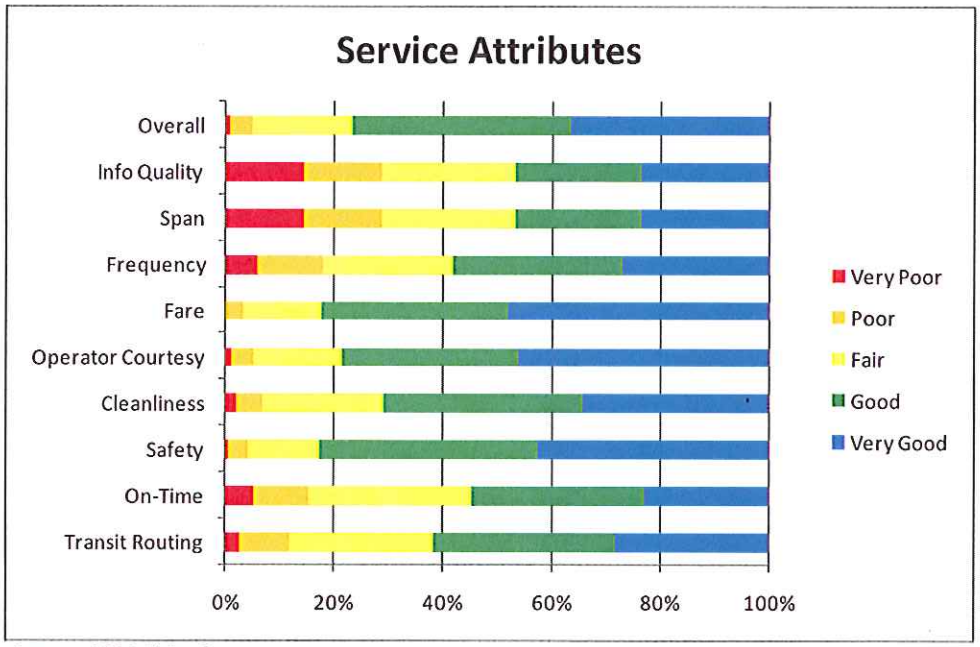
Development of the *Transit Master Plan* could not have taken place without the input received from the major stakeholders and the general public. Several different involvement techniques were used for this study. Along with the boarding & alighting count, a rider survey was conducted that asked several attitudinal questions. A web-based survey was conducted and made available at the public meetings. Two public meetings were held that consisted of an open house portion, a presentation, and an activity to encourage all to participate. The draft *Transit Master Plan* was posted on the City's website for residents to review and provide comments. A final public hearing was held in front of the City Council before their adoption of the plan. The following sections detail the findings of these outreach efforts.

4.1 Rider Survey

As noted in Chapter 3, bus operators handed out survey forms to everyone boarding their bus during the week of November 17, 2008 on one weekday and one Saturday. Overall, 873 total responses were received. This sample size is accurate at the 95% level, plus or minus 3% for systemwide statistics.

Several service related attribute questions were asked to gauge the satisfaction level with ATS's service. **Exhibit 4-1** shows the results. A weighted composite score was calculated for each attribute by assigning a value of "1" to all "Very Poor" responses through a value of "5" for all "Very Good" responses. These responses provide a good indicator of how existing riders view the system.

Exhibit 4-1
Service Attribute Satisfaction Level



Source: 2008 Rider Survey

Overall, respondents were satisfied with ATS service. The overall weighted score was a solid 4.1, firmly in the "Good" category. The highest ranking attributes, all scoring "Good" or better in order were:

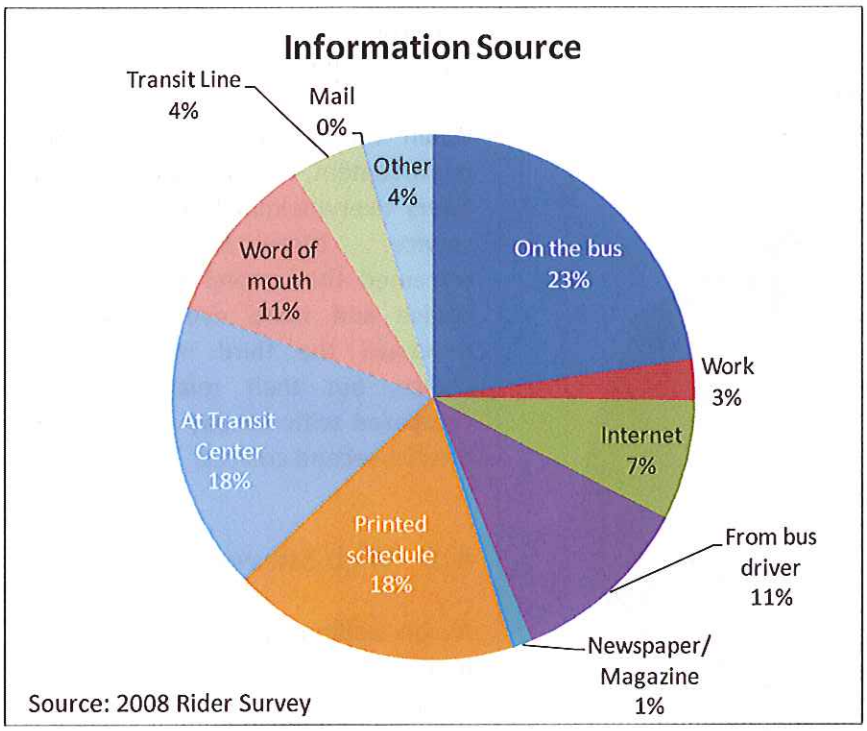
- Fare – 4.3 score
- Safety – 4.2 score
- Operator Courtesy – 4.2 score
- Cleanliness – 4.0 score

Areas in need of improvement are:

- Information Quality – 3.3 score
- Span of Service – 3.3 score
- On-Time Performance – 3.6 score
- Frequency – 3.6 score
- Transit Routing – 3.8 score

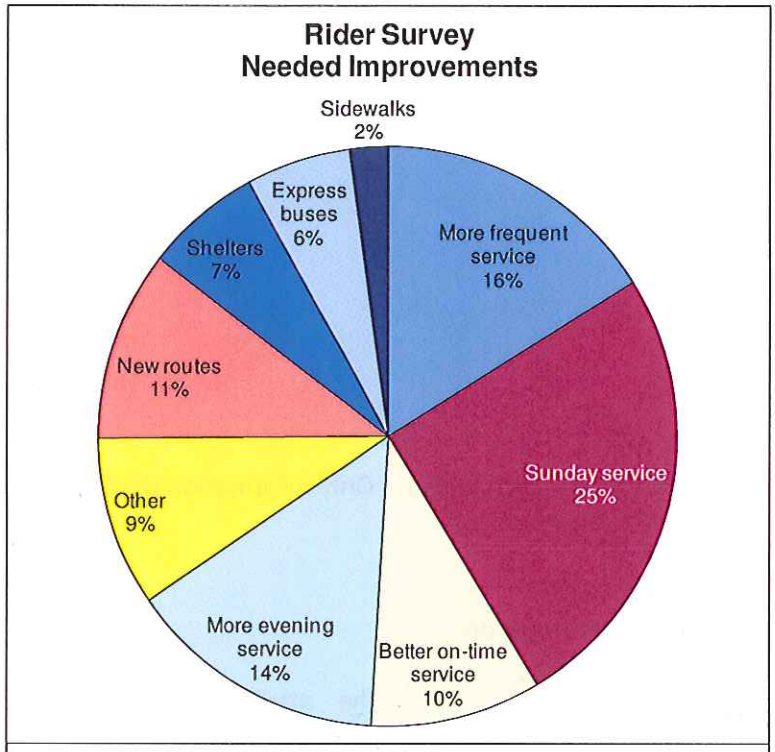
Even these lower performing attributes' scores were still relatively high. Only Information Quality and Span of Service could be considered as having a "Fair" performance.

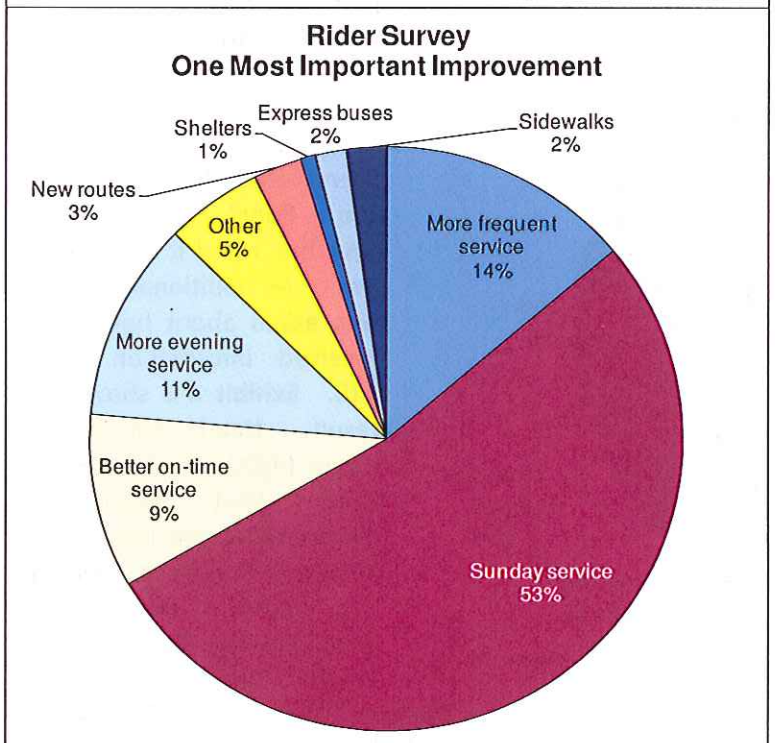
Exhibit 4-2
Source of Transit Information



The attribute showing the poorest response was in response to the question, "Evaluate Asheville Transit services – Quality of Info." More than one fourth of the users rated this attribute as "Very Poor" or "Poor", and over half rated it as "Fair" or less. An additional question was asked about how riders received information about ATS. **Exhibit 4-2** shows this result. Nearly half of the riders (48%) got information from what might be considered more informal or incomplete sources – On the Bus, Word of Mouth, and from the Bus Operator, and Work. While the operator may be well informed, he/she may not have complete information available. Only 40% got information from sources that should be complete – At the Transit Center, through the Printed Schedules, or from the Transit Line.

Exhibit 4-3
Any Needed Improvements & Most Important





Source: 2008 Rider Survey

Even though riders had generally positive views about ATS, most riders on any system will have some suggestions on how to improve the service. Two questions were asked to gain insight on this aspect. One question was open ended and allowed the rider to select as many items as they wanted from a specified list of choices. The second question required the riders to select the one improvement that was most important. **Exhibit 4-3** provides the results of those questions.

With unlimited choices, riders distributed their desires more evenly, with Sunday service, more frequent service, more evening service, and new routes all receiving more than 10% of the votes.

When forced to choose only one improvement, the majority of existing riders overwhelmingly chose Sunday service. More frequent service remained the second most popular choice and more evening services remained the third most popular choice, but their relative ranking compared with Sunday service were distinct second choices.

4.2 Web Survey

As an additional method to gather input on the desired changes to the service, a web based survey was prepared on the Survey Monkey website. This survey was similar to the rider survey, except questions regarding the specific trip being made

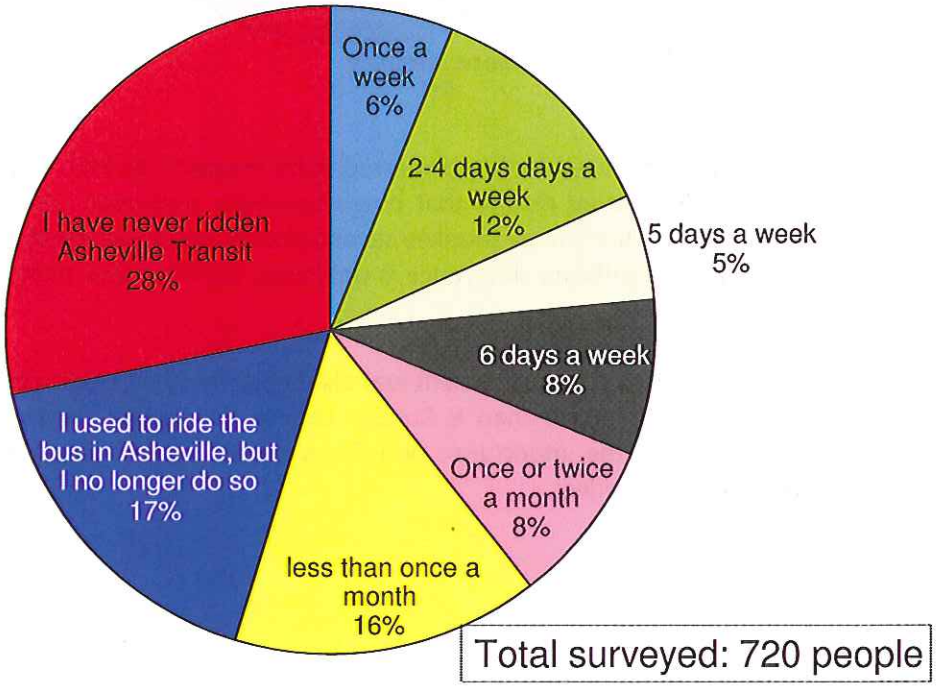
on the rider survey were dropped since the Survey Monkey respondents were not traveling at the time.

As with most web based surveys, the results need to be used with caution. Respondents self-select, meaning that those who are most interested in a subject are the ones most likely to respond. There was also no limitation on the number of times a respondent could submit, but from a check of the IP addresses, it does not appear that there was any vote rigging. One qualifying question was asked – respondents had to give their zip code, either of their home or the place where they were staying. If this zip code did not match the list of Asheville zip codes, the respondent was not allowed to continue.

As a way to increase the use of this survey form and gather a wider variety of respondents, computer stations were set up at the first public workshop. Attendees were instructed to fill out the survey on the computer, unless they had already done so. City of Asheville staff was present to assist those who were less computer literate.

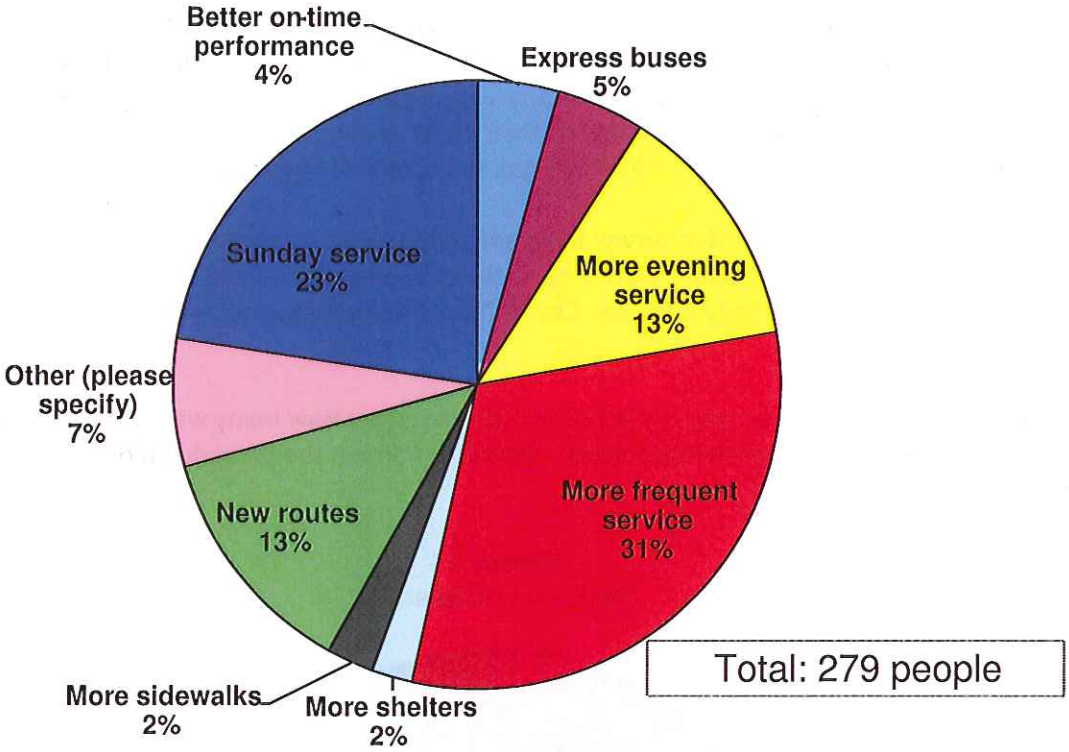
Survey respondents were asked about their riding habit to gauge how many were regular users of transit and how many rode only occasionally or never. **Exhibit 4-4** shows the breakdown of riders by frequency of use.

Exhibit 4-4
Frequency of Ridership



One set of questions was the same on the Survey Monkey questionnaire as on the rider survey. Respondents were asked to identify which improvements were needed, and then select the one improvement that was most important. The results are shown in **Exhibit 4-5** separate by riders and non-riders.

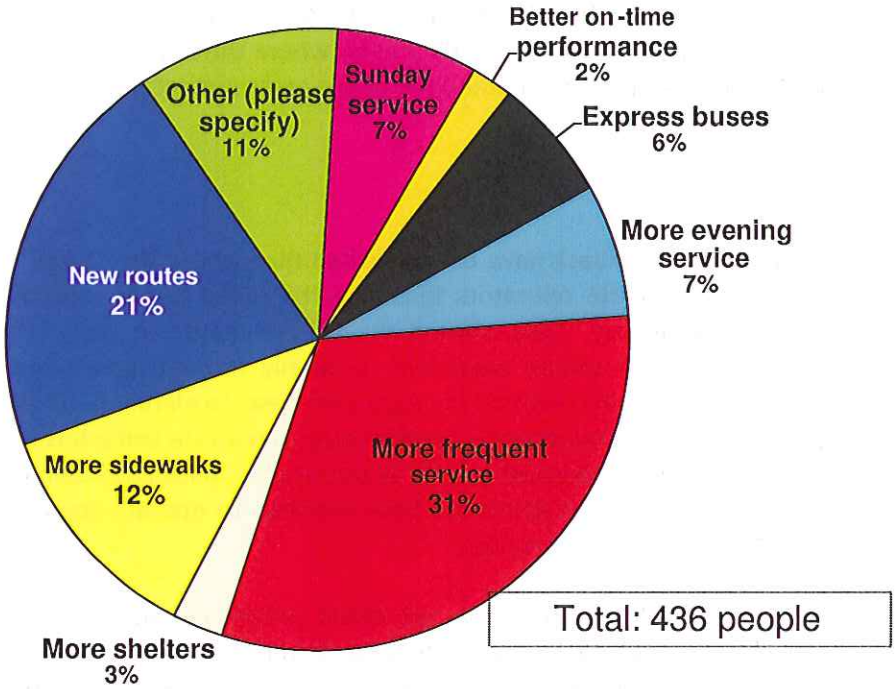
Exhibit 4-5
Most Important Improvement for Regular Riders



One-third of the riders on Survey Monkey preferred more frequent service as their number one choice, compared with the rider survey results that overwhelmingly preferred Sunday service as their first choice. Sunday service was the Survey Monkey second choice, swapping positions with the rider survey. While the reason for the significant difference is unknown, it's clear that both groups' top choices are frequency and Sunday service.

For non-riders, the most desired improvement was also more frequent service (**Exhibit 4-6**). New routes are more important to this group than is Sunday service or evening service. One large difference between the two groups is the importance non-riders place on more sidewalks. They consider it six times as important as do the riders.

Exhibit 4-6
Most Important Improvement for Non-Riders



When asked the reason why they did not take the bus, the respondents' answers generally fell into one of six categories (multiple responses were allowed). **Exhibit 4-7** shows the responses.

Exhibit 4-7
Reason for Not Taking Bus

Reason for not taking the bus	#	%
I like to drive	45	
I don't like riding with other people	6	
I don't feel safe riding the bus	24	7%
The bus doesn't go where I need to go	145	13%
The bus takes too long	144	
The bus doesn't run when I need it to	125	
The bus doesn't run frequently enough	156	
The bus doesn't run late and/or early enough for my needs	98	48%
I have too many errands to take care of during the day	72	
I have to drop off and/or pick up my children	47	11%
There is no shelter at my stop	45	
No sidewalk to the nearest bus stop	66	10%
The bus costs too much	6	
I don't know how to ride	36	
Other	81	11%

Source: 2009 Survey Monkey

The major reason for not taking the bus was do to scheduling issues, with nearly half of the respondents having some issue with the span, frequency, or speed of the service. If trip chaining or multiple errands are considered related to the schedule, then nearly 60% of the users had problems with the schedules. The next largest category was that the bus did not go where the respondent needed to. Relatively few respondents had issues with passenger amenities or the environment of riding with other people.

4.3 Operator Input

Operator suggestions and feedback have been solicited throughout the study. The study team had an after hours discussion with the operators following the initial public workshop. About two dozen operators were able to attend. They offered several comments to streamline the bus routes and eliminate time consuming or unsafe deviations, primarily through apartment complexes and retail centers. Several comments were received on suggested areas to eliminate service due to poor usage or tight roadway conditions. Several requests were include to relocate some bus stops that were too close together, or to erect more bus stop signs, such as out toward Black Mountain or along Hendersonville. There were also several concerns about the time required to operate some routes and the need to meet the transfer time at the transit center.

Since the workshop, several operators have submitted written comments on potential changes. They have also been closely involved in the evaluation of the potential service changes. Because ATS operates on a pulse system at the Asheville Transit Center, running times on routes are critical so that buses can meet at their pulse. The operators have driven most of the routes, simulating passenger activity, including conducting some runs on weekends. Their observations and comments have resulted in numerous changes to improve the operability of the routes.

4.4 Public Workshops

Two rounds of public workshops were held to gather input on the *Transit Master Plan*. One round of workshops was held in January 2009 to present the initial findings and a second round was held in April 2009 to review the initial recommendations.

4.4.1 January 2009 Findings Workshop

The January 22 workshop was an open house format. Residents were encouraged to drop in any time. A total of 176 people signed in, a very large turnout in most cities for a long range planning event.

The workshop was arranged with four display boards set up around the perimeter of the room, with a staff person standing at each board. A continuously running slide show provided some overlap with the display boards, but was more focused on the demographic information for the study area and the results of the rider survey.

As noted in previous sections, the workshop included a table with multiple computers set up with the Survey Monkey survey active. Attendees were asked to fill out the form at the meeting.

A third way to provide input was through the use of a "dot voting" approach. Eight potential types of improvements were listed on multiple sheets tacked up around the room. As attendees checked in, they were given three dots to place on the sheets corresponding to their desired improvement. They were free to spread their dots around, or if they felt strongly about one improvement, they could place all three dots on that sheet.

For the dot voting exercise, the results were:

More frequent service -	116 votes
Sunday service -	95 votes
More sidewalks -	94 votes
More evening service -	77 votes
New routes -	65 votes
Better on-time performance -	37 votes
More shelters -	28 votes
Express bus service -	15 votes

These votes were not too dissimilar to the other exercises of the rider survey and Survey Monkey approaches. More frequent service and Sunday service always seem to be the top two desired improvements. What was unusual at this event was the high number of votes for more sidewalks around town.

As a final method of education and input, tables were set up in the room with the Asheville Transit map laid out on the table. Attendees wrote their suggested improvements on sticky notes and placed them on the map. Collectively, attendees provided over 400 comments. These can be divided into several categories:

Service expansion (schedules and routes) – 102 comments. These include Sunday service; later evening service (till 11 PM); service to Long Shoals; morning service to Black Mountain and Warren Wilson; service out Brevard to Vista Industrial Park (could be some of the Long Shoals requests); and a connection from AB Tech to Biltmore.
Amenities – 94 comments. Big request for sidewalks and bus stops along New Haw Creek Rd. Bike racks at stops and compliments for racks on buses.
More frequent service – 68 comments. Many of these were in general, but more service to Black Mountain and Weaverville were also mentioned.
Modifications to existing routes – 38 comments. These include changing the existing intercity routes to more of an express service; more service to Walmart; and changes to the service to AB Tech. People also wanted transfers away from downtown and the transit center.
Operational issues – 38 comments. Driver commendations and courtesy; more security at transit center.
New park & ride lots – 28 comments. Locations noted were Hendersonville & Airport; Enka; Swannanoa; and Weaverville.
Environmental issues – 17 comments. Provide free service on Ozone Alert days; purchase cleaner fuel buses.
Miscellaneous – 14 comments. Run trolley service downtown and to Biltmore; consider fare increase.

Miscellaneous service comments – 9 comments. System is hard to navigate; convert dial-a-ride to taxi service.

4.4.2 April 2009 Recommendations Workshop

The April 2 Recommendations Workshop attracted more than 100 people, even though the weather was threatening throughout the day. As with the initial workshop, the format followed was as an open house, with multiple opportunities for attendees to participate and give their input.

Information distributed at the workshop covered the initial service concepts, discussed further in Chapter 5. Included was a handout that provided the guiding principals for making changes to the routes and schedules, a chart describing the proposed changes route-by-route, and a listing of proposed extensions and new routes.

Tables were set up with display boards with maps showing the recommended changes on a quadrant-by-quadrant basis. Attendees were free to go to only one table for their area of interest, or visit all tables. Rather than asking respondents to put their comments on sticky notes on the maps, a comment form was distributed at each table asking the attendees:

- "What do you like best about the proposed modifications in your quadrant of the city?"
- "What do you like least about the proposed modifications?"
- "What impact, if any, will the proposed modification have on your transit commutes?"
- "Other comments"

The final method of input was through a "bingo" game. This exercise was similar to the "dot voting" used at the initial workshop except that the attendees had a list of 18 potential enhancements. Each enhancement cost approximately $250,000 annually, and the respondent received four dots valued at $1 million that they could use to select the improvements. A $1 million budget represents a 20% increase in the current ATS budget, and was judged to be a reasonable potential increase in expenditures for the near term.

Exhibit 4-8 colorfully shows the results. The level of transparency and color provide an indicator of the relative number of votes received for each choice.

The overwhelming choice was to provide Sunday service on all routes, shown in blue. This expenditure received more votes than any other. The next set of five factors, shown in

Transit BINGO!

Place "funding dots" on the boxes corresponding to specific transit projects you would like to see implemented. You may place your dots on any combination of projects in any category.

REMINDER: Every dot = $250,000 annual cost ***OR*** $2.50 cost per year for every household in Buncombe County, a 20% increase in current service

Express Routes	Local Routes	Service Levels	Capital Items
Long Shoals	Route 9 extension to Vista Business Park	More frequent service on one route (list route) ___	25 new passenger shelters
Fletcher / Hendersonville	Route 2 extension to Woodfin	Maintain all Saturday service	1/3-mile of new sidewalk
Fairview	Sand Hill Circulator Beaverdam Circulator	Add Sunday service on all routes	One new bus
Waynesville / Canton	Haw Creek Circulator Riceville Circulator	Extend two routes until midnight (list routes)___	Improve transit center

Asheville Transit Master Plan Open House
April 2, 2009

green, was roughly equal in votes. Votes for more frequent service and for service extensions until midnight were divided among almost all routes in the system, but for purposes of illustrating the general demand, the individual route votes have been combined into a general indicator of more frequent service or service until midnight.

Three expenditures were in the middle of the pack, and are shown in yellow. Five choices, including all circulator routes, are shown in orange. The least popular choices are the two express routes (Fairview and Waynesville/Canton) and the one local route (Route 9 to Vista Business Park) are shown in red. The general theme seems to be more days of service, greater frequency, and longer hours, with some passenger amenities included. The attendees at this workshop had lukewarm interest in the service to Long Shoals, and no interest in other expansions.

Exhibit 4-8
Transit Bingo Results

Express Routes	Local Routes	Service Levels	Capital Items
Long Shoals	Route 9 extension to Vista Business Park	More frequent service on one route (list route) ____	25 new passenger shelters
Fletcher / Hendersonville	Route 2 extension to Woodfin	Maintain all Saturday service	1/3-mile of new sidewalk
Fairview	Sand Hill Circulator Beaverdam Circulator	Add Sunday service on all routes	One new bus
Waynesville / Canton	Haw Creek Circulator Riceville Circulator	Extend two routes until midnight (list routes)_____	Improve transit center

Source: April 2009 Public Workshop

The individual comments received were highly varied and specific to the sectors and routes. In general, they followed the same theme shown above – a desire for more weekend service, greater frequency and span, and some specific service addition requests. Among the higher number of mentions was to maintain/add service to the Asheville Buncombe Community Christian Ministry (ABCCM) location past the VA Hospital; concern over the proposed elimination of service on Lakeshore and Beaverdam; a desire for 30-minute frequency further north on Merrimon; concern over the proposed elimination of Saturday service on some routes; and favorable comments regarding route extensions on the west side.

4.5 Public Review of Draft Plan

As a final opportunity for public comment before presentation to City Council, the Draft Transit Master Plan was posted on Asheville Transit's website in September. The plan was available for review for two weeks. A total of 235 comments were received. The majority of the comments were favorable and expressed a desire to see the changes and service increases implemented quickly. Commenters were particularly supportive of Sunday service, more frequent service, and the extension of service to Evergreen Charter School.

A few areas of concern were raised:

- The Housing Authority of the City of Asheville (HACA) has concerns about the walk for riders at the complexes where service is being relocated to the street. HACA is concerned about the walking and waiting condition for riders, and whether or not sidewalks and shelters will be installed before the service changes go into effect.
- Goodwill and individual riders expressed concern that the bus would no longer be operating through their lot, but would be dropping off and picking up at stops located on the curb.
- The Grove Park Inn was concerned about the removal of Saturday service and the lack of Sunday service to their location.
- Individual citizens expressed concern about the discontinuation of the 54 Weaverville.
- Individual citizens expressed concern about the removal of service from Sulphur Springs.

The implications of these issues are discussed in Chapter 6.

A final opportunity for public comment was given at the public hearing in front of City Council on October 27, 2009 when Council voted on the plan adoption. The Transit Master Plan was approved six votes to one vote.

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5 Analysis and Service Concept

Based upon the comments received early in the analysis, and the evaluation of the data gathered as described in Chapters 2 and 3, an initial proposed service concept was developed. This chapter describes the initial concept, and Chapter 6 describes the final recommendations.

In developing the service recommendations, several guiding principals were used, with different sets of principals for routing and scheduling. Underlying all principals is the desire to provide the most effective service for the amount of funding that is available; increases in the operating and capital costs are only proposed when justified by the increase in ridership and improved convenience.

For routing changes, these principals are:

- More frequent service on heaviest corridors
- Additional transfer locations outside of downtown
- Improve on-time performance
- Reduce the number of deviations on a route; build sidewalks instead
- Eliminate dial-a-ride or convert to a fixed route
- Speed up longer routes
- Keep it simple for new users

For schedules, the guiding principals are:

- All routes should offer at least a 12-hour service from 6 AM to 6 PM
- Additional trips added based upon demand
- Every route should have at least hourly service
- Evening route should be combined with its daytime route
- Sunday service added for 9 hours on the most productive routes
- Saturday service eliminated on less productive routes

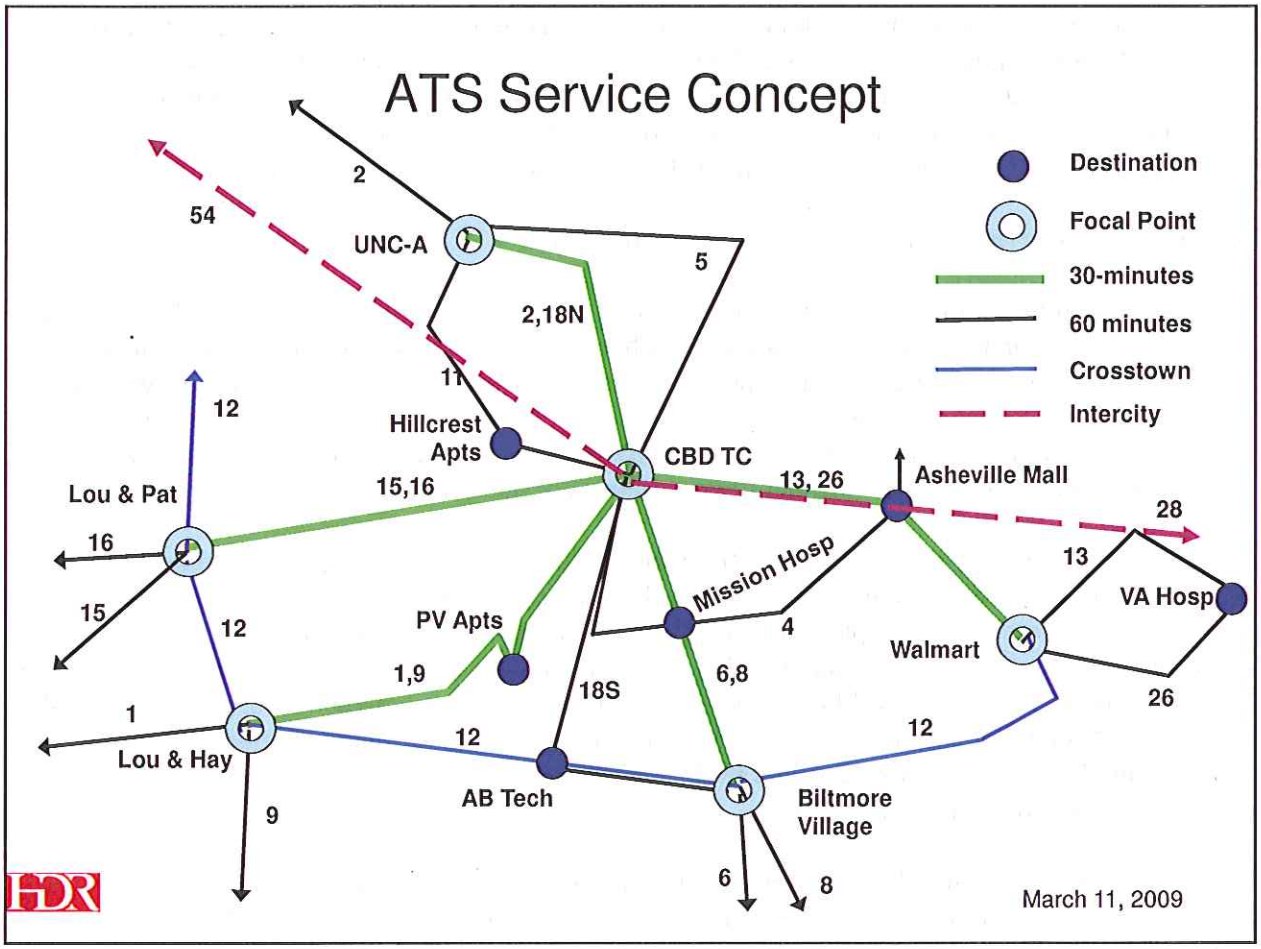
The intent of these principals is to maintain service to the areas that are most used while making the service attractive and simpler for new riders. These principals not only reflect the guidance received from the Steering Committee for this study, but are also consistent with the principals identified in the previous studies discussed in Section 2.5. Most of these studies were remarkably consistent in calling for more frequent service, longer hours, weekend service, identification of transit corridors, additional transit centers, and establishment of park & ride lots.

5.1 Initial Service Concept

As an initial phase in developing the recommendations, a generalized service concept was proposed. This concept showed the major locations that needed service, the approximate location of the corridors, and areas to coordinate the routes' schedules.

The concept assumes that all routes will continue to operate at a 60-minute headway to minimize additional expenses. However, to provide more frequent service along some trunk corridors, two routes will operate on a staggered schedule (one route will leave on the hour, the other on the half-hour). These overlap locations are shown in green in **Exhibit 5-1**. These high-frequency corridors are designed to connect downtown with the major locations in Asheville, based upon current ridership. These locations are Walmart (with a stop at Asheville Mall), Biltmore Village (with a stop at Mission Hospital), Louisiana & Haywood, Louisiana & Patton, and UNC-A. Other major locations are Pisgah View Apartments, Hillcrest Apartments, AB Tech, and the VA Hospital.

Exhibit 5-1
Initial Service Concept



The concept consolidates some of the routes on the north and the south onto fewer streets so that the bus service can be staggered to provide a more frequent service along the trunk route. At the last public workshop, when faced with a limited budget, increasing the frequency of service was the 6th most popular expenditure.

Currently, service is provided on many streets that are only about 1/3rd of a mile apart, which duplicates the geographic coverage without providing more frequency for the users. On the north, the concept

removed service from Flint & Broadway, and instead offered more frequent service on Merrimon. Similarly on the south, service was removed from McDowell and added to Biltmore Ave.

The overall concept is remarkably similar to the concept from the 2005 *LRTP*, even though the plans have been developed independently. Under the *LRTP*, there were:

- Four transfer centers: Downtown, East, West and South. The downtown and east centers are at their existing locations: Aston St. & Coxe Ave.; and the Walmart off of Swannanoa River Rd. The West center would be at the intersection of Haywood Rd. and Patton Ave. and the South center would be at the future Amtrak Station (essentially at Biltmore Village).
- Hi-Frequency local service: These six routes would operate up to eight times an hour (a 7.5-minute headway), originating at the downtown transit center and provide backbone service, primarily between transit centers and along major corridors: to West via Patton Ave.; to West via Haywood Rd.; to East via Tunnel Rd; to South via Biltmore Ave; to UNC-A; and to North via Merrimon Ave. The sixth corridor was Broadway to UNC-A. [The frequency of service is dramatically different, but the five main corridors are the same. Service is not recommended on Broadway in the *Transit Master Plan* due to the low density of development.]

The 2008 *Affordable Housing Plan* contains a similar reference:

- Create transit corridor overlay districts that encourage affordable housing by providing incentives for mixed use development, higher density, sustainability, infill development, and open space. Potential areas for the transit corridor overlay districts are: Patton Ave in West Asheville; Merrimon Ave in North Asheville; Tunnel Rd in East Asheville; and Hendersonville Rd and Sweeten Creek Rd in South Asheville. [Other than the addition of Sweeten Creek and the deletion of Haywood Ave, the identified corridors are the same.]

Given the tight schedules on some routes, the concept considers streamlining the routes so that they can maintain their current schedules, and to provide some cycle time that could be used to extend the services to new areas. For example, eliminating the deviation into Westgate Shopping Center and the Meadows Apartments on the 15 could provide additional time to extend the route further west. The targeted round-trip running time (the time when the bus is moving) is between 54 and 57 minutes; the difference between that and the 60-minute cycle time is the amount of time provided for layovers and recovery time (3-6 minutes for each round trip). Typically at transit systems, recovery and layover time account for 5% to 10% of the running time.

As a new service to Asheville, the concept shows converting Route 12 into a crosstown service, connecting many of the major locations on the southern, eastern, and western sides of town. This service addresses many requests, but will pose some challenges to ensure it is a productive service. It offers new connections to Walmart, Biltmore Village, AB Tech, and the western side of town. The concept also shows this route taking over the current end of Route 16, allowing it to be extended west.

UNC-A becomes a major focal point for service, with a 30-minute connection to downtown, and extensions of the existing Route 5 from the east and Route 11 from the west to provide more travel options to the campus, and the opportunity for crosstown travel on the north.

Two Housing Authority of the City of Asheville (HACA) properties, Pisgah View and Hillcrest, will gain 30-minute service directly to and from downtown. These locations are among the highest activity locations in the system. Other HACA properties are proposed to have their service streamlined. For most of these properties, this means eliminating the current route detours into the complexes. These detours are time consuming and do little to reduce the walking time for most residents while increasing the travel time for other riders already on the bus.

The initial concept shows the intercity & college routes changing to provide more travel on the major freeways and the elimination of slower service on portions of the existing routes. For Black Mountain, this means using I-40 as the route approaches Asheville instead of US 70, and for Weaverville, using I-26 instead of Merrimon as the route comes into Asheville. These routes are shown as dashed lines on the graphic. To provide more day-long service to Warren Wilson & Black Mountain, these two routes are proposed to be combined, which frees up resources to offer all-day service. Route 3 is proposed to be eliminated due to its low ridership and redundancy of service with existing routes. With the other route changes, this route appears to no longer be required. The amount of financial funding provided by UNC-A could offer higher benefits to the entire community by investing these funds on later service on an existing general public route.

For schedule changes, the concept has all routes operating every 60 minutes between the hours of 6 AM and 6 PM. This extends the day for some routes, and notably increases the frequency on Route 6 to the airport. The intercity and college routes would have their hours extended to at least this span, but would not offer 60-minute service.

5.2 Issues

The previous section described the basic concept for the ATS service. It should be considered as a starting point. As this concept went through the public review process and field examination by City of Asheville and ATS staff, modifications were made.

Several concerns or issues were expressed that could affect elements of the basic concept.

- UNC-A expressed concern about the elimination of Route 3. The thought behind the general concept was that UNC-A could realize a better return for its students and the general public if it invested the same amount of money into longer hours or more frequent service on the remaining routes to the campus.
- Concerns by several parties were made about the potential for overloads on the revised Route 1 if it is serving both Deaverview and Pisgah View Apartments. Based upon the current load information from the ride check, and the increase in frequency to Pisgah View, this was not seen as a major concern, but warrants monitoring as the changes are implemented. The impending purchase of larger (35-foot) buses should eliminate this concern.
- Warren Wilson College expressed concern about their freshmen, who aren't allowed to have cars on campus. They and other students need the route to reach shopping and have easy transfers. As a result, the potential conversion of this route to more of a freeway operation has been modified to maintain a walking connection to Asheville Mall, and transfer connections to Walmart.

- Many commenters are concerned about the time deviation to Pisgah View & Hillcrest Apartments. These apartments are located off the major travel arteries and are not easy to reach. Both locations, however, are the largest locations for riders outside of downtown. As such they must continue to be served and both warrant 30-minute headways in both directions. ATS should continue to work with HACA as HACA determines the long-term fate of these properties so that any new low-income housing is easily served by public transit.
- Many of the concept routes ran into individual issues with their running time. As noted, ATS operates on a pulse system every hour at the Asheville Transit Center. In order for the pulse to work, every bus must leave the transit center and return in no more than one hour. The proposed reduction in the number of route deviations into apartment complexes and shopping centers helped, but several locations remained problematic, notably the time required to go into AB Tech; Walmart; and to reach the airport. Several adjustments in the routings have been made to maintain the 60-minute running time, but these routes will all need to be monitored closely after implementation to verify the pulse still functions effectively.
- In developing the new route structure, the project team was occasionally frustrated by the street layout in Asheville. While much of this cannot be changed due to the location of mountains and rivers, in other cases the streets have not been laid out to permit easy travel in multiple directions. Among the more notable limitations are the lack of continuous north/south streets east of I-240, and limited east/west streets north of I-240. As a result, some routes have a more circuitous routing than the concept plan envisioned, leading to some of the running time issues. In particular, service to Walmart is not as robust as envisioned due to the time required to enter the property and the lack of a northern access route back to Tunnel Rd. This issue was also noted prominently in the 2000 *Asheville Smart Growth Policy*.
- Traffic was a concern in a few locations, most notably on South Tunnel by Asheville Mall. Staff should work closely with the mall to identify a better way to bring service close to the entrances while avoiding the repetitive traffic delays. Because of these delays, the mall is mostly being served on street, and a major a focal point on the mall property was not created as originally envisioned.
- Lack of sidewalks and poor pedestrian circulation patterns within developments are a concern. In some instances, route deviations that were proposed to be eliminated could not be due to the poor pedestrian access out to a new stop location. Pedestrian access concerns have been reflected in most of the studies reviewed in Section 2.5.
- Some concerns were expressed about the five selected trunk corridors, and the non-inclusion of Broadway as one of the trunk corridors. Broadway was included as one of the major transit lines in the 2005 LRTP. Broadway was considered, but not included in the final list due to its current low density of development along the entire stretch from downtown to UNC-A, and the conclusion that ridership was only sufficient to support one major corridor on the north side of the city. Broadway (or any other street) can be established as a trunk corridor if the land use pattern develops in a denser and transit-supportive manner. As Asheville grows, additional corridors are likely to be warranted.

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6 Enhancement Plan

The enhancements of the existing ATS services are described in this chapter. Included are recommended changes for every route in the ATS system. These changes are based upon the data collected and analyzed in Chapters 2-4. Specific route recommendations are presented in this chapter based upon the best information available at the time of development. The recommendations should not be viewed as requiring the City of Asheville Council or staff to implement them exactly as described. If circumstances change, the plan must be flexible to respond.

As such, this document should be viewed as a living document. As these changes are implemented, additional data collection should be carried out to determine how riders are responding to the changes. The boarding & alighting count should be redone after the changes have been implemented, generally at about the two year anniversary. This time frame will allow ridership patterns to have settled down. The propensity analysis should be redone as the new Census data becomes available. Public comments will continue to be received and evaluated. As a result of these efforts, this *Transit Master Plan* should be revisited no more than five years after its adoption to determine if the recommendations are still valid. Annual updates before then would be appropriate to determine the specific changes that should be implemented each year as part of the annual budgeting process.

6.1 Service Recommendations

This chapter describes the recommended service changes for the ATS system. The chapter reflects modifications to the basic concept outlined in Chapter 5, but does not assign priorities to the implementation. This prioritization is described in Chapter 7.

6.1.1 Route Changes

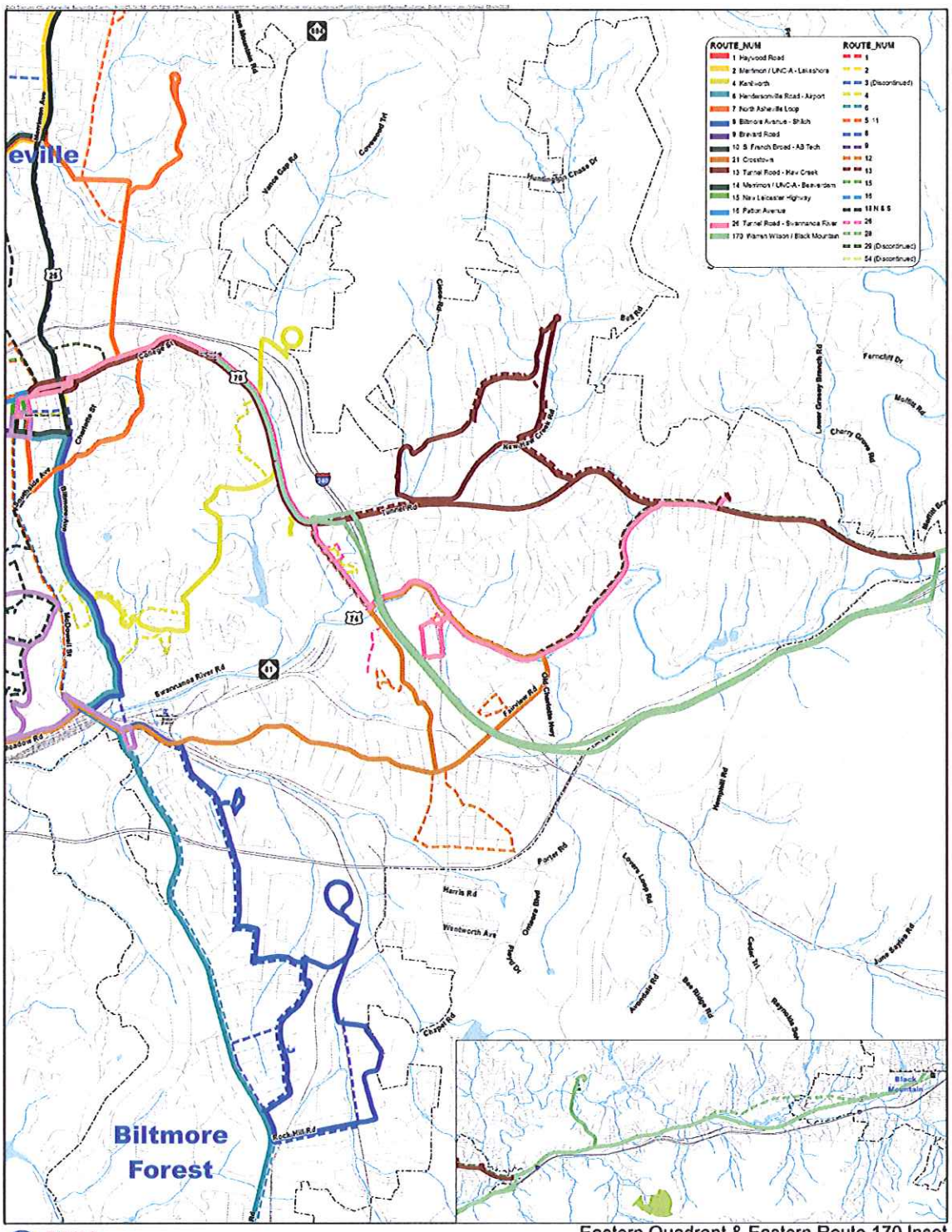
The following presents the recommended route concept for the existing ATS system. Section 6.1.3 covers the recommendations for new services. These route changes will increase the peak pullout from 16 buses to 17 buses.

By section of the city, the following concept is proposed.

6.1.1.1 Eastern Quadrant

In the Eastern Quadrant, the trunk route would be the 1.5-mile long stretch of Tunnel Rd, from downtown to the split between Tunnel Rd and South Tunnel Rd (referred to below as the Tunnel Rd split). The recommended route changes are shown in **Exhibit 6-1**. Routes 28 and 29 are discussed in the Intercity Section.

Exhibit 6-1
Eastern Quadrant Recommended Routes



Eastern Quadrant & Eastern Route 170 Inset
Proposed Route Changes

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City of Asheville | Transit Master Plan | Public Meeting

The Tunnel Rd trunk is the most active in the ATS system. There were 303 boardings and 245 alightings outside of downtown, or 5.1 % of all trip ends in the system. Downtown is defined by the boundaries of the free fare zone.

- The trunk service consists of coordinated schedules on Route 13 and Route 26. Trip times will need to be adjusted to stagger the travel. Currently the 13 leaves at :30 past and the 26 leaves at :15 past. The 26 should be moved to leave at :00 past to provide an even 30-minute headway.
- These routes should operate the same route between downtown and the Tunnel Rd split, and not deviate off Tunnel Rd.
- Service should be provided at least until 9:30 PM to provide a pick up for workers leaving Asheville Mall.
- Neither route travels directly into the mall parking lot.

Between the Tunnel Rd split and the VA Hospital, the two routes would diverge, and meet again around the VA Hospital area. This eastern portion of US 70 is identified as a high growth corridor in the 2030 *LRTP*.

- Route 13 operates through the Haw Creek area, but its route would be modified so that it would be able to be extended to the Asheville Buncombe Community Christian Ministry (ABCCM) Veteran's Restoration Quarters and Transitional Housing; however, there is insufficient running time to make this extension and continue to go into the VA Hospital grounds; a stop is provided on Tunnel Rd.
- Route 13 is extended to the corner of New Haw Creek Rd. & Bell Rd. near Evergreen Community Charter School
- Route 13 is removed from the Spruce Hill Apartment area. No replacement service is provided, but improved pedestrian connections are recommended.
- Route 26 is rerouted to travel to the VA via the Walmart and Swannanoa River Rd; Route 26 is the only downtown route to Walmart.
- Route 26 no longer operates on South Tunnel Rd south of Swannanoa River Rd. The new Route 21 provides two-way service in this area.
- Route 26 is removed from operating on River Hills Rd. to the Target store; no service is provided up the hill, but a sidewalk is available.

For purposes of the *Transit Master Plan*, Route 13 is renamed 13 Tunnel Road – Haw Creek, and Route 26 is renamed 26 Tunnel Road – Swannanoa River. These route names and numbers are used for the remainder of this document to distinguish the new routes from the current routes. The names and numbers for the routes should be reconsidered as part of an overall marketing and branding plan discussed in Section 6.3.

Discussion

The 30-minute trunk portion was originally envisioned to extend to Walmart, but this was not possible due to traffic conditions on S. Tunnel at the mall, and the lack of a suitable connecting street from Walmart north to Tunnel Rd and the Haw Creek neighborhood. Service to the VA Hospital is provided by routes 13 and 26. A closer stop to the Asheville Mall building entrance was desired for both routes, but

traffic concerns were too high to allow for this and still provide sufficient time for the routes to make it to the end of the line and back downtown in one hour.

6.1.1.2 Western Quadrant

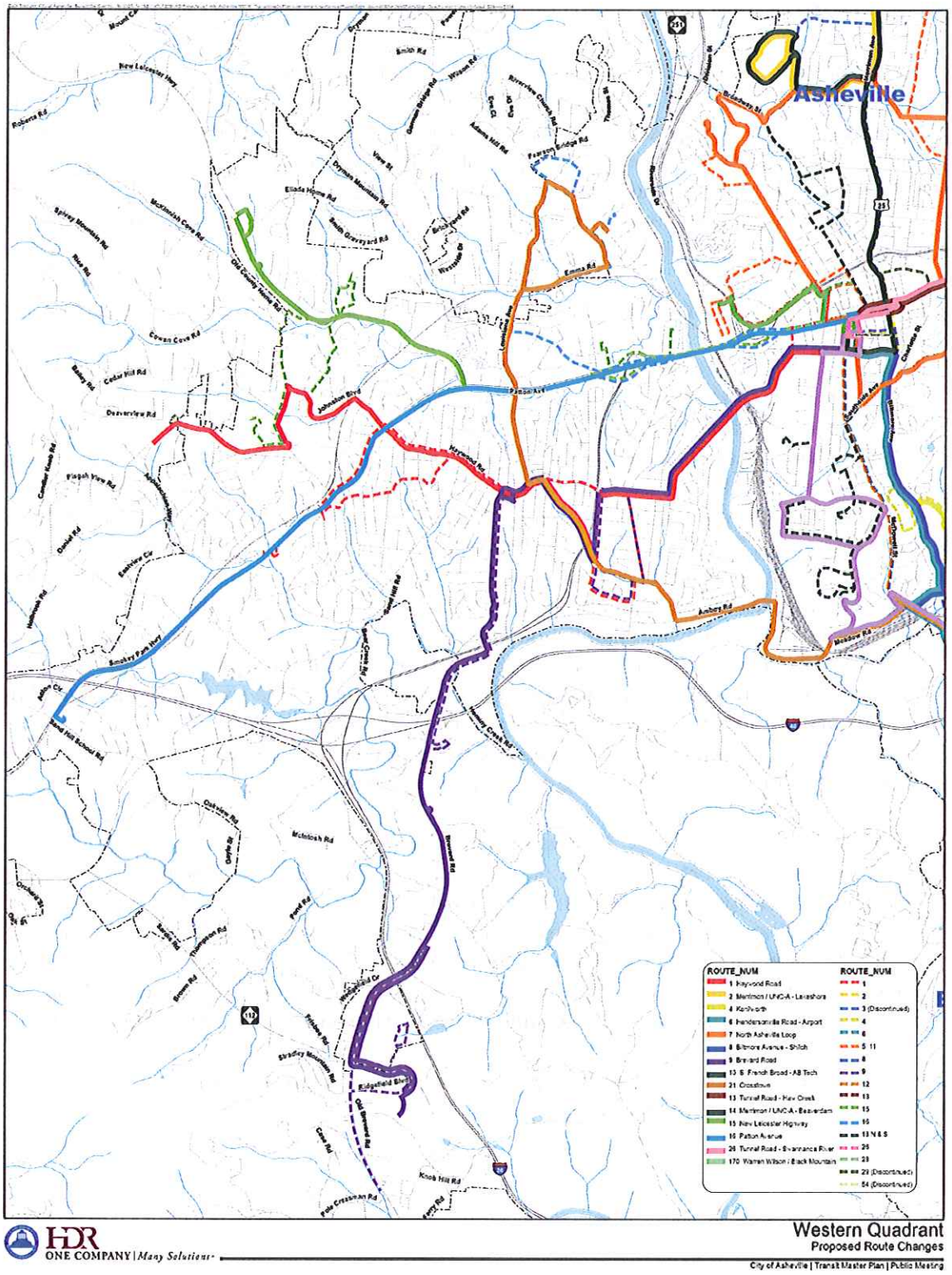
The Western Quadrant has two well established corridors. The 2.5-mile Haywood Rd trunk line from downtown to Haywood & Brevard had 245 boardings and 276 alightings, or 4.8% of all trip ends in the system. This is the second highest corridor volume after Tunnel Rd, and does not include the activity on the diversion to Pisgah View Apartments. The 2.2-mile Patton Ave trunk line between downtown and Patton & New Leicester Highway had 114 boardings and 135 alightings, or 2.3 % of all trip ends. This places Patton just ahead of Biltmore Ave as the third most active corridor. The recommended changes for the Western Quadrant are shown on **Exhibit 6-2**.

- On the Haywood Road trunk line, Routes 1 and 9 will be changed to operate the same route as each other.
- Routes 1 and 9 already have staggered schedules, with Route 1 leaving at :00 past and Route 9 leaving at :30 past. No change is needed, but the combined schedules could be more effectively promoted as a single service.
- The only change required is to have both routes follow the same routing pattern toward Pisgah View Apartments. Pisgah View, with 130 boardings and 110 alightings, is the 3rd most active location in the system, only falling below the transit center and downtown as a whole. This location warrants 30-minute service both inbound and outbound, which means both the 1 and 9 will serve these apartments in both directions. Going through Pisgah View, however, is very time consuming, with the resulting time penalty making the routes unattractive to users further west. As a compromise negotiated with HACA, Pisgah View Apartments will now have service one block into the complex from Hanover St. Passenger waiting improvements will be required. Some apartment residents will have a longer walk, but this change speeds up the overall route and eliminates operation on Michigan Ave, which has operational issues.
- Downtown service on State St between Hannover St and Michigan Ave is eliminated, but the new Route 21 Crosstown will provide replacement service.

- On the Patton Avenue trunk, Routes 15 and 16 will operate the same routing between the transit center and Patton Ave & New Leicester Highway. Deviations to Westgate (7 boardings/13 alightings) and Regent Park (4b/7a) will be eliminated, as will service along Hazel Mill (0b/1a). These locations are within ¼ mile of the main route. Pedestrian improvements are needed to keep these areas accessible for transit riders.
- Routes 15 and 16 both leave at :00 past; one route will need to be changed to go at :30 past to provide an even 30-minute headway. [But note discussion on schedule in Section 6.1.2.2.]

To provide a simpler route structure, especially for new riders, several route changes are recommended for the western end of the routes.

Exhibit 6-2
Western Quadrant Recommended Routes



HDR ONE COMPANY | Many Solutions

Western Quadrant
Proposed Route Changes
City of Asheville | Transit Master Plan | Public Meeting

- Route 1 is reoriented as an east/west route. It takes over a portion of the western end of Route 15. Route 1 is extended from Patton Ave due west along Johnston Blvd to the current end of Route 15. Route 1 replaces Route 15 along portions of Bear Creek Rd (between Johnson Blvd. and Deaverview Rd), Deaverview Rd and Pisgah View Rd.
- Service is eliminated on Sulphur Springs Rd. Sulphur Springs had 20 boardings and 4 alightings. At the furthest apart, the streets are one-third of a mile, but most locations are under ¼ mile apart. The uneven balance between boardings and alightings indicates that riders are already finding a different stop to use in the evening since so few riders alight on Sulphur Springs.
- Eliminate service into Deaverview Apartments. This location is within ¼ mile of Deaverview Rd, with 42 boardings & 32 alightings (the 14th most active location in the system, just ahead of Innsbruck Mall). Operators have requested removal due to speed bumps, delays, and in order to stabilize the schedule.
- Eliminate service on Baker, Mountain Terrace, Oakmont Terrace, and Old Country Home Rd. There were 5 boardings and 7 alightings, and this area is within ¼ mile of N. Bear Creek and/or New Leicester Highway. Operator request for removal due to safety issues.
- Eliminate deviation to Meadows Apartments (7b/5a). The furthest distance is approximately 1/3 mile. This elimination includes service on Evelake Dr., Lancelot Ln, Galahad Pl., and Compton Dr.
- Eliminate service to Eliada Home for Children; there were no riders
- Route 16 becomes the Patton Ave route. It is rerouted to take over the outer end of Route 1. This change provides a single Patton route and allows Route 1 and Route 16 to cross at Patton & Haywood, giving another transfer point. This new transfer point was included in the 2005 LRTP.
- Route 16 is extended to AB Tech – Enka. This extension is the second most requested extension. A turnaround location and transit focal point will need to be determined in coordination with the campus.
- New Route 21 Crosstown will take over the portion of Route 16 that includes N. Louisiana, Adams Hill Rd., Bingham Heights Rd, and Emma Rd. The dial-a-ride service is eliminated (zero riders), and the deviation into Woodridge Apartments is eliminated.
- Route 15 becomes an east/west route. It is extended west from Patton along New Leicester Highway to the Land-of-Sky Regional Council. LOSRC will need to work with ATS to develop a turnaround at their location.
- Route 15 becomes one of two routes extended from the downtown transit center to the Hillcrest Apartments. Route 15 has excess running time since it does not go further west than LOSRC, and this extra running time will be used to extend the route to Hillcrest apartments along Hill St. This extension does have schedule implications discussed in Section 6.1.2.2.
- A partnership should be developed with HACA to create a sheltered bus turnaround constructed at the Hillcrest entrance. This would eliminate the need to circle through the complex, and the maximum walk for the residents would only be ¼ mile. An improved shelter and waiting environment would be constructed as well. Until the turnaround is constructed, the bus should continue through the complex, but the number of stops should be reduced in response to operator requests.
- Route 9 changes include the routing near the Pisgah View Apartments, the removal of the stop behind the mall (at the hop-a-ride) and on to Ridgefield Blvd, adding Heart Dr. to the route and removing the dial-a-ride to Discount Shoes.

For purposes of the *Transit Master Plan*, Route 1 remains the 1 Haywood Road; Route 9 is simplified to the 9 Brevard Road; Route 15 is renamed 15 New Leicester Highway; and Route 16 is renamed 16 Patton Avenue.

Discussion

The locations of the Pisgah View and Hillcrest Apartments are some of the more difficult obstacles to overcome. As such high passenger volume locations, they warrant the most frequent service of every 30 minutes, but their out of the way locations are difficult for transit to serve efficiently while maintaining an attractive schedule for everyone else on the bus. For Pisgah View, the routing along Granada St is particularly slow, which is why Route 1 has previously only gone through in one direction. The need to serve this location while reducing running time has led to the compromise to give Pisgah View one principal stop at the intersection of State St and Hanover St. Pisgah View gains 30-minute frequency from downtown, and riders further west have less of a time penalty.

Hillcrest Apartments have a similar dilemma. The current Route 11 provides 30-minute frequency, but Hillcrest riders must go out of their way leaving downtown, and Klondyke riders go out of their way toward downtown. The recommended solution is to replace Route 11 service to Hillcrest through an extension of two routes that have excess running time available – Routes 15 and 4. These routes are extended from the transit center directly to Hillcrest providing the complex with 30-minute frequency on a direct route to and from downtown. There is still a large time penalty to reach the Hillcrest Apartments, more so if the routes continue to operate through the complex on Atkinson St and Hazel Ave. Buses can be further delayed by the gate at the complex. A new bus turnaround with a large passenger shelter outside of the gate would decrease the time penalty while still being within a short walk of all apartment residents. ATS should work with HACA to develop this shelter and turnaround.

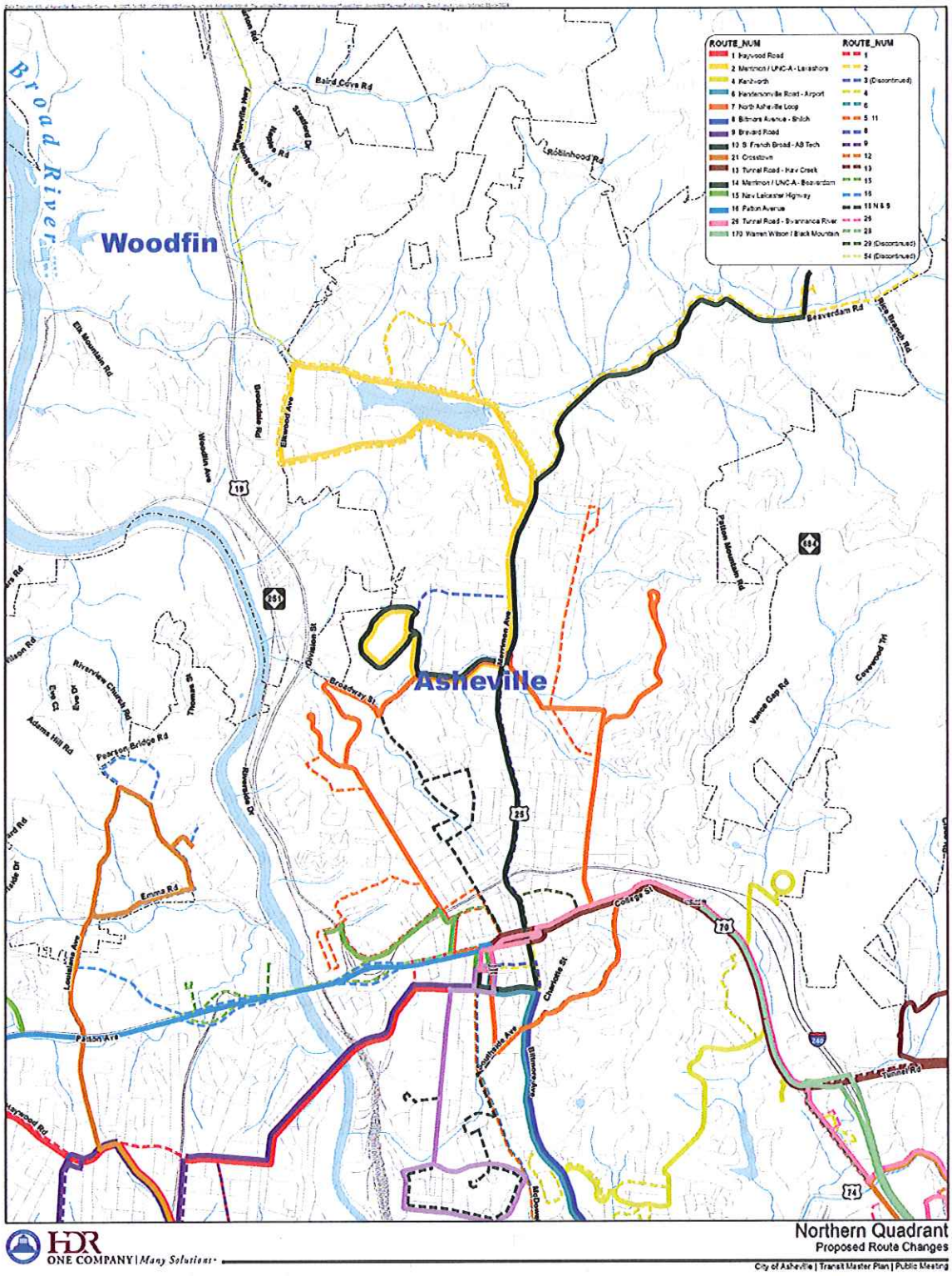
The changes to the ends of the line on Routes 1, 15, and 16 are designed to provide a cleaner, more logical routing. There is now just one route that travels the length of Patton Ave; the 1 Haywood Route is logically extended across the intersection onto Johnston Blvd, and the route on the northern portion of Patton continues straight west onto New Leicester Highway.

These changes allow two routes – Routes 15 and 16 to be extended to new areas without requiring any additional buses and the associated costs. Route 9 was similarly examined to see if it could be extended further south along Brevard Rd, but insufficient time was available to allow the route to be extended to a suitable turnaround location.

6.1.1.3 Northern Quadrant

The Northern Quadrant offers service on four corridors. The 2.1-mile Merrimon Ave corridor is the most active with 78 boardings and 98 alightings or 1.6% of the total system activity. It is the 5th most active corridor in the system. Montford Ave is the next most active, with 66 boardings and 74 alightings. Charlotte/Macon is next with 44 boardings and 51 alightings, with Broadway/Flint being the least active with 26 boardings and 21 alightings. These corridors are all close to one another, with distances generally being 1/3 of a mile apart. If corridors are closer than one-half mile apart, they are duplicating service without offering the advantages of a combined headway. The recommended changes for the Northern Quadrant are shown on **Exhibit 6-3**.

Exhibit 6-3
Northern Quadrant Recommended Routes



- It is recommended that service be eliminated from Broadway/Flint/Mount Clare and instead relocated to Merrimon Ave. Merrimon would maintain two routes, Routes 2 and 18N. Operators have requested to remove service from Mount Clare and Hillside for operational reasons.
- Both routes will follow the current routing of Route 2 between downtown and UNC-A and north to the intersection of Merrimon and Beaverdam.
- Route 18N will be changed to leave from the transit center heading north to Merrimon.
- Route 2 leaves the transit center at :00 past; Route 18 should leave at :30 past.
- Service along Lakeshore Dr was originally considered for elimination, but due to requests, this service is maintained.
- The Beaverdam service was originally proposed for elimination. This branch had 11 boardings and 13 alightings, half of which occurred at the end at the Golden Living Center. However, as the schedules were developed, in order to better maintain the even 30-minute headway on Merrimon, Route 18N was extended north on Merrimon and is able to reach the current turnaround within its available running time.
- The Beaverdam dial-a-ride portion should be eliminated – there was only 1 boarding and 1 alighting. This portion has since been eliminated after the boarding & alighting count.
- The Midland dial-a-ride should be eliminated – there were only 3 alightings.
- Hourly service will be provided evenings and Saturdays between UNC-A and downtown. This service should run as late as the service on the other corridors, proposed to be 10 PM.
- If UNC-A wants more frequent or later service, it should pay for it as an addition to the regular route service on either Route 2 or Route 18N and open to all. Route 3 should be discontinued as a separate route.

- Routes 11 and 5 are both extended to UNC-A and combined into a new route called the North Asheville Loop. One route goes out from downtown via Route 5 and returns via Route 11, while the other bus goes out Route 11 and returns via Route 5.
- The combined route continues to operate on Montford Ave on the western side. It will be rerouted to serve UNC-A by operating along Zillicoa St, Broadway, and WT Weaver, but will not operate along the internal campus loop. UNC-A is reinforced as a focal point for the system, connects a new area of town directly with the campus, and connects a new apartment complex on Zillicoa St. to the campus.
- Service will be removed from Santee, Pearson, and Watauga (8 boardings, 2 alightings), all of which are within ¼ mile of Montford.
- Service will be maintained to Klondyke Apartments (42 boardings, 41 alightings). They are within 1/3 mile of Zillicoa, but this is the 12th most active location in the system.
- As noted in the previous section, Route 11 service to the Hillcrest Apartments is replaced by an extension of Routes 4 and 15.
- On the eastern side, the route continues to operate on Charlotte St and Macon Ave. It serves one of the major employers in Buncombe County – the Grove Park Inn which employs between 1000 and 3000 people.
- The route from downtown will be relocated on the Route 5 side to first travel south on Coxe Ave. to Southside to MLK Jr. Dr, to College to Charlotte St. This routing to the south takes over a portion of Route 18S on Southside and MLK Jr. Dr.
- The routing will serve the Grove Park Inn and travel to UNC-A via Evelyn Place to Murdock Ave, to Merrimon Ave, to WT Weaver Blvd.

- This extension eliminates the need for the Kimberly dial-a-ride, which only had 1 boarding and 1 alighting.
- Route 5 and Route 11, with hourly headways, should have their departure times staggered from the transit center to provide two buses arriving every 30 minutes at UNC-A when combined with the 2 and 18N. Both the central loop of the campus and the WT Weaver side will have 30-minute frequency of service.

One extension may be possible within the available running time.

- The Beaver Lake portion of Route 2 could be extended into downtown Woodfin, if the overall cycle time does not exceed 55 minutes and if Woodfin financially supports the service.

For purposes of the *Transit Master Plan*, the new combination of Routes 5 and 11 is renamed Route 7 North Asheville Loop. The headsigns will need to distinguish the direction of travel (via Charlotte, or via Montford; headsigns should be changed in downtown and at UNC-A). Route 2 is renamed the 2 Merrimon / UNC-A – Lakeshore. Route 18N is renamed the 14 Merrimon / UNC-A – Beaverdam. While dual names such as Merrimon and UNC-A can be cumbersome, in this case they are both important since Merrimon is the major street of operation and UNC-A is a destination likely to attract visitors. If UNC-A location is well known, it could be dropped from the route name. The end designation of "Lakeshore" and "Beaverdam" are the only distinguishing routings between the two and should be maintained; the two routes, could, however, share a common number.

Discussion

The rationale for combining service onto few corridors is based upon industry experience that more people value frequency over coverage. On the north side and the south side of Asheville, the choice exists to maintain service on multiple corridors, each with a bus once an hour. Such a choice provides more people with a closer bus stop, but half the choice in the number of trips available. When a limited amount of service is all that can be provided, most riders would prefer to walk a little further to get twice the number of bus trips. For that reason, service along the middle corridor has been relocated to other corridors.

As noted previously, service to the Hillcrest Apartments is difficult for transit, and that discussion will not be repeated here. Removing it from the Route 11 does provide sufficient time to connect this route with UNC-A and beyond to Charlotte St.

The routing to the Klondyke Apartments is also awkward and time consuming, but not to the level of the Hillcrest Apartments. This extension was maintained due to the passenger activity level and the longer walking distances that could result.

Similarly, the routing to Grove Park Inn is more awkward due to its distance, and there is little to serve between Charlotte St and the inn. The inn, however, is one of the major employers in Asheville and is a member of the Passport program, so it is important to keep transit access to this location. Various routings from the inn were considered, including leaving via the back entrance and operating along Club View and Kimberly. The Kimberly operation would have taken over more of the dial-a-ride service area, but in the end the routing on Evelyn Place was considered to be more productive, and because the portion of Kimberly that would have been served is in close walking distance to Merrimon Ave.

The southern extension to Southside and MLK Jr. St was made to eliminate this portion from route 18S, allowing it to be extended further to Biltmore Village, as described in the following section.

The outer portions of both Routes 2 and 18N, as proposed, are not highly productive. According to the ride check, the only riders on Lakeshore were at Cherry Ln (at the far west end) and at Merrimon. For that reason, the original proposal was to have a short turnaround at the end and return to Merrimon to provide two-way service on the north side of the lake. Due to several comments received from the public, the routing on Lakeshore has been maintained.

As noted in the route descriptions above, ridership on Beaverdam was very low with the only significant location the Golden Living Center at the very end. Service was maintained, however, due to the overriding concern to provide an even 30-minute headway along Merrimon Ave. In order for this even headway to be provided, the travel time on the two routes – the 2 to Lakeshore and the 18N to Beaverdam, must be roughly the same. If the 18N stopped at Merrimon and the Beaverdam/Dover area where the routes split, the 18N bus would have to just sit there and wait until time to return to downtown on its designated cycle time. Faced with the choice of having the bus sit and go nowhere, or being extended with at least some possibility of ridership, the extension was chosen. If a more productive area within the City of Asheville existed at that end instead of Beaverdam, it's likely that route would have been chosen.

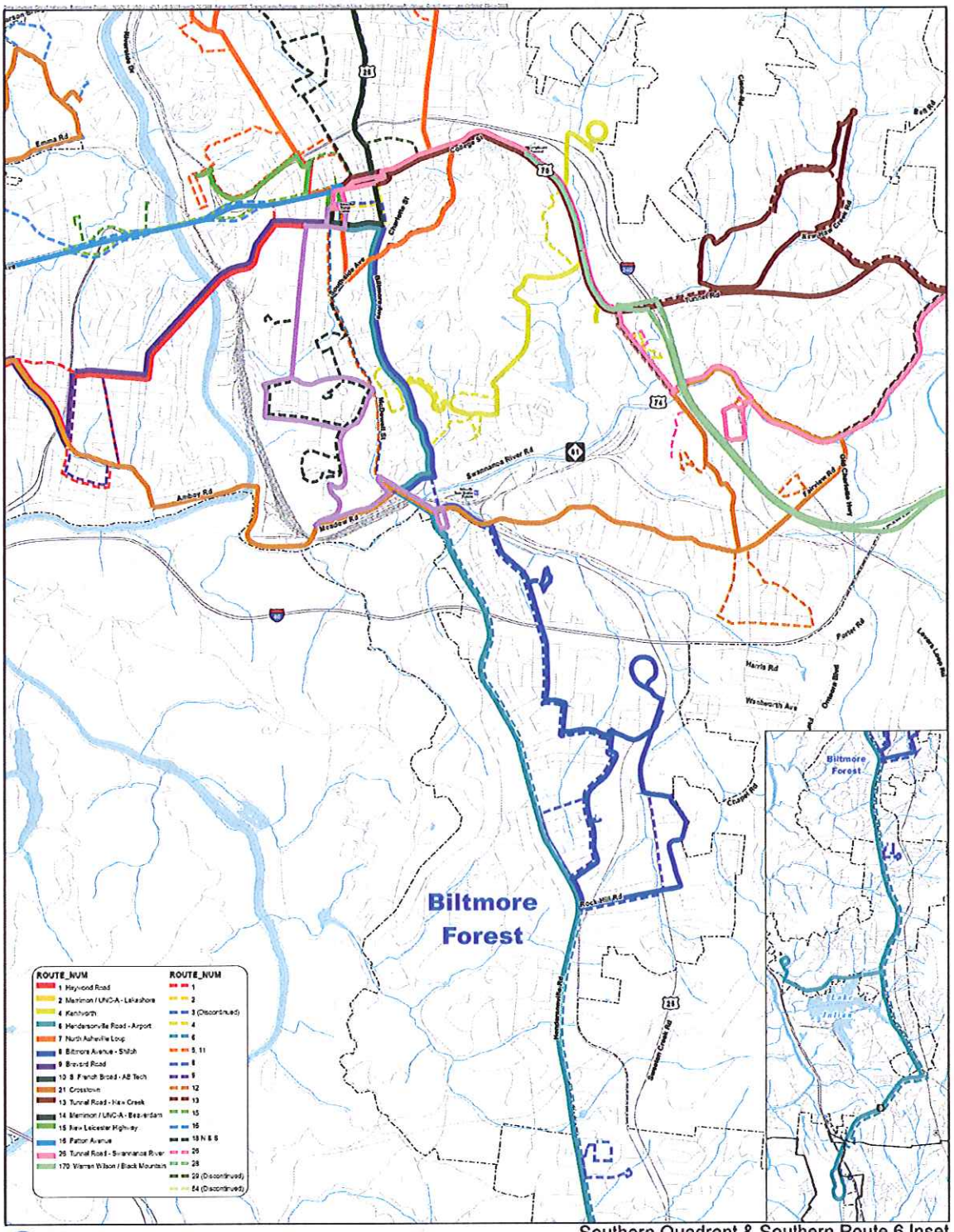
Route 3 is proposed for elimination due to the low ridership, indicating that the route is not serving as high a need as hoped. Rather than fund a separate route, UNC-A would get a better return on its investment by providing the same amount of money to increase the hours of service on a regular route and providing the students free access to all routes in the system.

6.1.1.4 Southern Quadrant

The Southern Quadrant offers service on three corridors. The 1.8-mile Biltmore Ave corridor is the strongest, with 107 boardings and 134 alightings between downtown and Biltmore Village. This is the fourth most active corridor in the system and has 2.2% of the system ridership. Ashland/McDowell is the second most active in the south, with 89 boardings and 73 alightings. S. French Broad has 58 boardings and 60 alightings. These corridors are all close to one another, with the separation being 0.2 to 0.3 miles between McDowell and the other two. The recommended changes for the Southern Quadrant are shown on **Exhibit 6-4**.

- Service should be consolidated onto the two outer corridors – Biltmore and S. French Broad, and discontinue service on Ashland/McDowell.
- Routes 6 and 8 will operate on Biltmore Ave between downtown and Biltmore Village. They would follow the same route pattern, which results in Route 6 being relocated to follow the Route 8 pattern.
- The Mission Hospital will be served from Biltmore Ave. The hospital had 86 boardings and 104 alightings, and was the 7th most active location in the system. Mission Hospital is also the largest employer in the county when considering its multiple locations. This main campus will also be served on Victoria Rd by Route 18 South. Routes 6 and 8 will make a slight jog to use the McDowell bridge over the railroad to reach Biltmore Village in order to maintain consistent running times, which can be interrupted by the rail crossing on Biltmore Ave.

Exhibit 6-4
Southern Quadrant Recommended Routes



Southern Quadrant & Southern Route 6 Inset
Proposed Route Changes

HDR ONE COMPANY | Many Solutions

City of Asheville | Transit Master Plan | Public Meeting

- Route 6 will need to have its headway decreased to an hourly headway (increasing the frequency to one trip per hour from one trip every 90 minutes). Going to an hourly headway will address several requests for more frequent service on Hendersonville Rd, and will increase the attractiveness of transit to the airport.
- Route 8 leaves the transit center at :30 past; the new Route 6 schedule will need to leave at :00 past.
- Route 4 will also operate on Biltmore Ave between Hilliard Ave and Forest Hill Dr. This route's scheduling will need to be coordinated with Routes 6 and 8 to avoid having buses operate back-to-back along this stretch of road. It will also need to be coordinated with Route 15 to provide an even frequency of service to Hillcrest Apartments.

- Route 18S will operate on S. French Broad and will be reconfigured to provide two-way service on S. French Broad in response to several requests. Service on the deviation of Bartlett St to Overlook Arms Apartments will be eliminated. While this was used by 26 boardings and 20 alightings, it is less than 2/10th of a mile from S. French Broad, with existing sidewalks. Issues associated with parking on the sidewalk could be addressed to improve the pedestrian accessibility along Bartlett St to S. French Broad.
- Due to street configurations, the one way loop in the middle of the route will be maintained. Southbound, buses will use Livingston St, Depot St, and Oakland Rd to Victoria Rd. Northbound, buses will use Victoria Rd and Livingstone St to S. French Broad.
- Service within the AB Tech campus will be exclusively on Victoria Rd because of the running time impacts. It is the 13th most active location in the system, with 46 boardings and 33 alightings.
- Route 18S will be extended south to Biltmore Village to provide transfer opportunities with the other Southern Quadrant routes.
- Service will be eliminated on the remaining northbound portions of the current Route 18S from Choctaw to MLK. These areas are all within ¼ mile of either S. French Broad or Biltmore Ave or will be covered by the new North Asheville Loop. This affects 28 boardings and 25 alightings. 16 of the boardings and 10 of the alightings are at the Erskine Apartments, which will be served via Livingston St on Route 18S as it heads inbound on S. French Broad. Operator requests to remove service from Ridge, Grail, Pine Grove, Churchill, have been received due to operational issues.
- Service on Southside and MLK Jr. Dr is now covered by the new 7 North Asheville Loop.

Additional changes are recommended on the outer ends of the routes.

- From Forest Hill Dr, Route 4 will continue to Kenilworth Rd and follow it straight to Tunnel Rd. Deviations off Kenilworth will be eliminated as will direct service to Innsbruck Mall. Instead, buses will use the traffic light at Kenilworth and Tunnel Rd.
- At Tunnel Rd, Route 4 will turn south to go to Asheville Mall, where it will turnaround. A suitable routing with mall officials will need to be developed, but it is recommended to be on the northwest side of the mall, away from most of the traffic.
- From Asheville Mall, Route 4 will back track to Chunns Cove Rd where it will then travel to Social Security, taking over the dial-a-ride service from Route 26. This dial-a-ride was the only one with any significant activity; it had 9 boardings and 20 alightings, and the distance is 7/10th of a mile from Tunnel Rd.

- Route 4 is not recommended to have Saturday service. On weekends, the Social Security office is closed, and other routes serve Asheville Mall.
- Route 4 is extended to the Hillcrest Apartments since it has sufficient running time available in its schedule. This route needs to alternate with Route 15 to provide staggered service to Hillcrest.
- Route 8 will continue to operate along London Rd, with a deviation into CarePartners Hospital, the ninth largest employer in Buncombe County.
- The end of the line loop for Route 8 will be modified to serve Medical Park Dr. From Shiloh Rd., the route will turn north on Caribou, and will travel along West Chapel Rd to Sweeten Creek and go north to loop around in Medical Park. The route will then travel south on Sweeten Creek to Rock Hill Rd and travel back into town on its current route on Hendersonville Rd and Caribou Rd.
- The routing to Medical Park should be evaluated late at nights and on weekends. If no businesses are open during those times, this portion of the route can be eliminated at that time.
- Route 8 would no longer go into Laurelwood Apartments. There were no riders during the ride check, and operators have requested to come out. Pedestrian facilities should be made available on Caribou Rd from the apartments.
- Route 8 will no longer serve Hendersonville Rd south of Rock Hill Rd. Route 6 operating on an hourly headway will serve this area; the overlapping service is not needed.
- Route 6 will continue to operate south on Hendersonville Rd to the Asheville Regional Airport. In order to increase the route to an hourly headway, an additional bus was added to the route, which provides sufficient running time to allow service to be added along Long Shoals Rd. This service will be provided to the traffic circle on Schneck Parkway just east of I-26. This routing will be provided both inbound and outbound.

For purposes of the *Transit Master Plan*, Route 4 will be renamed simply 4 Kenilworth. Route 6 will remain 6 Hendersonville Road – Airport. Route 8 will remain 8 Biltmore Avenue – Shiloh. Route 18S will be renamed 10 S. French Broad – AB Tech.

Discussion

The decision to make Biltmore Ave the main south corridor was based upon the existing ridership, and this main corridor needed to extend as far south as Biltmore Village, a major destination for residents and for visitors. With these decisions, the logical routes to provide the combined 30-minute headway are Routes 6 and 8, which already operate in this area. Route 6, however, proved to be quite problematic due to its 90-minute running time. In order to provide an even 30-minute service with Route 8, which had a 60-minute cycle, Route 6 needed to either be shortened to have a 60-minute cycle with one bus, or a 120-minute cycle using two buses (which would result in service every 60 minutes on the route). Multiple combinations of routings, termination points, and other adjustments were tried, but no suitable option emerged that would allow one bus to reach the airport in 30 minutes and make it back to downtown in one hour.

The planning team faced one of two options – live with an extended layover on the route and add one bus (the round trip running time was approximately 1 hour and 15 minutes which would result in a bus sitting around for 45 minutes), or finding some use for the extra running time in the route. The end decision was that the best use of the extra time was to provide two-way service on Long Shoals. Service to Long Shoals was the top requested service addition, so it was sensible to provide service on the roadway. To do so from Hendersonville Rd, however, has the undesirable result that riders destined

south of Long Shoals Rd, such as to the airport, will have a detour along Long Shoals and then return to Hendersonville before continuing south. The same situation exists in the northbound direction.

While this result is undesirable, it was considered the best option for the immediate future. The route should be evaluated for changes if a new route was implemented along Long Shoals, possibly providing service into downtown via I-26, or should the Town of Fletcher decide to financially participate in the system. In that case, the extra running time could be used by extending the route at the end rather than at an intermediate point, which would avoid the result of through riders being taken out of their way.

The routing to serve Medical Park Dr. was in response to several requests, but was difficult to efficiently provide. There is only one roadway up the hill, and there was no bus route on Sweeten Creek that could quickly deviate up there, nor was there any through street that would permit access from the west. As a result, Route 8 has an awkward and time consuming routing to provide this access, which lengthens travel times for riders destined further south.

Route 4 became the logical route to extend to the Social Security office, which, like the Medical Park, is in an out of the way location up a hill. Fortunately, Route 4 was terminating in the general area, and the route had extra running time, which allowed this route to be extended rather than having Routes 13 and 26 make a time consuming detour to the location.

Route 18S provided a good opportunity to connect the Biltmore Village focal point to the AB Tech campus, providing both locations with more travel opportunities. Unfortunately, there was insufficient time in the schedule to allow the route to travel to the upper lots of AB Tech, but these lots are within walking distance of Victoria St.

6.1.1.5 Crosstown Service

Several requests were received for crosstown service and additional connections, specifically to connect the west, south, and east (Walmart, Biltmore Village, and AB Tech) all the way to North Louisiana Ave at Patton Ave. The southern sector is the one that has more potential to develop a crosstown route given the density of development. The southern sector already had four routes operating into downtown, and did not require a fifth route providing duplicate coverage. As such, Route 12, was examined for conversion to a crosstown. Crosstown routes can be challenging and will require additional efforts in marketing, transfer options, etc. to make it successful. The following describes the potential change, which is shown in the previous exhibits where it overlaps with each quadrant.

- Route 12 will originate at Walmart by traveling along Fairview to Swannanoa River Rd. It will travel along Wood Ave to Fairview leaving Walmart. The route will no longer deviate into Ledgewood Village. This location had 29 boardings and 26 alightings, but is within a short walk. Pedestrian facilities will need to be built to make this accessible for riders.
- The route will travel along Fairview to Biltmore Village, serving this transit focal point. Service will be removed from Liberty, Raleigh, and Onteora. This area had 10 boardings and 10 alightings; Raleigh is 0.4 miles from Fairview. About half of the activity was within ¼ mile of Fairview. There were several operator requests to remove service.
- From Biltmore Village, the 12 will travel along Meadow, Amboy, and passing by Pisgah View Apartments via State St. This routing provides additional service to the third most active

location and should be productive even with the dead miles along Amboy where a future city park will be located.

- The route travels along State to Haywood to the new focal point at Haywood & Louisiana. The route continues up N. Louisiana to the focal point at Patton and further north to Adam Hill Rd and Bingham Rd, taking over the N. Louisiana service from Route 16 (allowing it to be extended west).
- Ideally, a crosstown will offer at least a 30-minute headway. Crosstowns are typically fed by transfers, and an hour wait to transfer will hurt productivity. In the short term, with limited buses and additional operating funds available, an hour headway may be the only option due to cost.

For purposes of the *Transit Master Plan*, Route 12 is renamed 21 Crosstown. The numbers have been crossed for the new service. It's important to make a clean break with the previous route so that riders know something is different. It could even be numbered in a new series – 60's, 70's, etc. Any additional crosstowns would receive similar numbers.

Discussion

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 only the downtown area. During the planning process, several requests were received for crosstown service, and since there was, in effect, an extra route approaching downtown from the south, the decision was reached to try the service in Asheville as an experiment to see how it will work. The potential for a more productive service is increased by serving so many major destinations and transit focal points – Walmart, Biltmore Village, Pisgah View Apartments, Louisiana & Haywood, and Louisiana & Patton.

The initial planning process hoped to be able to also enter the AB Tech campus, but there was insufficient running time in the schedule to do so. The route traveling on Meadow is within 1/3 of a mile, and improved pedestrian connections may be possible. As it is, one bus will have difficulty making the round trip within one hour. Should the route prove successful, additional buses could be added to the service, increasing its frequency, and allowing the route to be extended into AB Tech, and potentially other destinations, such as the VA Hospital. It could also be desirable to extend the route to UNC-A, but the roadway network is inadequate across the French Broad River, which may make such an extension to time consuming.

6.1.1.6 Intercity & College Service

The intercity services are recommended to be converted to express routes rather than operating locally all the way from Asheville. Changes are also required due to changes to the interpretation of the funding requirements from NCDOT for intercity service. All day service is proposed to serve work trips. The recommended 170 Warren Wilson – Black Mountain is shown in Exhibit 6-1.

- Routes 28 and 29 should be combined into one service. The estimated travel time to Warren Wilson College from US 70 is 10+ minutes, which could easily be added to the cycle time for the Black Mountain service, allowing a bus to be saved. There were requests for this combination.

- The route will operate express on I-40 and I-240 starting at Exit 55, Potters Cove Rd to I-240 Exit 7, Tunnel Rd. The estimated travel time savings is about 9 minutes. This express length should offset the travel time for extending to Warren Wilson.
- The route will continue to operate on Tunnel Rd, but only two stops will be provided – one at Tunnel Rd. & S. Tunnel Rd., and at Greyhound to meet the intercity funding requirement.
- This express routing does eliminate direct service to Walmart, but transfers will be available to on Tunnel Rd.
- Service should be provided throughout the day, to coordinate with the Intercity funding requirements of NCDOT. This funding requires the provision of meaningful connection with Greyhound, which operates six daily trips from approximately 8:20 AM to 9:45 PM. Additionally, the route will need to meet the needs of Warren Wilson College and work related trips to and from Black Mountain, including service in Swannanoa for the Ingles headquarters and distribution center. There have been numerous requests for more trips and for morning trips.
- Additional frequency and hours of service can be added to Warren Wilson College if the college pays for the service.

- Route 54 should be eliminated based upon the loss of funding from the NCDOT Intercity program and the discontinuation of local funding from Weaverville.

- A higher fare will be charged for the express routes, generally in the neighborhood of 150% to 200% of the regular cash fare, and should be similar to the per-mile charges of Greyhound. The proposed fare presented to NCDOT in the funding proposal assumed a fare of $1.50 to Swannanoa and $1.75 to Black Mountain for the remainder of 2009-10.

For purposes of the *Transit Master Plan*, Route 29 should be called 170 Warren Wilson / Black Mountain. The "100" designation signifies that it is an express/intercity route and has a higher fare. The change to "70" reflects that the route mostly operates on US 70.

Discussion

Changes to the intercity services, and the Warren Wilson service were primarily due to the desire to improve the hours of service offered in response to requests, and to meet the revised interpretation of the NCDOT funding requirements for the intercity bus program. Under the new interpretation, neither Route 28 nor Route 54 met the requirements because the service did not operate limited stop, did not connect with the Greyhound service, and provided service within the same urbanized area. As discussions progressed, Weaverville decided that Route 54 did not meet their needs and they would withdraw their funding. The new Trailblazer routes offered by Mountain Mobility provided more appropriate service for Weaverville and do offer a connection with ATS Route 2 at Lakeshore. Since Route 54 duplicated other services within the City of Asheville, the City did not see a need to provide their own funding. Therefore efforts to redesign the service to meet the NCDOT funding requirements were suspended. These efforts can be revived if Weaverville or NCDOT decide to provide funding.

Route 28 was a different situation since Black Mountain remained supportive of the service and NCDOT was more supportive that the schedule could be adjusted to meet the requirements and that Black Mountain was a distinct urban area. Warren Wilson College also remained supportive of service to the college. The planning effort then focused on designing a service that would meet the intercity requirements while also providing additional service for Black Mountain and Warren Wilson. To do so, the routing is changed to stop at the Greyhound terminal at the times required to meet their four trips,

and to provide additional trips throughout the day to both Black Mountain and Warren Wilson College. The two separate routes were combined to save equipment and expenses, offsetting some of the additional cost of the full day service.

6.1.2 Schedule Changes

In developing the recommendations for schedule changes, several broad service design principals were used:

WEEKDAYS

- All routes should offer a 12-hour service day. This is the minimum span of service for LOS "D" as discussed in Section 3.2.3.
- The 12-hour service day would be from 6 AM to 6 PM, a span already met by most routes
- Trips are added outside of this span when passenger activity on the current first or last trip exceeds 20 riders; generally only one trip is added.
- Trips earlier than 5 AM are not recommended even if the current trip serves more than 20 riders. This prohibition can be lifted if there are requests from major groups
- Trips before 6 AM or after 6 PM are recommended for discontinuation if the number of riders is less than five on all trips being eliminated.
- The separate evening routes are recommended for incorporation into the daytime routes
- A maximum hold policy should be established for the downtown transit center that specifies the maximum time one bus will wait for another. With the recommended round trip running time, a 5-minute hold is reasonable. Operators should communicate through the dispatcher to indicate when they are running late and with which routes riders need to connect. In special circumstances, a longer hold of about 10-minutes could be justified if the number of transferees is large, at the discretion of the dispatcher. The current practice of holding the last trip of the day should be continued.
- Intercity routes must meet with the Greyhound/Southeastern Stages intercity trips. Additional trips can be offered outside of these timed trips if sponsored by another agency.

SATURDAYS

- If Saturday service is offered on a route, it would have the same schedule as weekday service, although trips during the 5 AM hour would not be operated
- Poor performing weekday routes would not offer Saturday service.
- Intercity routes must meet with the Greyhound/Southeastern Stages intercity trips. Additional trips can be offered outside of these timed trips if sponsored by another agency.

SUNDAYS

- One of the most requested improvements
- Sunday service would be added on the top performing routes, with at least one route offering service on each of the trunk corridors
- Sunday service would initially be offered nine hours per day, generally from 10 AM to 7 PM.
- Sunday service is not recommended on the intercity routes unless required as part of the NCDOT funding rules.
- The addition of any Sunday service is dependent upon funding. Given the number of requests received during meetings on the *Transit Master Plan* and from public input on the previous

studies reviewed in Section 2.5, Sunday service should be prioritized over any route extensions that require additional buses.

One popular choice of the public is to extend service on selected routes to midnight. At the last public workshop, when faced with a limited budget, this was the 5th most popular expenditure as discussed in Section 4.4.2. This priority is puzzling given the general low levels of ridership after 9-10 PM on current routes. Given the demonstrated ridership levels, no recommendation is being made to extend service to midnight.

By quadrant of the city, the following changes are proposed for each route. **Exhibit 6-5** summarizes the service offerings on each route at the end of this section.

Note that when the description says service should continue to a certain hour, this should be interpreted broadly so that if a route leaves the downtown transit center on the hour, so would the first/last trip, while if the route leaves on the half hour, so would its first/last trip. The first trip out from downtown and the last trip back to downtown should be determined based upon the passenger loads and the difference in the running time between operating in service or deadheading back. For example, if a route's last trip leaves downtown at 6 PM and gets to the end of the line at 6:30 PM, it could either come back to downtown in service to the transit center or by deadheading back via the freeway or some other fast route. The deadheading choice should be selected if ridership is low and the bus could save 10-15 minutes of time if it deadheaded (1-1.5 hours per week). Otherwise, the cost is not much more for providing an additional trip back in.

6.1.2.1 Eastern Quadrant

<u>13 Tunnel Road – Haw Creek</u>

- Weekdays: An earlier inbound trip arriving at the transit center at 6:30 AM is warranted given the ridership on the first trip is 22. Service should end at 6 PM.
- Saturdays: Same changes as weekdays
- Sundays: Sunday service is not recommended at this time.

<u>26 Tunnel Road – Swannanoa River</u>

- Weekdays: The first trips in and out do not carry many riders, but they are recommended for continuation since they provide the 12-hour span. With the change in the new 170 to operate on the interstate, local night service is warranted to Walmart and the VA Hospital. Route 26 should have night service offered until 10 PM to provide a pick up at Asheville Mall.
- Saturdays: The same schedule should be offered as weekdays
- Sundays: Sunday service should be added on Route 26 to provide service to Asheville Mall and Walmart. The current route is in the bottom half of the routes, but with the route changes, productivity should improve dramatically.

<u>170 Warren Wilson / Black Mountain</u>

- Weekdays: As noted in the service concept, Route 170 is the combination of Routes 28 and 29. All day service should be offered on the combined route based upon connections to the Greyhound service and possibly increased to whatever headway one bus can provide. Based upon the ridership, one earlier inbound and outbound trip appears warranted; however, adding these trips would have a bus leaving around 4:30 AM. The high ridership is more likely indicating demand for later service since the next trip is not until 10 AM. No earlier service is recommended. In the evenings, the last trips to/from Black Mountain should be in the 6 PM

hour as part of the regular frequency, plus whatever other trips are required for the Greyhound meet. Regardless of the span required by current riders, trips must be offered that connect with the six Greyhound and Southeast Stages trips in keeping with the requirements of the funding from NCDOT. Later service can be provided if funded by Warren Wilson College or another party.

- Saturdays: Saturday service is offered to Warren Wilson College and Black Mountain that connect with the six Greyhound trips. Additional Saturday service can be offered to Warren Wilson College if the college is willing to pay for the cost. Additional service could also be offered to Black Mountain if the town covers the cost.
- Sundays: Sunday service is not recommended unless required as part of the NCDOT grant. If required, only the minimum amount of service should be provided. If either Warren Wilson or Black Mountain wishes to pay for the cost of service, it can always be provided.

6.1.2.2 Western Quadrant

1 Haywood Road

- Weekdays: No earlier service before the existing 5:30 AM trip is warranted. In the evenings, the current Routes 1 and 41 should be combined. Service is recommended until 10 PM; the last inbound trip can be cut.
- Saturdays: Same changes as weekday. The earliest weekday trip does not have to be provided on Saturdays as is the case in the current schedule.
- Sundays: Sunday service should be added. Route 1 is the top performing route in the system.

9 Brevard Road

- Weekdays: Earlier service should be offered to increase the span of service to 12 hours. This requires adding one outbound and two inbound trips. A later outbound trip should be offered to provide the 12-hour span. The last inbound trip should be maintained even though ridership is low because it provides the 12-hour span.
- Saturdays: Same changes as weekday.
- Sundays: Sunday service is not recommended at this time.

15 New Leicester Highway

- Weekdays: Given the 35 riders on the current first inbound trip, an earlier trip may be warranted. However, the first two trips are only 30 minutes apart compared with all other trips on an hourly headway. The existing first trip should be moved 30 minutes earlier to provide the even headway. Evening service should be offered until the 10 PM hour since this route now serves the Hillcrest Apartments.
- Saturdays: Same changes as weekday
- Sundays: Sunday service should be added as this will also serve the Hillcrest Apartments.
- Note: With the changes on the western end of the Route 15 and Route 16, one of the two routes should have service until 10 PM, and one route should operate on Sunday so that the combined Patton corridor has a full service. Based upon anticipated ridership, the recommendation is to provide this service on the 15 New Leicester Highway, which also serves Hillcrest Apartments. ATS should monitor the new service carefully and adjust which route has the additional service as ridership levels stabilize.

16 Patton Avenue

- Weekdays: The current span of service should be maintained even though the last inbound trips are poorly used. These trips provide the 12-hour span. With the route change to operate on

Patton Ave, performance should improve. Given that Route 1 has service until 10 PM, ATS should be prepared to add later service if requests arise.

- Saturdays: Same changes as weekday
- Sundays: Sunday service is not recommended at this time.
- Note: See cautionary note under Route 15.

6.1.2.3 Northern Quadrant

2 Merrimon / UNC-A – Lakeshore

- Weekdays: Route 2 is the third most productive route in the system. The current span of service should be provided on Route 2. Route 52 should be incorporated into the Route 2 schedule. Evening service should be discontinued after 10 PM due to low ridership on the last trips unless UNC-A is willing to fund later service.
- Saturdays: Same changes as weekday
- Sundays: Sunday service should be added.

Route 3 Bulldog Express

- This route is recommended for discontinuation since it is not needed with the changes to provide new service on Merrimon. If the university desires to have trips to the campus later than 10 PM, it should subsidize the cost of Route 2 to operate later. These later trips could turn short at the university; they do not need to continue to the Lakeshore end.

7 North Asheville Loop

- Weekdays: Inbound and outbound trips during the 6 PM hour should be added to provide a 12-hour span. The remaining fringe trips should be maintained even with their low ridership to keep the 12-hour span. Ridership is likely to increase with the extension to UNC-A and combination with Route 11. Only the basic 12-hour span is warranted based upon ridership levels, which means in effect Route 41 is discontinued.
- Saturdays: Saturday service should be discontinued since this route no longer serves Hillcrest Apartments.
- Sundays: Sunday service is not recommended at this time.

14 Merrimon / UNC-A – Beaverdam

- Weekdays: The current 12-hour span on Route 18N should be maintained
- Saturdays: No changes to schedule
- Sundays: Sunday service is not recommended at this time.

6.1.2.4 Southern Quadrant

4 Kenilworth

- Weekdays: The existing span of service should be maintained
- Saturdays: Even though this route is one of two that serve Hillcrest Apartments, Saturday service is not recommended. Hillcrest is served by the 15 New Leicester Highway, Asheville Mall is served by Routes 13 Tunnel Road – Haw Creek and 26 Tunnel Road – Swannanoa River, and Mission Hospital is served by Routes 6 Hendersonville Road – Airport and 8 Biltmore Avenue - Shiloh. Other than these locations, there are no significant traffic generators on Route 4.
- Sundays: Sunday service is not recommended at this time.

6 Hendersonville Road – Airport

- Weekdays: An earlier outbound trip leaving downtown during the 5 AM hour should be offered. The first outbound trip serves 32 riders. An earlier inbound trip during the 6 AM hour should be

offered. The first inbound trip serves 40 riders, and the addition of a trip will provide a 12-hour span. A later outbound trip during the 6 PM hour should be offered. The last outbound trip serves 23 riders, and the addition of a trip will provide a 12-hour span. Headways from 6 AM to 6 PM should be reduced to hourly. For evening service, see the discussion on Route 8.

- Saturdays: Same changes as weekday, except for the 5 AM trip addition
- Sundays: Sunday service is not recommended at this time

8 Biltmore Avenue – Shiloh

- Weekdays: The existing span of service should be maintained. Route 36 should be combined into Route 8 and operated along the new routing. Route 8 maintains the evening service because ridership is more oriented to London/Caribou than toward Hendersonville, although both areas are low. The last outbound and inbound trip should be cut due to low ridership, but service is being maintained until 10 PM. Later service could be provided if strongly supported by Mission Hospital or another sponsor.
- Saturdays: Same changes as weekday
- Sundays: Sunday service should be added

10 S. French Broad – AB Tech

- Weekdays: Routes 18 S and 38 should be combined. The last trip on the old Route 38 can be cut; it only had 3 riders, which leaves the last trip during the 10 PM hour.
- Saturdays: Same changes as weekday
- Sundays: Sunday service is not recommended at this time

21 Crosstown

- Weekdays: No change to current span; service is offered 6 AM to 6 PM on an hourly headway. The headway of service should be reduced to every 30 minutes as a top priority in a later phase. Crosstowns are dependent upon transfers, and an hourly headway could miss a significant portion of the connecting routes.
- Saturdays: Saturday service should be offered on the same schedule as weekdays. This is the only route providing service along Fairview and the N. Louisiana/Emma area.
- Sundays: Sunday service is not recommended at this time

Exhibit 6-5
Schedule Summary

Route	Before 6 AM	6AM – 6 PM	After 6 PM	Saturday	Sunday
1 Haywood Road	X	X	X	X	X
2 Merrimon / UNC-A – Lakeshore		X	X	X	X
3 Bulldog Express	Service discontinued or combined with Rt 2				
4 Kenilworth		X			
6 Hendersonville Road – Airport	X	X		X	
7 North Asheville Loop		X			
8 Biltmore Avenue – Shiloh		X	X	X	X
9 Brevard Road		X		X	
10 S. French Broad – AB Tech		X	X	X	
13 Tunnel Road – Haw Creek		X		X	
14 Merrimon / UNC-A – Beaverdam		X		X	
15 New Leicester Highway	X	X	X	X	X
16 Patton Avenue		X		X	

Route	Before 6 AM	6AM – 6 PM	After 6 PM	Saturday	Sunday
21 Crosstown		X		X	
26 Tunnel Road – Swannanoa River		X	X	X	X
29 Warren Wilson/Swannanoa		Combine with Route 28			
36 Biltmore Avenue/Shiloh		Combined with Route 8			
38 Erskine/AB Tech		Combine with Route 18S			
41 Haywood Road/Deaverview		Combine with Routes 1			
46 Bingham Heights		Service Discontinued			
51 Montford/Hillcrest		Service Discontinued			
52 Merrimon Avenue/UNC-A		Combine with Route 2			
54 Weaverville		Service Discontinued			
170 Warren Wilson / Black Mountain		X	X	X	

6.1.3 Further Service Enhancements

A few expansion areas were noted in previous sections. Route 13's extension to Evergreen Charter School, Route 13's extension to ABCCM, Route 15's extension to Land-of-Sky Regional Council, and Route 16's extension to Enka were all able to be accomplished without requiring the addition of any buses to the fleet. This was achieved by straightening out the existing routes and eliminating time-consuming deviations.

Other extensions, along with more frequent service and new routes are longer term in nature because they will require additional buses to address the need. The identified expansion areas are listed with a rough time frame for implementation. Further discussion of the timing of improvements is provided in Chapter 7. Additional needs may be identified as part of the upcoming Asheville/ Buncombe/ Henderson Regional Transit Study.

6.1.3.1 Near-Term Improvements (Years 2-5)

The following additional service improvements are suggested for the near-term. Because of the extensive nature of the short-term improvements, the near-term improvements should be viewed as potentials and not firm recommendations. Specific routes for these services have not been determined. After the short-term improvements are implemented, the ridership response and service requests should be reviewed to determine if this list is still appropriate for the near-term, or if some routes should be moved to the long-term, or even eliminated from consideration.

As is discussed in Section 6.2, ATS faces capital constraints that will limit the amount of service additions that can be made in the short term. No more than four additional peak period buses can be added.

1. Additional Frequency on 21 Crosstown. As a crosstown service, Route 21 is primarily dependent upon being fed riders from other routes. With the short-term headway of 60 minutes, the connecting ability is limited. As a top priority, an additional bus should be added to the 21 Crosstown to provide a 30-minute headway.
2. Expanded hours of Sunday Service and Additional Sunday Routes. Initially, Sunday service was implemented on a limited 9-hour schedule from about 10 AM to 7 PM. Assuming this service is

successfully received, the service hours should be extended to a 10 hour span, roughly 9 AM to 7 PM. Based upon customer requests, additional routes can receive Sunday service.

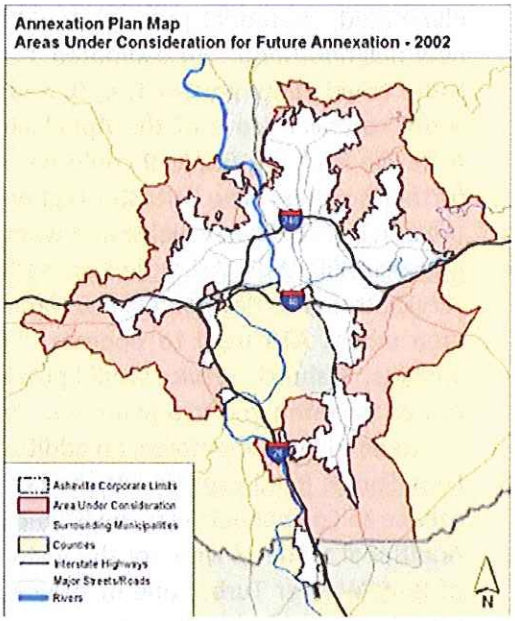
3. Pisgah View to Hillcrest Apartment Circulator. Connecting these two major locations through downtown via a single route would allow the route deviations on the other routes to be eliminated. Potential routings could include Westwood Pl, which would provide service to a new neighborhood. An estimated 1-2 additional buses would be required. Implementing this route could allow Routes 1, 4, 9, and 15 to be extended. Route 1 could be extended further south to cover more of the Appalachian Way area; Route 4 would have time to go into the Asheville Mall lot; Route 9 could be extended further south; and Route 15 could be extended further north on New Leicester Highway. The distance of the extension will be dependent upon the amount of time available and whether a suitable turnaround can be found.
4. Malvern Hills/West Asheville Estates/Virginia Ave Shuttle. This service is envisioned as a shuttle service from the Haywood & Louisiana focal point to AB Tech-Enka. There were requests for this area where ATS used to operate. This area also shows up as Very High in the propensity analysis. A shuttle service would provide greater geographic coverage with connections to other routes to continue into downtown. One bus is estimated to provide hourly service. If this route is extended into downtown, an additional bus would be required.
5. Long Shoals Road Express. At the last public workshop, when faced with limited funds, adding service to Long Shoals was the 8th most popular choice, and the top choice for expansion areas. Additional requests were for the Vista Industrial Park further west. The Vista area is the location of Borg-Warner Turbo, one of the county's major employers, but it is outside of the Asheville City Limits. With the extension of Route 6, service has been added. The longer term expansion would be to create a new Long Shoals express route originating at Hendersonville Rd with a park & ride at I-26 and a freeway routing into downtown. An estimated 2 buses would be required to provide 30-minute frequency, the very minimum for a commuter service. Route 6 could then be extended to Fletcher if the City participated financially.
6. Additional frequency on trunk routes. Adding an additional bus to any of the trunk routes, or two buses to the 6 Hendersonville Road – Airport, would allow the headway to go to every 30-minutes instead of the current hourly headway. If only one route on the trunk received additional service, a 20-minute headway would be possible on the trunk portion (2 trips on one route, one trip on the other route), but this headway would not match well with the remaining routes in the system. Adding one bus to each of the two trunk routes would provide a combined 15-minute headway, and would establish two more pulse times at the downtown transit center while maintaining the existing two pulses at :00 and :30 after the hour.

The above five services would collectively require a minimum of seven additional buses, more than the surplus four bus capacity at the maintenance facility. This excess is deliberate so that choices exist in the near-term, and so if the maintenance facility is expanded, additional service can be added.

6.1.3.2 Long-Term Improvements (Years 6-10)

In the long-term, capacity constraints are assumed not to exist. The existing maintenance facility can be expanded or rebuilt, and the same for the downtown transit center. Without a capacity constraint, the main limitation becomes a policy limitation. Is there a maximum amount of service that should be provided within Asheville? Should Asheville provide service outside of its city limits? If policy does not limit further expansion, then sufficient financial resources must be available. Finances are discussed in Chapter 7.

Exhibit 6-6
2002 Annexation Plan Map 2025



The following is a list of potential service enhancements in the long-term. This list has been developed under the assumption that ATS will not offer service outside of Asheville, except for incidental service or under contract to another municipality. It does consider eligible areas as areas within the 2002 Annexation Plan Map from the *Asheville City Development Plan 2025* **(Exhibit 6-6)**.

1. West Asheville Shuttle. The area south of Deaverview Rd between Patton Ave and Pisgah View Rd shows up as having a high propensity. This area might be served by further extending Route 1 as noted in the near term improvements, but full coverage will likely require a new shuttle route. Such a shuttle could tie into AB Tech-Enka. This area is currently outside of the Asheville city limits, but is within the area under consideration for annexation (the annexation area). One bus is estimated to be required.
2. Downtown Circulator. A circulator route serving both downtown employees as well as visitors. Such a circulator must have a high frequency of service to be attractive, generally every 10 minutes or less. To be most successful, a rider has to be able to see the bus coming when he/she looks down the street. Potentially three to four buses could be required to provide this frequency of service. These vehicles could be of a distinctive design, such as a trolley bus or some other design to distinguish them from the other ATS routes.
3. Oakley Shuttle. The area south of Fairview Ave toward I-40 and south to the Blue Ridge Parkway has an average propensity, but may warrant a crosstown/shuttle connecting Walmart to the area. This area is within Asheville north of I-40, and the portion south is in the annexation area. An estimated one bus is required.
4. Sweeten Creek. The existing development is not dense and many portions of the route are near Hendersonville Rd, but longer term development trends may warrant this service. This route may either be appropriate as a shuttle south from the Biltmore Village focal point, or as another downtown service. An estimated one bus is required for the shuttle, but the downtown service is likely to require two buses.
5. Woodfin downtown. There were some requests and this area has a fair propensity. An extension of Route 2 is possible, but this is outside of the Asheville service area.
6. Fairview Express Service. The NCDOT Comprehensive Transportation Plan identified a route to Fairview along the Charlotte Highway. Development levels are currently low and this area is

outside of the Asheville city limits, but it may be within the annexation area. Long term projections indicate it could be a growth corridor. It would work best as a commuter service, which will require a minimum of two buses.

7. Spivey Mountain Rd Shuttle. The area on either side of Spivey Mountain Rd, south of New Leicester Highway has an average propensity for transit service, but this will increase as density increases. The shuttle could originate at the Patton & Louisiana focal point. Spivey Mountain is within the annexation area. One bus is estimated to be required.
8. Candler and Smokey Park,. This extension is further out than the Route 16 extension to Enka. Such an extension is outside of the current Asheville city limits, but is within the annexation area. The LRTP modeling effort did not show a high demand for this area, but several requests were received during the *Transit Master Plan* process. If the demand is present, this area may work well as a park & ride.
9. Various Park & Ride / Express services. Park & Rides can be expensive to operate since they are choice riders and they expect a high frequency. These routes would need to operate at least every 30 minutes for 2 hours in each peak to even begin to capture choice riders. Unless there is an aggressive program to charge for parking in downtown (or other destinations), these routes may not be very successful. Generally, lots should be 10 miles or more away from the destination. For downtown Asheville, this distance is bounded roughly by the airport, Fairview, Grovestone, Flat Creek, and Luther. Lots between 5 and 10 miles out may do well if they can offer a substantial time or money advantage, but lots within 5 miles should only be small lots of around 10-25 cars; more of a convenience lot than a true commuter location. The 5-mile boundary is roughly AB Tech-Enka, Hendersonville Rd & Blue Ridge Parkway, the VA Hospital, and I-26 North halfway between Woodfin and Weaverville.
10. Service to other counties. Several of the previous plans have considered service outside of Buncombe County. This possibility will be considered as part of an upcoming regional study, but is not recommended at this time unless the other jurisdictions share in the cost. Locations further out, such as Hendersonville or Mars Hill, may offer a greater opportunity for a park & ride to succeed, where enough travelers are making the commute.

The intent of listing the above services is to provide an indication of how the long-term vision for ATS service could evolve. As Asheville expands its boundaries, additional areas may warrant service. The service in many cases can be as a shuttle service pivoting off one of the existing focal points, or connecting two or more focal points. In further out locations, park & ride or express service may be warranted, but these services will require a commitment on the part of the destination to actively promote transit and to discourage driving alone.

The City of Asheville should plan on implementing some of these services and budget accordingly, but the specific routes to be implemented should be determined closer to the time of implementation.

6.2 Capital Improvements

The following sections describe the necessary capital improvements that will support the system. Passenger facilities include stop improvements, transit centers, park & ride lots, and intercity bus depots. In the future, this category will include train stations in Biltmore Village and Black Mountain. Operational facility is the maintenance facility for the fleet and the associated buses. Streetside improvements are those facilities that are generally the responsibility of other City departments and not

the responsibility of Transit Division, but that could have a dramatic effect on ridership. Such facilities include sidewalks, providing for a connected street system, and the locating of public facilities on a bus route, such as shelters, benches, and other amenities.

6.2.1 Passenger Facilities

6.2.1.1 Bus Fleet Replacement

In order to maintain an attractive and inviting service, the fleet must be renewed at regular intervals. Industry best practices are to always replace a portion of the fleet on an annual basis. In that way, a system can avoid having all of its buses reach the end of their lifespan at the same time, with the associated increases in maintenance costs, increased likelihood of breakdowns, and generally poor image seen by the public. For 30-foot buses, the FTA considers the economic lifespan to be 10 years; buses may last longer than that with good maintenance practices, but, as with a car, that's when it's time for a trade-in. For 35-foot buses, the economic lifespan is 12 years. These buses last longer because their extra length allows for more heavy duty frame construction.

New buses are planned to include an Automatic Vehicle Location (AVL) system. The AVL will allow the location of the buses to be pinpointed using Global Positioning Satellites. Knowing the precise location of the buses will allow for the determination of the real-time schedule arrival information. This information can be displayed graphically as a map showing the location of all vehicles in the system. This map can be displayed in the transit center or on the internet. An AVL system can also aid the safety and security of the system. Should trouble ever occur on the bus, the system is able to pinpoint the precise location of the bus.

For ADA paratransit vans, the economic lifespan is five years. Their replacement is the responsibility of Asheville's contractor, Mountain Mobility.

6.2.1.2 Bus Stop Analysis and Shelters

City of Asheville staff is conducting a comprehensive review of its bus stop locations. On some routes, stops are placed too close together, while on other routes, extended distances exist between stop locations. Staff should use the 2009 Draft *City Of Asheville Standard Specifications And Details Manual* as a starting point, and TCRP *Report 19: Guidelines for the Location and Design of Bus Stops* for assistance in determining the most appropriate locations and placement relative to intersections. In deciding new locations, staff should view these as permanent so that the appropriate capital infrastructure can be included. A more limited number of stops, but ones that are carefully placed, can focus demand in locations where further amenities, such as benches and shelters can be provided. The challenge is to balance the number of stops to provide easy accessibility for the rider, while limiting the number of stops and associated time impacts for the buses.

The City, in conjunction with local community groups, already has provided a number of sheltered bus stop locations around the city. The "top-a-stop" program has provided a number of amenities. The City has installed other, more substantial shelters, as well, such as at Walmart. Nonetheless, when faced with a limited budget, erecting more passenger shelters was the # 2 choice of the public that attended the last workshop.

With the collection of stop-level ridership data that was done as part of this *Transit Master Plan*, a systematic approach can be undertaken in providing shelter for riders. Most cities base the provision of shelters on the boarding activity at a stop, under the theory that when you alight from the bus, you immediately go to your destination and do not hang around. Typically, a threshold of some level is selected as a warrant for a shelter. Larger cities may require 100 daily boardings, while smaller cities may set the warrant at 10 daily boardings.

In Asheville, there are 87 unique stop locations that have 10 or more daily boardings. There are 23 unique stop locations that have 25 or more daily boardings. The "right" threshold for Asheville will depend upon how much money the system is willing and able to invest in providing shelter. Other factors besides just the number of boardings should be considered. Some of these factors can be:

- Number of boardings
- Right-of-way availability
- Transfer point
- Sidewalk availability or ADA requirements
- Cost
- Requests

It is also recommended that one of the initial criterion is the examination of all bus stops along the primary corridors where the 30-minute service headway will be in place. These are the locations with the most ridership and where the City is investing heavily in service. Providing amenities along these corridors will maximize the return on investment. It will also reinforce the objectives of 2008 *Affordable Housing Plan for the City of Asheville.* Additional locations are the shopping centers and apartments where service has been removed.

6.2.1.3 Super Stops / Focal Points

Some areas warrant more than just a simple bus shelter, due to the number of routes or volume of people that are at a particular location. Some locations will also warrant improved pedestrian pathways, either on street or within a development. With the recommended route changes, the following are a partial list of locations should be examined for more extensive passenger amenities. Additional locations may be identified as the new ridership patterns are established.

- Biltmore Village at the new transfer point, and later at the new train station. The number and type of routes at the future train station needs to be coordinated with NCDOT – Rail Division before they enter into the design process.
- The intersection of N. Louisiana & Patton. This will be a new focal point for the system.
- Haywood around Brevard/Louisiana/State. This will be a new focal point for the system. It is already the 6th busiest in the system, with 103 boardings and 95 alightings within one-eighth of a mile of the Louisiana & Haywood intersection, or 1.8% of the system ridership.
- Pisgah View Apartments along State St. at corner.
- Larger shelters and a bus turnaround at the entrance to the Hillcrest Apartments. This would eliminate the need to circle through the complex, and the maximum walk for the residents would only be ¼ mile.
- Asheville Mall at a designated primary stop on mall property
- Walmart on Tunnel Rd

- Improved pedestrian paths at Innsbruck Mall.
- AB Tech along Victoria Rd
- Additional heavily used locations, such as Mission Hospital and the VA Hospital
- Greyhound Bus Depot to facilitate intermodal transfers

To maximize the benefit of the passenger shelters, an attractive pedestrian path should be provided connecting the shelter with nearby destinations. The Streetside Improvements section provides some locations where additional sidewalks are warranted.

It is recommended that the short-term improvements focus on the newly 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.

Once the service changes have gone into effect, another boarding & alighting count should be conducted to determine the level of ridership at the new focal points and other major locations. Some of these locations may warrant off-street transit centers; smaller versions of the downtown transit center. These locations are particularly important in the areas where a new focal point is established, primarily the two locations on the west side of the city. Acquiring new parcels for the transit center, or leasing space from an existing retailer should be considered as a way to implement these amenities. The design for the transit center can complement the surrounding architecture and blend in with the overall look of the neighborhood. The intent should be to create a location that the neighborhood can proudly say is their transit center.

Longer term focal points may be at the Airport and AB Tech-Enka. Besides downtown oriented local and express service, should the service area be expanded beyond Asheville, the airport could be a hub for a Fletcher and other areas.

6.2.1.4 Downtown Transit Center

The downtown transit center has nine usable bus bays, which limits the number of buses that can be present. No more than nine routes can connect at any one time. The recommendations include going to a dual-pulsed system (i.e. one set up buses depart at :00 and another set departs at :30 past the hour), which will allow 18 bus routes to stage at the facility during an hour's time, assuming hourly headways on each (9 routes per cycle). With the recommended changes, there will be 14 downtown local routes (plus 1 crosstown route that does not serve the facility). The 7 North Asheville Loop will go through the facility twice, once in each direction, so 15 loading positions must be provided. On a dual pulse phasing, three additional routes can be added. Any further route additions will need to stage on the street near the transit center.

An expansion and remodeling of the transit center will be warranted over the course of the next 10 years. Ideally, a transit center will be refurbished at least every 10 years to keep it looking new and

attractive. The downtown transit center has already surpassed this timing. At the last public workshop, when faced with a limited budget, improving the downtown transit center was the 7th most popular choice. 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. A new transit center will permit the lengthening of all bus bays to permit their use by 35-foot buses. At the current transit center, 10 bays are provided, four of which are too short for 35-foot buses, including one bay that is too short for a 30-foot bus. Based upon the proposed service plan, a 10-bay transit center with all bays sized to accommodate 35-foot buses, should provide sufficient capacity.

A redeveloped transit center could be built using green building techniques. The Green Building Council's Leadership in Energy and Environmental Design (LEED) certification program provides a way for designers to incorporate sustainable principals in the construction. One example is the use of photovoltaic cells imbedded in the overhead shelter. These cells can generate electricity that meets at least a portion of the needs of the facility. Such an application is currently under consideration by Des Moines, IA for their new downtown transit center, shown above. Such an approach is consistent with the 2007 City Council resolution that all City-owned buildings will be LEED certified at the Gold Level.

The City should start planning now for the replacement of the downtown transit center. The process can take 3-4 years depending upon how long it takes to select a location and receive environmental clearance. If the location has few controversies, three years is probably adequate, but if a location has opposition, a longer time frame is required to evaluate and address the concerns. Given the list of potential near-term transit improvements in Section 6.1.3, the City needs to begin the process of expanding/replacing the transit center with the adoption of the *Transit Master Plan* if the City wishes to continue to expand the system in an orderly fashion.

Several transit systems around the country are looking beyond just their facility when it comes time to refurbish or build anew. These cities are focusing on the overall context in which the facility is located to create more Transit Oriented Development (TOD). Ideally, the transit center is in a pedestrian friendly area, with multiple destinations within walking distance. For Asheville, this approach would include developing the parking lots surrounding the transit center into a pedestrian-friendly space, such as by converting lots to parking decks and including ground floor retail in the development. Such an approach could involve partnerships among multiple public agencies or with the private sector similar to the current partnership between Buncombe County and a private developer to jointly construct a parking deck and hotel at 35 Woodfin Street. The County is planning on building a parking deck and new Human Services building at 40 Coxe Avenue. This new development represents an ideal opportunity to incorporate a new transit center as part of an overall development.

TODs are a way to reinforce the desired land use changes for Asheville. The transit focal points, collectively with the main transit corridors, are the first locations where more intensive and transit-friendly developments should occur.

Cities are also building commercial space into their transit centers as a way to provide amenities to their patrons and gain some rental income. Durham, NC has recently opened a new downtown transit center, with outparcel space specifically reserved for commercial tenants. Charlotte's downtown station has had retail included since it first opened. Rocky Mount included a sandwich shop when they renovated their bus station.

6.2.1.5 Park & Ride Lots

Park & ride lots offer an opportunity for a transit system to attract choice riders to the bus. By providing a secure, attractive location with frequent bus service, commuters can avoid having to drive themselves to their destination. The potential for success is greater when the lots are located at least 5 miles from the destination, if not 10 miles or more.

Park & ride lots range from informal sharing with adjacent businesses to large lots owned by the transit agency. For Asheville, small, shared lots with adjacent businesses would be a way to test the market for a premium service. Ideal sharing partners are those whose peak parking demand occurs at different times than the peak commuting demand. Typical locations include churches, movie theaters, or dinner restaurants. Larger malls and big box retailers may also have excess space that could be shared. Additional space may be available from recently-closed auto dealers.

Several locations have possibilities for Asheville. Generally, parking should be provided at the outer ends of the longer ATS routes. The existing express routes are the ideal first candidate for providing small parking lots. The new 170 Warren Wilson / Black Mountain offers the advantage of using the freeway for a portion of its trip, and with a higher frequency of service could be attractive to the choice rider. The market for park & ride service can be tested by providing a designated parking location in Black Mountain and Swannanoa. These locations should be clearly signed, offer some passenger shelter, be visible from a major travel corridor, and allow for easy access for patrons and for the bus.

Local routes can be a good test market for parking services as well. Some of the longer routes offer a good opportunity to save users from traveling longer distances to downtown. Under the proposed changes, a park & ride lot could be provided at the AB Tech-Enka campus, if they have surplus spaces.

Parking should be provided at the end of Route 15 at Land-of-Sky Regional Council. The parking should be located near the arterial to provide maximum exposure to potential patrons. Parking would be desirable at the end of the line for Route 6 in the vicinity of the Asheville Regional Airport. There are several hotels and big box retailers that offer the opportunity for sharing, but the location must be carefully selected. It needs to be easy for both patrons and the bus to quickly get in and out, and some of the locations, notably Walmart on New Airport Rd, may require too much time for a bus to use.

When ATS implements new commuter routes, especially longer distance services such as from Long Shoals, Candler, Hendersonville, or from the Fairview area, it should not do so without providing a parking location. These services and locations should be examined more closely through the forthcoming regional transit planning study.

ATS already has two hop-a-ride locations – Biltmore Square Mall and Goodwill Industries. Neither of these locations is working well. While a specific study may be warranted to determine the reason for the poor usage, a quick review indicates a few potential reasons. The signage at the lots is poor, with little information available indicating the location of the parking, the destinations served, and the frequency of service. The Biltmore Square Mall location is on the back side of the mall, making access more difficult. The mall location does not present a feeling of security with its current occupancy rate. The Goodwill location is only 5 miles from downtown, which is too close to attract patrons to an hourly bus service. Park & riders need to be reassured that they are in the right location, that good bus service will be available when and where they want to go, and that their car will be secure during the day and that they will be safe in the evening when they return. Park & riders also expect a savings in time and/or money for commuting by bus. Any shared lot locations should keep these needs in mind.

6.2.2 Operational Facilities

6.2.2.1 Operations & Maintenance Facility

The current operations and maintenance facility has four preventive maintenance bays, and parking for 20 buses inside and 5 outside. The general rule-of-thumb is one maintenance bay can take care of 9-13 buses. With up to 4 preventive maintenance bays, the current facility is adequate for a 36 to 52 bus fleet.

The more immediate issues are the storage capacity for vehicles and the need to make facility repairs. The current 21-bus fleet completely fills the interior storage space of the building. Any expansion in the fleet will require that additional buses be stored overnight outside. There is enough room to store five buses outside. With a total fleet size of 25 buses, the peak pullout cannot exceed 21 buses and still maintain the recommended 20 % spare ratio. With the proposed short-term improvements, peak pullout increases from 16 buses to 17 buses, leaving room for four more peak buses.

Based upon the service improvements in this *Transit Master Plan*, the fleet will grow to 46 buses. Another 11 ADA vehicles will be required. The potential exists that all vehicles will be housed at a central facility to minimize deadhead, which would require space to accommodate 57 vehicles. For planning purposes, it is appropriate to consider a 60-vehicle facility.

Based upon industry practice, a 60-vehicle fleet requires 2.8 to 5.4 acres for the maintenance facility and vehicle storage, with an optimal size of around 4.1 acres. The existing site is 3.5 acres; while this size is within the desired range, the actual results show that for Asheville, more land is required.

Sufficient room exists around the maintenance facility to acquire additional land for parking. This approach, while it may encounter neighborhood concerns, would allow the parking capacity to increase to match the maintenance capacity. A parking area for another 10-20 buses would allow for the system to substantially increase in size without having to immediately build an entirely new facility. Several residential lots are located adjacent to the existing facility site, two of which are empty. While the lots are considered residential, the area is zoned industrial. The two lots would provide about 0.5 acres, almost enough for the ultimate facility size.

Besides an immediate need for increased storage capacity, repairs to the facility, notably the roof, are required in the short term. The roof repairs have been needed since 2000, and making the repairs during the upcoming year will allow the facility to reach the end of the normal 50-year lifespan.

As the fleet grows beyond 36 buses, the maintenance facility will require expansion. Since the existing facility is near the end of the 50-year lifespan, the appropriate action is to replace the entire facility with a newer facility for the ultimate 60-vehicle fleet. A new facility should incorporate the latest sustainability guidelines as called for in the City's 2007 *Sustainability Management Plan*. Based upon the service expansion plan, the facility capacity will be reached in 2018; if ADA vehicles are considered, the capacity is reached in 2015. The *Transit Master Plan* recommends designing the new facility by 2015 and replacing the facility by 2016.

The *Transit Master Plan* is not recommending a particular site for the new facility. The existing facility is well located from an operational perspective, since it is near downtown and is in an area zoned industrial. However, the area has in recent years seen the construction and renovation of single-family housing on nearby parcels.

The ultimate site location will need to be determined as part of a separate study. The existing site has many desirable qualities, but there may be other locations that are more suitable. Any new site must meet the following requirements at a minimum:

- Have a minimum size of 4 to 5.5 acres
- Not be an irregular shape that results in an inefficient site layout
- Provide easy access to major thoroughfares
- Be located to minimize deadheading expenses (generally the closer to downtown, the better)
- Be compatible with adjacent land uses and zoning
- Avoid sites with environmental concerns (hazardous waste sites, sites within 100-year floodplain, steep slopes on site, etc)
- Balance acquisition and construction cost with operating costs

The last criteria is often among the most overlooked. While it may be tempting to acquire the cheapest site, the cost savings in acquisition must be balanced against the impacts to deadheading costs over an expected 50-year lifespan. A remote site will result in higher daily operating costs for buses

deadheading between the facility and the start/end of revenue service. More deadhead miles will also result in greater wear and tear on the fleet, potentially shortening its lifespan.

6.2.2.2 Layover Locations

Additional layover facilities are warranted at the ends of the line for a few routes. As noted in previous section, a layover/turnaround location is warranted at Hillcrest Apartments to reduce the deviation time for Routes 4 and 15. A turnaround location and passenger shelter is needed at Pisgah View Apartments. Additional layover/turnaround facilities are needed at the ABCCM for Route 13, and at Land-of-Sky for Route 15. These locations can be a simple turnout with a shelter, but the turning radius must be sufficient and properly located to allow the bus to make a 180° turn.

6.2.3 Streetside Improvements

Streetside improvements encompass such items as sidewalks, street connectivity, and social service agency locations. Over the course of this study, while outside the scope of a transit plan, numerous comments were received regarding connectivity to the bus stop. Such problems exist in almost every city, but are particularly challenging in Asheville give the topography.

6.2.3.1 Sidewalks and Crosswalks

Sidewalks ranked high on almost every wish list that was prepared. Many times, respondents simply asked for sidewalks "everywhere" or "along every bus route", reflecting the historic lack of sidewalks outside of downtown. At the last public workshop, when attendees were presented with a limited budget, adding sidewalks was the 4th most desired expenditure. As traffic levels increase, sidewalks become an integral part of providing a safe transit system. If riders must walk in the street, they are exposed to traffic driving too fast, or coming around a blind corner or up a blind hill. Even the most ardent transit user will be hard pressed to continue to use transit if there is not a safe walkway to the bus and safe designated crosswalks.

As a way to prioritize sidewalk needs, the first set of sidewalk construction should be at those locations that currently have bus service, but will be required to now walk a short distance to the bus stop. Among these locations are many of the HACA properties where the bus is being removed from the property, including:

- Bartlett Arms Apartments
- Deaverview Apartments
- Pisgah View Apartments
- Hillcrest Apartments
- Erskine-Walton-Livingston Apartments

Other housing complexes that will be affected are:

- Overlook Arms
- Wood Ridge Apartments
- Spruce Hill Apartments

- Meadows Apartments
- Laurel Woods Apartments
- Ledgewood Apartments

The bus will continue to serve all of these locations within ¼ mile along the closest major corridor. They should be examined to determine if a safe walking path exists to the bus stop. In areas where traffic is light and slow, the street may be sufficient, but in other areas, new sidewalks, crosswalks, and pedestrian signals may need to be constructed.

Other similar locations where the bus used to deviate into a development but now will not include Westgate, Regent Park, Target Center, River Ridge Marketplace, Eliada Home, Goodwill, Innsbruck Mall, and Mission Hospital. Some of these may include sidewalks on private property, in which case the property owner may need to contribute to the cost of construction. In the future, pedestrian pathways out to the arterials should be included in the site plan review process.

The 2009 Draft City Of Asheville *Standard Specifications And Details Manual* includes proposed criteria on where sidewalks should be located. The specific locations noted in the previous paragraphs should be considered first due to their impacts on existing riders. Where sidewalks are constructed along public roadways, the cost of retrofitting these improvements should be considered as a transit or transportation capital expense. Current City of Asheville regulations impose a 50 % assessment on the adjacent property owners. Given the importance of pedestrian connectivity to the success of the transit system and the mobility of the overall community, this assessment should be waived on the adjacent property owners for sidewalk construction or repairs along existing roadways where the sidewalk directly benefits the transit system. Sidewalk construction on new, or widened roadways should continue to be the responsibility of the party constructing the roadway. Sidewalks and pedestrian paths on private property should generally be the responsibility of the property owner, but these expenses should be evaluated on a case-by-case basis where existing development is being retrofitted.

6.2.3.2 Roadway Connections

Bus routes in some instances have to have a less than optimal routing due to limitations in the street system. Examples are:

- the east/west connectivity between the Grove Park Inn and the UNC-A campus, which limited the routing options for Route 5;
- the connectivity between Montford Ave and UNC-A, which limited the options for extending Route 11;
- the connectivity between Walmart and the Haw River area, which eliminated the ability to connect Route 13 with Walmart [and in general the lack of a north/south route from Tunnel Rd to Sweeten Creek Rd]; and
- access to the Medical Park development, which limited the options for extending Route 8;

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. This limitation was also noted as a major issue in the 2000 *City of Asheville Smart Growth Policy*. As annexation plans are prepared, bus routes for the areas should

A marketing professional should be consulted to develop the new brand, including the name, logo, color schemes, application to buses, application to shelters and benches, new uniforms, reaching the major community influencers, print and broadcast advertising, and website design.

A marketing strategy can also gain success by involving the local community. Several cities have gained success by have local artists design shelters and other street furniture. Enlisting the aid of UNC-A and AB Tech can help with marketing to their students. Involving Mission Hospital and others on the healthy lifestyle impacts of transit use can publicize the changes not only to their employees, but to the larger community. The local electric utility can help publicize the new hybrid buses. The end objective, as noted in Chapter 1, is to "Make transit part of the community lifestyle".

Branding a system does not come cheaply. "Normal" marketing levels should be around 3 % of an agency's operating budget. The 3 % amount was found in an American Public Transportation Association (APTA) survey of its members in 1988[9]. The airline industry in the late 1990's was spending similar levels[10], and some fast food outlets, such as Panera Bread[11], make similar expenditures. The City needs to think of transit as a consumer product that must be marketed as such.

The 3 % level is sufficient to maintain awareness of the service and enhancements, conduct promotions, and advertise the system, but is inadequate to make substantial changes in the image of the transit system. To change the image of transit requires a higher level of expenditure; about double the normal level. As an example, after Value Jet had a disastrous crash in the Everglades and subsequently rebranded itself as AirTran, the company's expenditures on marketing rose to 5.5 % of operating expenses, and then fell back to 3.8 % in the following year.

While ATS has not had as significant problem as Value Jet, the overall image of transit in Asheville is not high. The web-based survey in Section 4.2 indicated that 17 % used to ride the bus but stopped, and 28% have never ridden transit. Nearly half of the non-riders indicated that they didn't ride because of scheduling issues. With the change to have five corridors with double the frequency of service they used to have, and with an increase in the frequency of service to the airport, these non-riders must be reached, educated, and persuaded to use transit either again, or for the first time.

The most effective way to persuade a new customer is by appealing to their emotions. Customers buy benefits, not features. A good offer will provide both emotional and logical reasons to respond. Generally people make a decision to purchase based upon emotions, but they justify all purchases based upon logic (i.e. the price was right)[12]. A well developed marketing plan takes all of these persuaders into account.

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[9] APTA. *Survey of Transit Marketing Methods and Marketing Expenditures*, 1988
[10] *Aviation Almanac* and analysis of airline 10K reports.
[11] Panera Bread Company. *10-K Report*. Fiscal Year End December 25, 2007
[12] Sprague, Duane. *Power Direct Mail 35 Tips for Successful Direct Mail Marketing*. Dunning Group Print Technology Solutions

7 Implementation Plan

This chapter outlines the implementation plan for the service enhancements. Enhancements are divided into three time periods – short-term improvements (0-1 year); near-term improvements (2-5 years) and the Ten Year Vision Plan (6-10 years).

7.1 Short Term Improvements

Short-term improvements encompass changes from Year 0 to Year 1. Year 0 is the year preceding the implementation of the new service changes, while Year 1 is the first year of operation of the new routes. Sufficient time must be allowed in Year 0 to allow the changes to take place with minimal disruptions at the start of Year 1. At least six months of lead time will be required, preferably nine months.

7.1.1 Service Improvements

The short term recommended short-term improvements are the routing and scheduling improvements described in detail in Section 6.1.1 and 6.1.2. Every route in the system is changed. These changes provide more frequent service, faster service, service extensions, Sunday services, and a simplified route structure. Long standing requests for more frequent service is satisfied by consolidating routes on five travel corridors from downtown and alternating their schedules to provide an even 30-minute headway. This change doubles the service on the five corridors while keeping costs at moderate levels. Sunday service is added on five routes, and productivity is improved by discontinuing Saturday service on three poorly used routes. Service to the AVL Airport along Hendersonville Rd is increased to every 60 minutes instead of every 90 minutes. The nighttime routes are combined with their daytime counterparts to make the system easier to understand for all users, recognizing that the 2006 addition of evening services has succeeded. The City gains its first crosstown route, operating from Walmart to Biltmore Village to Pisgah View Apartments to Emma.

With these changes, the total peak bus pullout has a net increase by one bus to 17 total peak buses. Three buses are added to four routes and two buses are removed from two routes. The routes receiving additional buses are:

- 6 Hendersonville – Airport, which increases from one peak bus to two peak buses;
- Old 5 Charlotte Street & 16 Bingham Heights, which previously shared one bus, but now have one bus on each route due to extensions;
- Old 18 Erskine Street/Flint Street, which previously shared one bus between the north and south ends, but now have one bus on each end due to extensions.

The routes saving peak buses are:

- 29 Warren Wilson College, which shares a bus with the new 170 Warren Wilson / Black Mountain;
- 54 Weaverville, which was discontinued.

be identified, and any needed thoroughfare improvements included as part of the area's annexation service plan.

6.2.3.3 Queue Jumpers and Signal Priority

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. ATS staff should work closely with the City's traffic engineers to identify these locations and potential solutions. Two locations that have been identified are:

- Tunnel Rd and South Tunnel Rd at Asheville Mall
- New Leicester Highway at Patton

In locations where a right-turn lane already exists, these lanes can be extended across the intersection, allowing buses to continue straight. Additional right-of-way may be required.

In some locations, a signal priority system may be warranted. The best locations for these types of improvements are along a corridor where significant congestion occurs. Signal priority allows buses to hold a green light longer, or truncate a red light sooner. These systems can be expensive to implement so are not appropriate unless buses could benefit along multiple corridors.

6.2.3.4 Location of Public Agencies

Social service agencies should be mindful of where bus routes are, and if their clientele are heavy transit users, any new locations should be required to be on a bus route. Many locations are difficult for transit to serve, including:

- the aforementioned Medical Park, which has only one entrance roadway to the top of a mountain; and
- the Social Security location off Chunns Cove, which has similar access problems and is also in a remote location on the other side of I-240.
- Sardis Rd Industries for the Blind

Two HACA locations are also problematic, and are also the top two ridership locations outside of downtown – the Pisgah View Apartments and Hillcrest Apartments. Both of these complexes are located in out-of-the-way locations that are difficult to serve. These complexes were built during another time when transit access was not important – Pisgah View was built in 1952 and Hillcrest was built in 1959. Only Lee-Walker Heights on Biltmore Ave predates these complexes.

To access Pisgah View, buses must deviate 6/10th of a mile off Haywood Ave and return. This distance equates to about a 6 minute deviation outbound and inbound for a total deviation of 12 minutes. Given that ATS' routes have a round trip cycle time of about 60 minutes, this means that the bus route is spending 20 % of its time just deviating to one complex. For Hillcrest, the deviation is about 8/10th of a mile. This distance is about 25 % of the cycle time for the bus. Such lengthy deviations discourage through riders, especially choice riders, who would have to endure the delay. Without this delay, the routes could be extended to serve more locations throughout the city.

HACA, like most housing authorities, is moving away from constructing any new large apartment complexes; instead, dispersed housing is seen as a better approach. Should HACA ever decide to build any new apartments, it is critical that they ensure the location is easily accessible by transit. They should also be mindful of transit service as well when located the dispersed housing.

"Fixing" the locations of Pisgah View and Hillcrest will be difficult if not impossible. There is little that can be done for Pisgah View given the layout of the street network in the area. Hillcrest would seem to be in an even worse location, tucked away amongst two interstates and the French Broad River. There may be an opportunity, however, with the planned improvements to upgrade US 19/23/25/70 to I-26. The interchange of I-26 with I-240 will be rebuilt during this upgrade. Whenever the I-26 freeway is being designed, a way should be found to provide a connection from this apartment complex to Patton through redesigning how the entrance/exit ramps and service roads are arranged. If a roadway connection cannot be provided, a pedestrian connection would offer some opportunities.

6.3 Marketing – Branding Strategy

The changes proposed for the transit system are extensive, with <u>every</u> route in the system being affected. Five corridors around the city will have double the frequency of service they previously had. New focal points are being created around the city. New buses are on order, including the city's first hybrid buses.

All of these changes point to the need to create a new "brand" and marketing strategy for the system. This is much more than just advertising – it covers the three elements of product, price, and promotion. The product has been addressed in this *Transit Master Plan*, with recommendations for additional product such as crosstowns, park & ride services, new buses, and new shelters. Price has also been addressed, with the recommendation to charge more for premium services. The promotion aspect needs to come next.

TCRP *Report 63: Enhancing the Visibility and Image of Transit in the United States and Canada* addresses many of the elements that a marketing program needs to cover. The report presents findings that were remarkably consistent in all areas of the country:

> Individuals fall into one of three groups: supporters (36%), swing (33%), and non-supporters (31%). The high level of non-supporters represents a real challenge. Marketing efforts should focus on the swing group rather than trying to energize the supporter group. They will be energized by any efforts devoted to the swing group. Swing group is mostly unfamiliar with transit; the more familiar they are, the more supportive.
>
> Four key messages emerged:
> - Providing opportunities for people from every walk of life
> - Having lots of choices and options available
> - Easy access to the things you need in every day life
> - Having mobility and freedom to do what you most want to do.

No peak buses were saved from discontinuing the 3 Bulldog Express or any evening or Saturday services since they did not operate at peak times.

With the additional changes to adjust all routes to have a minimum span of service of 12 hours weekday; adjusting the span beyond the 12 hours by adding or deleting trips based upon their passenger loads;, deleting some Saturday services and adding some Sunday services, the total weekday hours of service increased from 210 average daily bus hours to 234 average daily bus hours. **Exhibit 7-1** shows the current weekday hours per route, with evening service allocated to its daytime equivalent, and the proposed new hours.

Exhibit 7-1
Recommended Weekday Bus Hour Changes

Route	Proposed Bus Hours	FY 2009 Bus Hours	Difference
1 Haywood Road	17	18.25	-1.25
2 Merrimon / UNC-A – Lakeshore	16	15.375	0.625
4 Kenilworth	12	13.25	-1.25
6 Hendersonville Road – Airport	26	12.75	13.25
7 North Asheville Loop	24	21.5	2.5
8 Biltmore Avenue – Shiloh	16	17.5	-1.5
9 Brevard Road	12	11.25	0.75
10 S. French Broad – AB Tech	16	6.625	9.375
13 Tunnel Road – Haw Creek	12	13.25	-1.25
14 Merrimon / UNC-A – Beaverdam	12	8.75	3.25
15 New Leicester Highway	17	15.375	1.625
16 Patton Avenue	12	6.125	5.875
21 Crosstown	12	13.25	-1.25
26 Tunnel Road – Swannanoa River	16	13.25	2.75
170 Warren Wilson / Black Mountain	14	15.75	-1.75
Discontinued Routes		7.5	-7.5
TOTAL DAILY BUS HOURS	234	210	24

The additional service can be accommodated by the available capacity at both the downtown transit center and the maintenance facility. The one additional bus required for peak service can be used from the current fleet in the short term, and with the orders for new buses underway, the additional fleet requirement can be easily accommodated.

The service change effective date has not been determined, but is recommended to coincide with the start of the new fiscal year on July 1, 2010. This date may change since July 1 is on a Thursday, and service changes typically go into effect on a Sunday. Adoption of the Transit Master Plan is anticipated on October 27, 2009. Selected elements of the plan, such as streamlining some of the routes, may be implemented prior to the rest of the changes if required due to schedule adherence, safety concerns, or other issues.

Adoption of this Transit Master Plan will allow City and ATS staff to immediately begin finalizing the schedules for all of the new routes, and making any necessary adjustments prior to the preparation of the public materials.

7.1.2 Capital Improvements

Capital improvements have a longer lead time, which limits the ability to implement many in the short term. Nonetheless, The City should begin implementation of sidewalks and shelter improvements early on, especially in the areas identified by being affected from the service changes. 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 for the Pisgah View and Hillcrest Apartments, and the construction of suitable bus turnaround locations.

Grant money has been secured and additional funds are being requested for the purchase of additional bus shelters. These new shelters should be consistent with the overall "brand" being established for the new ATS. Specific shelter procurement should not occur until the branding program is developed.

The adoption of this Transit Master Plan by City Council will allow the City staff to begin identifying the specific needs and cost estimates for these locations. A separate action will be required by City Council to appropriate funds for the construction of these sidewalks and shelter improvements. Close coordination with HACA will be essential.

City staff has already begun reviewing the locations of bus stops and identifying areas where changes are warranted, in keeping with the 2009 *Draft City Of Asheville Standard Specifications And Details Manual*, and the TCRP *Report 19: Guidelines for the Location and Design of Bus Stops*. This effort should continue with the objectives of providing a safe and secure bus stop location; maintaining accessibility to the system; and speeding up bus service by eliminating poorly used stops. The location of all stops in the system should be identified prior to the implementation of the service changes. Placing temporary signs at the new stop locations on new streets of operation is one of the most effective ways to publicize route changes.

New buses have already been placed on order, allowing ATS to replace almost half of its aged fleet. Even without these orders, ATS has sufficient buses to add one additional peak pullout, assuming the fleet is in a state of good repair.

The new buses include five new hybrid models, allowing Asheville to help achieve its targeted greenhouse gas reductions. The majority of ATS' fleet has passed its lifespan (16 of 21 buses), and the City needs to begin a regular bus procurement program so that it can avoid major "lumps" in its capital expenditure. An even bus procurement schedule will allow the City to budget in an orderly fashion, and will prevent the fleet from all reaching the end of their useful life at the same time.

If the City did not already include it in the orders, the City should add an option to purchase additional buses of the same models. Using options for additional bus purchases is a standard practice and allows agencies to standardize their fleets. A standardized fleet reduces the amount of spare parts required and does not require as much training for mechanics.

The adoption of this Transit Master Plan should immediately enable the City staff to negotiate for an option on additional bus purchases if such an option is not in place.

Immediate improvements are needed to the maintenance facility to preserve it in a state of good repair until a replacement facility is constructed. The roof needs to be repaired and other miscellaneous improvements are required. Expanded parking space for the fleet is needed, which requires property acquisition.

The adoption of this Transit Master Plan authorizes City staff to immediately begin the process of repairing the maintenance facility and expanding the parking area.

7.1.3 Development of New Transit Image

The implementation of the recommended service enhancements will change every route in the ATS system. New focal points will be established, new areas will be served, faster and more frequent service will go into effect, and Sunday service will be added. The ATS system will bear little resemblance to the outdated system currently in place. Additionally, new bus stops will be installed; new shelters erected; and new buses placed into service.

Development of the new image should be one of the first items undertaken. Developing a new brand and creating the look for the system takes time, and decisions on colors, logos, name, etc, must be made now so that the new bus stops will match the image, shelters will convey the new brand, the new buses can incorporate the right elements during their manufacture, and the preparation of all marketing materials can commence. Bus service is a consumer product and must be considered as such. It is one of the few true such items that the City sells, and consumer-oriented approaches are required. The new brand should convey an attractive image for transit and should be unique to Asheville.

Phasing of the brand "reveal" will need to be determined. While the service changes are expected to be implemented July 1, 2010, some minor modifications to eliminate deviations may take place prior to then. Some new sidewalks and shelters may be installed by July, but the majority these improvements will not be in place. The timing for the implementation of the new bus stop signs is unknown. There are an estimated 1100 bus stops in the system, and the new look will need to be phased in over time. Perhaps the greatest concern for projecting the new brand is that the new vehicles will not be available until the end of 2010, approximately six months after the service changes go into effect. How should this delay be incorporated into marketing? Does the "reveal" happen with the service changes or with the buses? If too much of a marketing push is made at the start, and new riders come on to the system only to be disappointed with the quality of the vehicle, much of the goodwill will be lost and may not be recovered. A good marketing consultant can work through these issues with City and ATS staff.

The adoption of this Transit Master Plan, will direct the City staff to begin the process of procuring a marketing consultant to be hired to assist the City with the development of a new transit image. The expenditure of funds for a consultant will require a separate action by City Council. The marketing consultant should begin work no later than January 2010 assuming a service change implementation date of July 1, 2010.

7.1.4 Fare / Subsidy Changes

The current fare structure provides a substantial discount to riders who purchase passes and tickets. The amount of the discount is 36 % for ticket purchasers ($7 for 11 uses); 62 % for monthly pass purchasers ($15 for an assumed 40 uses per month); 76 % for annual pass purchasers ($120 for an assumed 490 uses per year, or three weeks of vacation and holidays annually); and 51 % for PassPort purchases. These discount levels are far in excess of the typical discounts offered in the US. The average discount offered by American Public Transportation Association (APTA) members[13] ranges from 15 % to 25 %.

To be more reflective of industry practice, the discounts are recommended to be reduced over the next five years to the level of 15 % for weekly tickets, 20 % for monthly passes, and 25 % for annual passes and the PassPort program. During the short-term, the discount would be set at 15% for tickets (raising the per-use fare from $0.64 to $0.85); 45 % for monthly passes (raising the per-use fare from $0.38 to $0.55); and 50 % for annual passes and the PassPort program (raising the per-use fare on annual passes from $0.24 to $0.50, and modestly raising the PassPort per-use fare from $0.49 to $0.50). No changes are recommended in the short-term for the cash fare; 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.

The effect of these changes will be to shift users from monthly passes to the other fare categories – if riders want to maintain their discount, they will purchase annual passes, or if absolute cost is a concern, they will switch to the tickets or the cash fare. Increasing the monthly and annual per-use fare should also increase the attractiveness of the PassPort program; City staff indicates that some companies do not participate because the monthly pass is so cheap in comparison.

Raising the fare will have the effect of causing some riders to stop riding, or to decrease their riding frequency. From APTA studies[14], the "fare elasticity" for small cities is -0.43, meaning for every 10 % increase in fares, ridership will decrease 4.3 %. While a loss in ridership is undesirable, the fare for the service must be reflective of the cost of providing the service. Actual ridership loss is anticipated to be lower than the average system since the discounted level is so high; even with an increase, the fares will still be a relative bargain. Results from other cities have indicated that the ridership loss over time is diminished; many riders will stop riding at the time of the initial increase, in many cases as a protest, but over the next 6-24 months, riders return to the system, especially if service enhancements accompany the fare increase.

The adoption of this Transit Master Plan will direct City staff to implement the fare increase for tickets and passes. The fare increase should be implemented at the same time as the short-term service improvements are implemented, projected to be July 1, 2010.

The *Transit Master Plan* recommends changes to the intercity service offered by ATS. This recommendation reflects the premium level of service that is offered on this route and reflects the changes required as part of the NCDOT funding grant for the service.

[13] APTA 2008 Fare Survey

[14] *Fare Elasticity and Its Application to Forecasting Transit Demand.* 1991

The adoption of this Transit Master Plan will direct City staff to finalize with NCDOT, the Town of Black Mountain, and Warren Wilson College the establishment of a new schedule and fare structure for the new 170 Warren Wilson / Black Mountain. Furthermore, City staff is directed to determine an appropriate level of contribution from the Town of Black Mountain and Warren Wilson College based upon the fully allocated cost of the service.

Also unresolved is the amount of service that should be provided to UNC-A. The *Transit Master Plan* recommends that the separate 3 Bulldog Express be discontinued due to poor usage and duplication of service, and that UNC-A instead direct its subsidy to providing later service on the 2 Merrimon / UNC-A – Lakeshore. Without a subsidy from UNC-A, the City will provide service on this route until 10 PM Monday through Saturday, and from 10 AM to 7 PM on Sunday. Should the university desire and fund, later or more frequent service can be provided.

The adoption of this Transit Master Plan will direct City staff to negotiate with UNC-A on the amount of additional service to be provided to the campus and the amount of funding required from the university to provide this service.

7.1.5 Summary of Short-Term Changes

Exhibit 7.2 lists the route and schedule changes that will be implemented in the first year of the *Transit Master Plan*.

Exhibit 7-2
Summary of Short-Term Route & Schedule Changes

1 Haywood Road	2 Merrimon / UNC-A – Lakeshore	4 Kenilworth
Headway: 60 minutes (unchanged) Span: 5:30 AM – 10:00 PM Weekdays, Saturday & Sunday Sunday service added. Includes Route 41 Schedule alternates with Route 9. Rerouted from Patton & Sulphur Springs to Johnston, N. Bear Creek, & Deaverview replacing Rt 15. Operates via Pisgah View Apts inbound & outbound. Service removed from Sulphur Springs and Michigan.	Route renamed from 2 Merrimon Avenue. Headway: 60 minutes (unchanged) Span: 6:00 AM – 10:00 PM Weekdays, Saturday & Sunday Sunday service added Includes Route 52 Schedule alternates with Route 14 (old Route 18N). Midland dial-a-ride eliminated. Beaverdam dial-a-ride eliminated.	Renamed from 4 Kenilworth/ Asheville Mall Headway: 60 minutes (unchanged) Span: 6:00 AM – 6:00 PM Weekdays Saturday service eliminated. Schedule alternates with Route 15 to Hillcrest Apartments. Extended via Tunnel Rd & Chunns Cove to Social Security. Extended via Hill St. to Hillcrest Apts. Service removed from Caledonia, & Warwick.

6 Hendersonville Rd – Airport Headway: 60 minutes (increased from 90 minutes) Span: 5:30 AM – 6:00 PM (earlier trips) Weekdays, Saturday Schedule alternates with Route 8. Rerouted from Ashland & McDowell to Biltmore. Extended along Long Shoals to the traffic circle on Schenck Parkway inbound and outbound.	**7 North Asheville Loop** Renamed from combined 5 Charlotte Street and 11 Montford/Klondyke/Hillcrest Headway: 60 minutes (reduced from 30 minutes on Rt. 11; unchanged on Rt. 5) Span: 6:00 AM – 6:00 PM (reduced on Rt. 11) Weekdays Saturday service eliminated Rerouted from Tunnel Rd to Martin Luther King, Jr. Drive. Rt 5 extended to UNC-A via Evelyn, Edward, & WT Weaver. Dial-a-ride along Kimberly eliminated. Rt. 11 extended to UNC-A via Zillicoa, Broadway, & WT Weaver. Service removed from Hillcrest Apts (served by routes 4 & 15).	**8 Biltmore Ave – Shiloh** Headway: 60 minutes (unchanged) Span: 6:00 AM – 10:00 PM Weekdays, Saturday & Sunday Sunday service added Includes Route 36 Schedule alternates with Route 6. Extended to Medical Park via Sweeten Creek. Service removed from Hendersonville south of Rock Hill.
9 Brevard Road Renamed from 9 Brevard Road/Biltmore Square Headway: 60 minutes (unchanged) Span: 6:00 AM – 6:00 PM Weekdays, Saturdays Schedule alternates with Route 1. Service truncated south of Biltmore Square Mall.	**10 S. French Broad – AB Tech** Renamed from 18 Erskine Street Headway: 60 minutes (unchanged) Span: 6:00 AM – 10:00 PM Weekdays, Saturday Includes Route 38. Route relocated from McDowell to S. French Broad providing 2-way service. Route extended from AB Tech to Biltmore Village. Service added on Livingstone. Service removed from Erskine Apts., Pine Grove, Churchill, Congress, Choctaw, & Southside.	**13 Tunnel Road – Haw Creek** Renamed from 13 Tunnel Road/ Oteen/Haw Creek Headway: 60 minutes (unchanged) Span: 6:00 AM – 6:00 PM Weekdays, Saturday Schedule alternates with Route 26. Route relocated to serve Haw Creek area in both directions by relocating from Swannanoa River Road. Route extended to ABCCM Veteran's Restoration Quarters and Transitional Housing. Service added to Bell Road. Service for Spruce Hill Apts. relocated to Old Haw Creek.

14 Merrimon / UNC-A - Beaverdam Renamed from 18 Flint Street Headway: 60 minutes (unchanged) Span: 6:00 AM – 6:00 PM Weekdays, Saturday Schedule alternates with Route 2. Route relocated to Merrimon from Broadway. Service removed from Broadway, Flint, West Chestnut, Mount Claire, Hillside, and Magnolia. Route extended along Beaverdam.	**15 New Leicester Highway** Renamed from 15 Patton Avenue/ Deaverview Headway: 60 minutes (unchanged) Span: 5:30 AM – 10:00 PM Weekdays, Saturdays, Sundays Sunday service added Includes Route 46. Schedule alternates with Route 16 on Patton and Route 4 to Hillcrest Apartments. Route relocated to New Leicester Highway to Land-of-Sky Council. Service on N. Bear Creek, Deaverview & Baker provided by new Route 1. Extended via Hill St. to Hillcrest Apts. Service removed from Baker. Deviation to Eliada Children's Home eliminated.	**16 Patton Avenue** Renamed from 16 Bingham Heights Headway: 60 minutes (unchanged) Span: 6:00 AM – 6:00 PM Weekdays, Saturday Schedule alternates with Route 15. Route relocated from N. Louisiana to operate along length of Patton Avenue, replacing Route 1. Route extended to AB Tech-Enka campus. Service removed from Hazel Mill.
21 Crosstown Renamed from 12 Oakley/River Ridge Headway: 60 minutes (unchanged) Span: 6:00 AM – 6:00 PM Weekdays, Saturday Route converted from a downtown service to a crosstown. Service added to AB Tech, Pisgah View Apts. & Louisiana Ave. Route takes over N. Louisiana from Route 16. Service removed from Ashland, McDowell, Liberty, Raleigh, Onteora, & River Ridge. Dial-a-ride service off Bingham eliminated.	**26 Tunnel Road – Swannanoa River** Renamed from 26 Asheville Mall/Tunnel Road Headway: 60 minutes (unchanged) Span: 6:00 AM – 10:00 PM Weekdays, Saturday & Sunday Sunday service added. Schedule alternates with Route 13. Service extended to VA Hospital. Service removed from Target.	**170 Warren Wilson / Black Mountain** Renamed from 28 Black Mountain and 29 Warren Wilson/Swannanoa Headway: 120 minutes Span: 6:30 AM – 11:30 PM Weekdays, Saturday Schedule expanded to all-day service and coordinated with Greyhound schedules

Several routes are eliminated or combined with other routes.

- 3 Bulldog Express is combined with Route 2 if funded by UNC-A.
- 54 Weaverville and its corresponding ADA service is eliminated due to lack of funding. Alternate service is available through Mountain Mobility.
- Evening routes – 36 Biltmore Avenue/Shiloh, 38 Erskine/AB Tech, 41 Haywood Road/ Deaverview, 46 Bingham Heights, 51 Montford/Hillcrest, 52 Merrimon Avenue/UNC-A are combined with their daytime counterparts.

Besides the service changes to every route in the system, 10 new buses are being ordered. Half of the buses will be 30-foot hybrid buses and half will be 35-foot diesel buses. Buses will include Automatic Vehicle Locators to provide real-time schedule information to riders. When the 10 new buses arrive, 9 buses should be retired from the fleet. This one-bus increase will provide an additional spare bus. Additional passenger amenities are installed, including 10 shelters, 150 new bus stop signs, and one-half mile of sidewalks. Repairs are made to the maintenance facility, and the parking area is expanded.

The fares for tickets and passes are increased, but the cash fare remains the same.

The rollout of the new "brand" for the system is implemented. Marketing expenses as a percentage of the operating budget are highest in this year to launch the new system identity.

7.2 Near Term Improvements

Near-term improvements cover those improvements in Years 2 through Year 5. These improvements are more general in nature and the determination of which ones are appropriate will be partially determined by the success of the implementation of the "new" ATS in Year 1. As has been noted, the amount of changes that can be implemented in the near-term will be limited by the available capacity at the downtown transit center and the ATS maintenance facility. The prioritization of the service additions are based upon current circumstances, but should be considered as flexible to allow for changing circumstances.

2012 Enhancements

- Additional Frequency on 21 Crosstown. As a top priority, an additional bus should be added to the 21 Crosstown to provide a 30-minute headway.
- Expanded hours of Sunday Service. Sunday service hours should be extended to a 10 hour span, roughly 9 AM to 7 PM on all five routes with Sunday service during Year 2 if Year 1 was successful.
- Continue Marketing Program. The marketing program should continue at a high level to further establish the new brand.
- Purchase Two Additional 30-foot Buses. With this purchase, two of the oldest buses should be retired, maintaining the fleet at 22 buses.
- Construct One 4-Bay Neighborhood Transit Center. One off-street transit center should be constructed at one of the western focal points.
- Continue Installing 10 Shelters, 150 Bus Stops, And Half-Mile Of Sidewalk.
- Maintain Fares At 2011 Levels.

2013 Enhancements

- Pisgah View to Hillcrest Apartment Circulator. With the Implementation of this route, Routes 1, 4, 9, and 15 should be examined for extensions using their existing number of peak buses.
- Adjust Marketing Levels to "Normal". After two years of expanded marketing efforts, the amount spent on marketing should drop to 3 % of operating costs and stay at this level.
- Conduct Rider Count. A boarding & alighting count of all routes should be conducted to gauge the results of the 2011 changes.

- Make Modest Improvements to Downtown Transit Center. In order to prolong the life of the transit center until a replacement is constructed, modest improvements and repairs should be made to the central location of transit service.
- Purchase 4 30-foot Buses. With this purchase, all 16 of the oldest buses in the fleet will have been replaced. Two of the oldest buses should be retired, resulting in an overall fleet of 24 buses.
- Continue Installing 10 Shelters, 150 Bus Stops, And Half-Mile Of Sidewalk.
- Continue Pass Fare Adjustment. As a second step in increasing these fares to national discounts, the average fare amount should be increased $0.15 ($0.70 for monthly pass per-use fare, and $0.65 for annual and PassPort per-use fare.

2014 Enhancements

- Additional Frequency On One Trunk Corridor. One of the four trunk corridors (not including Biltmore) should have its frequency doubled to every 15 minutes (every 30 minutes on each of the routes). Other than the Biltmore corridor, two additional peak buses are required (Biltmore requires three buses). When this implementation occurs, a four-pulse cycle can be implemented at the downtown transit center.
- Continue Marketing Program.
- Purchase 4 30-foot Buses, and 2 35-foot Buses. These purchases will allow the retirement of the last three of the oldest buses in the fleet. The total fleet size will be 27 buses.
- Continue Installing 10 Shelters, 150 Bus Stops, And Half-Mile Of Sidewalk.
- Maintain Fares At 2013 Levels.

2015 Enhancements

- Malvern Hills/West Asheville Estates/Virginia Ave Shuttle. This shuttle service fills in a gap in the service coverage.
- Long Shoals Road Express. This service will be the first express route as opposed to an intercity route. With this change, modifications to the 6 Hendersonville Road may be appropriate.
- Conduct new Transit Master Plan. In 2015, it will have been 5 years since the last Transit Master Plan. The new plan should carefully review the performance of the previous changes and identify new priorities for the next 5-10 years.
- Continue Marketing Program.
- Purchase 1 30-foot and 2 35-foot Buses. No buses are retired with this purchase, bringing the total fleet to 30 buses.
- Design New Maintenance Facility. The planning and design of the replacement facility should be undertaken, with construction occurring in the following year.
- Construct One 4-Bay Neighborhood Transit Center. One off-street transit center should be constructed at one of the western focal points.
- Continue Installing 10 Shelters, 150 Bus Stops, And Half-Mile Of Sidewalk.
- Increase Base Fares To $1.25 And Modify Other Fares. To continue to provide funding for the ongoing expansion, the base fare should be increased. This is the first increase in the cash fare. The other fare categories should all have a corresponding increase to provide the same percentage discount, and the passes should have their final adjustment to provide a 20 % discount for monthly passes and 25 % for annual passes and the PassPort program.

7.3 Ten Year Vision Plan

In the long term, assuming the capacity issues have been resolved, additional services can be added. Most of the remaining potential service expansions noted in Section 6.1.3 are outside of the current Asheville city limits, but are within the potential annexation area. City Transit staff should work closely with the other City departments in developing the service plans for any areas to be annexed. As the annexation plan is developed, the priority of the potential service additions can be set.

Asheville should actively work during the long term to reshape the land use. Higher intensity development should be promoted along the five corridors. Social service and other agencies targeted to the transit dependent should all be located where they can easily be served. The older HACA properties should be disposed of and the residents relocated to areas with high frequency transit service.

The following summarizes the year-by-year enhancements.

2016 Enhancements

- Add One Additional Sunday Route. If the Sunday service addition program has been successful, additional routes should receive Sunday service.
- Add One Additional Shuttle Route. One of the potential shuttle routes noted in Section 6.1.3.2 should be added, principally based upon any changes to the Asheville city limits.
- Continue Marketing Program.
- Purchase Two 30-foot Buses and One 35-foot Bus. With this purchase the total fleet size increase to 33 buses, and both the 30-foot and 35-foot subfleets now will have 20 % spares.
- Construct New Maintenance Facility. The replacement facility should be constructed during this year to provide continuing capacity for the fleet.
- Design Downtown Transit Center. The planning and design for the new downtown transit center is programmed for this year, with construction in the following year.
- Continue Installing 10 Shelters, 150 Bus Stops, And Half-Mile Of Sidewalk.
- Maintain Fares At 2015 Levels.

2017 Enhancements

- Additional Frequency On One Trunk Corridor. One of the three trunk corridors (not including Biltmore) should have its frequency doubled to every 15 minutes (every 30 minutes on each of the routes).
- Continue Marketing Program.
- Purchase 2 30-foot Buses, and 2 35-foot Buses. With these purchases, three of the 2006 model-year buses should be retired. The total fleet size will be 34 buses.
- Construct New Downtown Transit Center. A new 10-bay transit center should be constructed to reinforce the new image of the system and to maintain customer service levels.
- Continue Installing 10 Shelters, 150 Bus Stops, And Half-Mile Of Sidewalk.
- Maintain Fares At 2015 Levels.

2018 Enhancements

- Add One Additional Sunday Route.
- Add One Additional Shuttle Route. One of the potential shuttle routes noted in Section 6.1.3.2 should be added, principally based upon any changes to the Asheville city limits.

- Add One Additional Express Route. One of the potential express routes noted in Section 6.1.3.2 should be added.
- Continue Marketing Program.
- Purchase 2 30-foot Buses, and 4 35-foot Buses. With these purchases, the remaining two of the 2006 model-year buses should be retired. The total fleet size will be 38 buses.
- Construct One 4-Bay Neighborhood Transit Center. One off-street transit center should be constructed at the northern or eastern focal points. The Biltmore Village focal point will receive a transit center in conjunction with the NCDOT construction of the new Asheville Train Station.
- Continue Installing 10 Shelters, 150 Bus Stops, And Half-Mile Of Sidewalk.
- Maintain Fares At 2015 Levels.

2019 Enhancements

- Add Two Additional Shuttle Routes. Two of the potential shuttle routes noted in Section 6.1.3.2 should be added, principally based upon any changes to the Asheville city limits.
- Add One Additional Express Route. One of the potential express routes noted in Section 6.1.3.2 should be added.
- Continue Marketing Program.
- Purchase 1 30-foot Buses, and 4 35-foot Buses. With these purchases, the total fleet size will be 43 buses.
- Construct One 4-Bay Neighborhood Transit Center. One off-street transit center should be constructed at the northern or eastern focal points.
- Continue Installing 10 Shelters, 150 Bus Stops, And Half-Mile Of Sidewalk.
- Maintain Fares At 2015 Levels.

2020 Enhancements

- Additional Frequency On One Trunk Corridor. One of the two trunk corridors (not including Biltmore) should have its frequency doubled to every 15 minutes (every 30 minutes on each of the routes).
- Add One Additional Sunday Route.
- Conduct new Transit Master Plan. In 2020, it will have been 5 years since the last Transit Master Plan.
- Continue Marketing Program.
- Purchase 3 35-foot Buses. With these purchases, the total fleet size will be 46 buses.
- Construct One 4-Bay Neighborhood Transit Center. One off-street transit center should be constructed at the northern or eastern focal points.
- Continue Installing 10 Shelters, 150 Bus Stops, And Half-Mile Of Sidewalk.
- Increase Base Fares To $1.50 And Modify Other Fares. To continue to provide funding for the ongoing expansion, the base fare should be increased. This is the first increase in five years.

8 Financial Plan

This chapter presents the estimated operating and capital costs for the system for each of the three time periods. Several assumptions have been built into these estimates.

8.1 Short-Term Financial Impacts

8.1.1 Operating Costs and Revenues

In the short term, the financial plan calls for the implementation of the service and capital program detailed in Section 7.1. The estimated operating costs and revenues for this program, assuming a modest 2.7 % historic inflation is detailed in **Exhibit 8-1**.

The existing operating costs are reflected principally in the "Existing Service" category, although the costs for the new 170 Warren Wilson / Black Mountain have been shown in the Intercity line item and the cost of the ADA paratransit service contracted to Mountain Mobility is shown in the ADA line item. "Existing" costs and revenues represent the current year (FY 2009-10) budgeted amounts; actual amounts may be different at year end.

The only difference for the "existing service" category from 2010 to 2011 is to inflate the costs based upon the compounded annual growth rate of past 10 years for the Consumer Price Index. The "Network Redesign" category includes the costs associated with implementing the concept plan and reflects the expenses of optimizing the existing service. The major cost item is the addition of one bus to the 6 Hendersonville Rd – Airport to increase the service frequency from every 90 minutes to every 60 minutes. No further "Frequency Increases" occur in the short-term. "Sunday Service" reflects the cost of adding in Sunday service on the five routes. No costs are shown for "Shuttle Service" or "Express / Park & Ride" because these service enhancements are not assumed for the short-term. Frequency increase as used here denotes increases beyond the standard hourly headway. "Intercity" costs show a decline due to the assumed discontinuation of the 54 Weaverville. The "ADA" costs reflect changes based upon the reduction in the coverage area to drop Weaverville, since that route is no longer provided, and a modest increase in costs to cover the provision of Sunday service, which will now be required since the fixed routes offer Sunday service. Total service costs increase by $400,000 in the short-term.

A separate line item has been shown for "Marketing" costs. As noted in previous sections, bus service needs to be viewed as a consumer item and needs to be sold as such. For 2011, marketing costs have been set at 5 % of operating costs to reflect the expense of creating a new "brand". Without this marketing boost, the projected ridership and fare levels are unlikely to occur. As a percent of costs, marketing will decline as the brand is established. The line item for "Data Collection / Analysis" reflects that a system re-evaluation will be required to determine how well the changes are being received by the public. These costs are assumed to occur in later years. Total operating costs increase by $700,000 in the short-term.

Exhibit 8-1
FY 2011 Operating Costs

Operation Costs and Revenues	Existing	Short-Term
FY	2010	2011
Existing Service	$4,549,000	$4,524,000
Network Redesign	$0	$492,000
Frequency Increase	$0	$0
Sunday Service	$0	$208,000
Shuttles	$0	$0
Express / Park & Ride	$0	$0
Intercity	$583,000	$329,000
ADA	$308,865	$297,000
Total Service Cost	**$5,440,865**	**$5,850,000**
Marketing	$0	$293,000
Data Collection/Analysis		
Total Operating	**$5,440,865**	**$6,143,000**
Fare Revenue	$568,000	$772,000
ADA Fare Revenue	$55,000	$57,000
Operating Deficit	**$4,817,865**	**$5,314,000**
Federal Share (Section 5307)	$1,457,000	$997,000
Non-Federal Share	**$3,361,000**	**$4,317,000**
State Funds (SMAP)	$1,017,000	$1,043,000
State Funds (Intercity)	$476,000	$231,000
Advertising	$70,000	$72,000
Local Governments	$24,000	$14,000
Sponsorship	$77,000	$79,000
City Share	**$1,697,000**	**$2,878,000**

Fare revenues reflect a conservative estimate of the increase in fare revenue due to changes in ridership as a result of the new service and recommended fare increases. The projected change in ridership (and consequentially, fares) includes additional riders due to the new services. Ridership on new services are assumed to grow over a three-year period; a new route will not realize its full ridership potential in the first year of operation. Ridership is further adjusted up by the projected 1.1 % annual population growth, and is adjusted downward by the projected fare elasticity applied to the ticket and pass categories. Taking the fare revenue from the operating costs leaves an estimated operating deficit of $6.1 million, an increase in the deficit of $500,000.

The Federal share comes from the Section 5307 formula funds. This amount shows a significant decline from the current year because of a change in the funding rules. These funds cannot be used for "operating" expenses in cities with 200,000 or more in their urbanized population. Under an exception to this rule, cities, such as Asheville, that moved from the lower population category to the higher population category in the 2000 Census were permitted to continue to use these funds for operating expenses in FY 2010. In FY 2011, this exception expires. Under FTA definitions, all cities are permitted to use the funds for capital expenses, including preventive maintenance, and for a portion of the ADA expenses. The net result of these changes is a loss of $460,000 in federal money for operations. These assumptions are considered to be conservative.

For conservative purposes, State Maintenance Assistance Program (SMAP) funds are assumed to be the same as current levels, with a modest increase for inflation. An increase in these funds could occur due to the increase in service levels, but such an increase is uncertain. For budgeting purposes, the conservative assumption of no increase has been assumed. Intercity funds are estimated at this point, since the final operating plan for the 170 Warren Wilson / Black Mountain has not been determined. The assumption used in the financial plan is that the State intercity funds, local government funds (Black Mountain), and sponsorships (Warren Wilson College) will cover the costs. Local government funds are showing a decrease since Weaverville funding is assumed to be discontinued. The Sponsorship funding also includes a modest amount from UNC-A at their current levels for a redirected funding of late night service to the campus. ATS currently receives a small amount of revenue from advertising on its buses. This amount is conservatively budgeted to continue at the same levels, with a modest increase for inflation.

Any costs not covered by the above revenue sources will be the responsibility of local sources, labeled here as the "City Share". Due to the conservative estimates reflected above, the City share shows an increase of $1.18 million. This is a large amount to be sure, representing a 70 % increase in the City funding levels. It is important to realize that even if NO changes were made to the existing service and no money spent on marketing, the City share would still increase by $400,000 due to the effect of inflation and the loss of federal funds, without benefit of the additional fare revenue from riders on the new services. Without the fare increase for passes and tickets, another $210,000 would also be required. **Exhibit 8-2** summarizes the causes of the City Share increase.

Exhibit 8-2
Increased City Share Components

Category	Amount
Network Redesign	$490,000
Sunday Service	$210,000
Marketing	$290,000
LESS Minor Service Adjustments	-$30,000
Net Operating Cost Increase	$940,000
LESS Additional Fare Revenue	-$210,000
LESS Inflationary SMAP increase	-$30,000
PLUS Loss of Federal Funds	$460,000
EQUALS Increase in City Share	$1,180,000

For the $1.18 million investment, the City gets in return the maintenance of the existing level of service plus more frequent service to the airport and along the five major corridors; the addition of Sunday services on five routes; and the creation of a new transit "brand" to build upon a multimodal and sustainable future for the City.

8.1.2 Capital Costs and Funding Sources

During the current fiscal year, Asheville did not budget for any capital investments in the transit system. **Exhibit 8-3** shows the projected capital investment costs for the ATS system in the short-term.

Exhibit 8-3
FY 2011 Capital Costs and Funding

Capital Plan	Existing	Short-Term
FY	2010	2011
Vehicles	$0	$4,769,000
Maintenance Facility		$500,000
AVL		$57,000
Transit Center	$0	$0
Shelters	$0	$103,000
Signs	$0	$16,000
Sidewalks	$0	$163,000
Total Capital	**$0**	**$5,608,000**
Federal Share (Section 5307)	$0	$998,000
Assumed Fed Share (Sec. 5309)	$0	$3,488,000
Non-Federal Share	**$0**	**$1,122,000**
State Funds	$0	$561,000
City Share	**$0**	**$561,000**

Capital expenses during the upcoming year primarily reflect the purchase of 10 new buses. For the maintenance facility, a projected $500,000 has been included to cover roof repairs, the acquisition of land for additional bus parking, and the construction of an expanded outdoor parking area. The AVL line item reflects the additional cost for equipping the new buses with Automatic Vehicle Locators, necessary for the display of real-time bus schedule information. The additional line items reflect an assumed recurring cost for 10 shelter installations per year, the replacement of 150 bus stop signs per year, and the construction of a half-mile of sidewalks per year. Note: The sidewalk costs are assumed to be in addition to the regular sidewalk program already in place by the City as part of the implementation of the *Pedestrian Plan*. No costs are included in the short-term for transit centers; these costs will incur in later years.

The federal share of the costs reflects two sources: the Section 5307 funds which are allocated to Asheville on a formula basis, and the discretionary Section 5309 funding source. Whatever Section 5307 funds have not been used for the operating costs can be applied to the capital costs. Federal money can be used to pay for up to 80 % of the capital costs. State funds are assumed to pay for 10 % of the costs, with the remaining 10 % of the costs being a local responsibility.

8.2 Near-Term Financial Impacts (Years 2-5)

8.2.1 Operating Costs and Revenues

The estimated operating costs and revenues to implement the service plan in the near-term are summarized in **Exhibit 8-4**.

Exhibit 8-4
Near-Term (Year 2-5) Operating Costs

Operation Costs and Revenues	Near-Term			
FY	2012	2013	2014	2015
Existing Service	$4,640,000	$4,758,000	$4,880,000	$5,004,000
Network Redesign	$505,000	$517,000	$531,000	$544,000
Frequency Increase	$290,000	$297,000	$1,217,000	$1,248,000
Sunday Service	$237,000	$243,000	$250,000	$256,000
Shuttles	$0	$889,000	$912,000	$1,248,000
Express / Park & Ride	$0	$0	$0	$259,000
Intercity	$338,000	$346,000	$355,000	$364,000
ADA	$304,000	$312,000	$318,000	$298,000
Total Service Cost	**$6,314,000**	**$7,362,000**	**$8,463,000**	**$9,221,000**
Marketing	$253,000	$221,000	$254,000	$277,000
Data Collection/Analysis		$27,000		$142,000
Total Operating	**$6,567,000**	**$7,583,000**	**$8,717,000**	**$9,498,000**
Fare Revenue	$832,000	$985,000	$1,108,000	$1,420,000
ADA Fare Revenue	$58,000	$60,000	$61,000	$71,000
Operating Deficit	**$5,677,000**	**$6,538,000**	**$7,548,000**	**$8,007,000**
Federal Share (Section 5307)	$1,023,000	$1,049,000	$1,076,000	$1,103,000
Non-Federal Share	**$4,654,000**	**$5,489,000**	**$6,472,000**	**$6,904,000**
State Funds (SMAP)	$1,070,000	$1,125,000	$1,183,000	$1,276,000
State Funds (Intercity)	$237,000	$243,000	$249,000	$255,000
Advertising	$74,000	$75,000	$77,000	$79,000
Local Governments	$14,000	$15,000	$15,000	$15,000
Sponsorship	$81,000	$83,000	$85,000	$87,000
City Share	**$3,178,000**	**$3,948,000**	**$4,863,000**	**$5,192,000**

The assumed operating changes described in Section 7.2 are phased in over the four-year period. Costs have been increased to reflect the projected inflation levels over the time period.

Over the near term, Sunday service hours have been increased to 10 hours per day. The frequency increase category assumes that the 21 Crosstown goes to a 30-minute headway and that one of the five main corridors has its two routes increased to a 30-minute headway each, resulting in a 15-minute headway on the trunk portion. Two shuttle service are implemented – the connection between Pisgah View and Hillcrest Apartments and the Malvern Hills shuttle. The Long Shoals Express service is also implemented. Marketing levels are set at 4 % in 2012, and 3 % in subsequent years.

In 2013, fare revenues are projected to increase resulting from the second step increase in the pass fares. In 2015, an increase in the base fare to $1.25 and corresponding increases to the other fare categories are reflected.

Other funding sources are assumed to increase with the rate of inflation. The result is that the City of Asheville's share of expenses increases disproportionally to the other funding sources due to the increase in the amount of service offered.

In reality, the above assumptions are extremely conservative from a City budgetary standpoint. Federal funds are likely to increase faster than the rate of inflation, but no one knows what the final number will be. In ordinary years, such projections are difficult at best, but as this report is being written, Congress is debating the reauthorization of Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), the major program that funds all transportation programs in the US. Anticipations are that transit will receive a significant increase in funding as part of the replacement act, but until it is passed into law and annual funds actually appropriated, the amount will be a guess. This *Transit Master Plan* has erred on the conservative side.

8.2.2 Capital Costs and Funding Sources

Exhibit 8-5 shows the projected capital costs for the ATS system in the near-term.

Exhibit 8-5
Near-Term (Year 2-5) Capital Costs and Funding

Capital Plan	Near-Term			
FY	2012	2013	2014	2015
Vehicles	$1,116,000	$2,302,000	$3,279,000	$1,545,000
Maintenance Facility				$2,245,000
AVL	$12,000	$24,000	$37,000	$19,000
Transit Center	$3,276,000	$500,000	$0	$3,577,000
Shelters	$106,000	$109,000	$112,000	$116,000
Signs	$17,000	$17,000	$18,000	$18,000
Sidewalks	$168,000	$173,000	$178,000	$183,000
Total Capital	**$4,695,000**	**$3,125,000**	**$3,624,000**	**$7,703,000**
Federal Share (Section 5307)	$1,023,000	$1,049,000	$1,075,000	$1,103,000
Assumed Fed Share (Sec. 5309)	$2,733,000	$1,451,000	$1,824,000	$5,059,000
Non-Federal Share	**$939,000**	**$625,000**	**$725,000**	**$1,541,000**
State Funds	$470,000	$313,000	$363,000	$771,000
City Share	**$469,000**	**$312,000**	**$362,000**	**$770,000**

Buses, for expansion and replacement, are purchased over this four-year period. The maintenance facility amount is for the planning and design of the replacement facility. The Transit Center expense assumes modest improvements to the downtown facility, and the construction of two new neighborhood transit centers.

The City and State shares as shown as being slightly different due to rounding in the assumptions.

8.3 Long-Term Financial Impacts (Years 6-10)

8.3.1 Operating Costs and Revenues

The estimated operating costs and revenues to implement the service plan in the long-term are summarized in **Exhibit 8-6.**

Exhibit 8-6
Long-Term (Year 6-10) Operating Costs

Operation Costs and Revenues	Long-Term				
FY	2016	2017	2018	2019	2020
Existing Service	$5,132,000	$5,263,000	$5,397,000	$5,535,000	$5,676,000
Network Redesign	$558,000	$572,000	$587,000	$602,000	$617,000
Frequency Increase	$1,279,000	$2,296,000	$2,354,000	$2,414,000	$3,537,000
Sunday Service	$315,000	$323,000	$387,000	$396,000	$465,000
Shuttles	$1,600,000	$1,640,000	$2,019,000	$2,644,000	$2,711,000
Express / Park & Ride	$266,000	$272,000	$559,000	$860,000	$882,000
Intercity	$374,000	$383,000	$393,000	$403,000	$413,000
ADA	$310,000	$319,000	$335,000	$352,000	$344,000
Total Service Cost	**$9,834,000**	**$11,068,000**	**$12,031,000**	**$13,206,000**	**$14,645,000**
Marketing	$295,000	$332,000	$361,000	$396,000	$439,000
Data Collection/Analysis					$161,000
Total Operating	**$10,129,000**	**$11,400,000**	**$12,392,000**	**$13,602,000**	**$15,084,000**
Fare Revenue	$1,536,000	$1,694,000	$1,827,000	$1,980,000	$2,410,000
ADA Fare Revenue	$74,000	$76,000	$80,000	$84,000	$99,000
Operating Deficit	**$8,519,000**	**$9,630,000**	**$10,485,000**	**$11,538,000**	**$12,575,000**
Federal Share (Section 5307)	$1,131,000	$1,160,000	$1,190,000	$1,220,000	$1,251,000
Non-Federal Share	**$7,388,000**	**$8,470,000**	**$9,295,000**	**$10,318,000**	**$11,324,000**
State Funds (SMAP)	$1,376,000	$1,522,000	$1,683,000	$1,909,000	$2,165,000
State Funds (Intercity)	$262,000	$269,000	$276,000	$283,000	$290,000
Advertising	$81,000	$84,000	$86,000	$88,000	$90,000
Local Governments	$16,000	$16,000	$17,000	$17,000	$17,000
Sponsorship	$90,000	$92,000	$94,000	$97,000	$99,000
City Share	**$5,563,000**	**$6,487,000**	**$7,139,000**	**$7,924,000**	**$8,663,000**

The assumed operating changes described in Section 7.3 are phased in over the four-year period. Costs have been increased to reflect the projected inflation levels over the time period. One fare increase, a raise in the base fare to $1.50 and corresponding increases in other fares, has been assumed for 2020. Other funding increases are assumed to occur in line with inflation.

One important item to highlight for decision makers is the effect of inflation on costs. The costs for the existing services, as adjusted in 2011, increases by $1.2 million by 2020. Costs can not be held constant over the 10 years unless services are reduced.

8.3.2 Capital Costs and Funding Sources

Exhibit 8-7 shows the projected capital costs for the ATS system in the long-term.

Exhibit 8-7
Long-Term (Year 6-10) Capital Costs and Funding

Capital Plan	Long-Term				
FY	2016	2017	2018	2019	2020
Vehicles	$1,743,000	$2,293,000	$3,387,000	$2,801,000	$1,631,000
Maintenance Facility	$12,845,000				
AVL	$20,000	$27,000	$42,000	$36,000	$22,000
Transit Center	$1,563,000	$8,943,000	$3,907,000	$4,023,000	$0
Shelters	$119,000	$123,000	$126,000	$130,000	$134,000
Signs	$19,000	$19,000	$20,000	$21,000	$21,000
Sidewalks	$189,000	$195,000	$200,000	$206,000	$212,000
Total Capital	**$16,498,000**	**$11,600,000**	**$7,682,000**	**$7,217,000**	**$2,020,000**
Federal Share (Section 5307)	$1,132,000	$1,160,000	$1,190,000	$1,220,000	$1,252,000
Assumed Fed Share (Sec. 5309)	$12,066,000	$8,120,000	$4,956,000	$4,554,000	$364,000
Non-Federal Share	**$3,300,000**	**$2,320,000**	**$1,536,000**	**$1,443,000**	**$404,000**
State Funds	$1,650,000	$1,160,000	$768,000	$722,000	$202,000
City Share	**$1,650,000**	**$1,160,000**	**$768,000**	**$721,000**	**$202,000**

During this period, there are two major expenses that are unlikely to be repeated – the replacement of both the downtown transit center and the maintenance facility.

8.4 Potential New Funding Sources

During the 2009 legislative session, the General Assembly passed House Bill (HB) 148, which upon the Governor's signature became Session Law 2009-527[15]. This law provides two new or increased funding sources dedicated to transit service – a new sales tax and an increase in the motor vehicle registration fee.

8.4.1 Dedicated Sales Tax

This law gives all counties in the state, outside of the three major metropolitan areas, the ability to raise money dedicated to transit by allowing county residents to vote on increasing the sales tax by ¼ %, or $0.25 for every $100 purchased. The sales tax can only be imposed after a vote in the entire county – Asheville cannot conduct its own election, and the vote must pass in the entire county to be implemented. The County Commissioners would need to then formally adopt the sales tax after a favorable public vote.

Whether this revenue source is appropriate for Asheville and Buncombe County, and the timing of any referendum should one occur, will be subject to debate over the coming months and possibly years. Dedicated funding for transit was called for in the *City Development Plan 2025* and the FBR-MPO *Coordinated Public Transportation and Human Services Transportation Plan.*

[15] http://www.ncga.state.nc.us/Sessions/2009/Bills/House/PDF/H148v6.pdf

To provide decision makers with an idea of the revenue potential for this tax, the sales tax revenue in Asheville and Buncombe Count for 2007 and 2008 was examined. Based upon this review, a ¼ % sales tax could annually raise in

Buncombe County	$7,200,000
Asheville	$1,900,000
Biltmore Forest	$ 90,000
Black Mountain	$ 120,000
Montreat	$ 40,000
Weaverville	$ 110,000
Woodfin	$ 50,000

These estimates are based upon the lower sales tax receipts reflecting the down turn in the economy. However, these estimates may be on the high side since the potential sales tax would not apply to food, which could reduce this potential funding source by 5-15 %.

This dedicated tax could generate about $7.2 million in the county as a whole to fund transit services, or more than three times what Asheville currently spends as its local share. These revenues would need to be shared with Mountain Mobility, but could be used for any operating or capital expense. These funds can only be used to supplement existing funding of public transportation and cannot be used to supplant or replace existing funding.

8.4.2 Dedicated Vehicle Registration Fee

Session Law 2009-527 also provides for the ability of counties to levy up to a $7.00 fee on vehicles registered within the county, with the proceeds dedicated toward public transportation. This fee can be imposed without requiring a vote of the residents.

Information on the number of registered vehicles in the county was not available, but the City of Asheville has budgeted in 2010 $310,000 for its $5 vehicle registration fee. Assuming a proportion increase from $5 to $7, the new fee in Asheville could generate $434,000. If the vehicle proportions follow the population proportions for the county, all of Buncombe County could generate $1,160,000 from the vehicle registration fee.

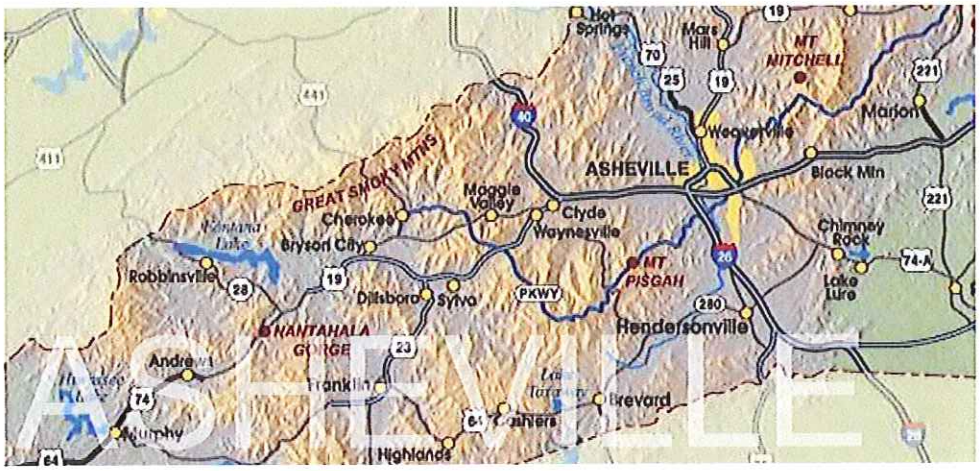
8.4.3 Potential Funding Compared with Expense

The two new funding sources could generate about $8.4 million in new revenues dedicated to transit service ($7.2 million in sales taxes and $1.2 million in vehicle registration fees). This amount of funding is more than double the estimated $3.4 million City Share for capital and operating costs in 2011 ($2.9 million in operating and $0.5 million in capital). Even without any inflationary increases, the $8.4 million would cover the City Share in each year until 2019.

Should these dedicated funding sources be implemented, a much more aggressive service expansion program could be instituted throughout the county, and many improvements could be accelerated. Additional commuter services could be offered, and more routes could see their frequency increased to

every 30 minutes during peak periods. Saturday and Sunday service could be offered on all routes, and with extended hours of operation on Sunday.

Should the County and the voters elect to implement either of these funding sources, a revised *Transit Master Plan* should be developed to determine the most appropriate uses of the additional funds.



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