

**Fayetteville Area System of Transit (FAST)  
Transit Development Plan Update  
Executive Summary**

This report is an update to the 2008 Transit Development Plan for the Fayetteville Area System of Transit (FAST). This study assesses the effects of recent improvements and changes in both development patterns and demographics that have occurred since 2008. Key aspects of the study include a thorough analysis of current transit services, development of strategies to address current and projected needs, and identification of capital and operational costs.

A major reason for conducting this study at this time is to address planned developments in West Fayetteville. Newly available data from the 2010 census allows for a timely reassessment of demographic patterns within the City. The potential expansion of paratransit service City-wide requires careful analysis before a decision is made. Finally, the opportunity to build on recent increases in ridership and revenue will allow the City to move closer to achieving its mobility goals. This study provides an implementable plan, crafted with citizen and stakeholder input, that considers and quantifies all relevant information.

**Route Profiles**

Table ES.1 presents ridership by route for weekdays and Saturday. Route 14 has the highest ridership on weekdays, with over 1,000 boardings. Route 12, Route 6, and Route 4 all have more than 500 riders on weekdays. Route 12 leads in ridership on Saturday, followed by Route 14, Route 6, and Route 5. Saturday ridership is at least 80 percent of weekday ridership on Routes 5, 6, and 9. At the other extreme, Saturday ridership on Route 4 is only 22 percent of weekday ridership, due to the fact that the DSS office is not open on Saturday.

**Table ES.1  
FAST Average Daily Ridership by  
Route and Day of Week**

Route	Weekday		Saturday	
	Riders	Rank	Riders	Rank
3	240	12	146	11
4	561	4	122	12
5	419	7	367	4
6	621	3	512	3
7	371	9	201	10
8	488	5	296	5
9	276	11	248	8
12	959	2	676	1
14	1,004	1	600	2
15	376	8	257	7
17	475	6	292	6
18	301	10	221	9
30	62	13	--	--
<b>Total</b>	<b>6,153</b>	--	<b>3,937</b>	--

Source: APC Data, April 2013

Table ES.2 shows service effectiveness in terms of passenger boardings per revenue hour, a common measure of productivity in the transit industry. Route 6 is the most productive weekday route, with 37.6 boardings per revenue hour. Route 8, Route 14, and Route 5 all have at least 30 boardings per revenue hour on weekdays. Route 6 also leads in productivity on Saturday, and is the only Saturday route with more than 30 boardings per revenue hour. System productivity is 24.5 on weekdays and 21.0 on Saturday.

As a general rule of thumb in assessing service effectiveness by means of passenger boardings per revenue hour, anything below 10 is a red flag to examine the route more closely. Route 30, a short shuttle route between Downtown and the Public Works Commission (PWC), is the only route that falls below this threshold.

**Table ES.2**  
**FAST Boardings per Revenue Hour by**  
**Route and Day of Week**

Route	Weekday		Saturday	
	B/RH	Rank	B/RH	Rank
3	18.5	10	18.3	8
4	21.9	8	15.3	11
5	30.0	4	28.3	2
6	37.6	1	37.9	1
7	28.7	6	18.4	6
8	30.6	2	21.2	4
9	17.0	12	17.9	9
12	29.1	5	23.3	3
14	30.6	3	20.8	5
15	22.7	7	18.3	7
17	17.0	11	14.0	12
18	18.9	9	15.8	10
30	6.5	13	--	--
<b>Total</b>	<b>24.6</b>	--	<b>21.0</b>	--

Source: APC Data, April 2013

### Peer and Trend Analysis

The peer analysis compares FAST to similar transit systems in North Carolina and neighboring states. The trend analysis examines trends in key variables over the last several years. FAST is a smaller system in a smaller area, and thus the peer results suggest that FAST has not achieved the economies of scale that larger systems benefit from by virtue of their size. FAST ranks at or near the middle in most system and performance measures. The FAST system's strengths include below-average operating cost per revenue hour and per trip, below-average operator wages per revenue hour and as a percentage of total cost, above-average farebox recovery ratio, and an above-average percentage of routes with late evening service. Areas of potential improvement include productivity, revenue hours per service area population, and percentage of routes with 30-minute headways or less.

The trends in key performance variables all moved in the right direction over the most recent five-year period for which NTD data is available. Productivity has been increasing steadily, with a notable increase in 2012. Per-capita service levels have increased and operating expenses per passenger boarding have decreased. As the FAST system grows, it can expect to achieve economies of scale that can make its performance more comparable to larger peer systems.

### **Intercept Survey**

The intercept survey was designed to collect input from both riders and non-riders of the FAST system. For non-riders, the survey included questions to solicit their general perceptions and opinions about public transportation. In addition, the survey also included questions regarding demographic characteristics of survey respondents.

Results from the intercept survey provide insight into various aspects of FAST service from rider and non-rider perspectives, as shown below:

- The general impression of FAST is positive. The three most common impressions given in an open-ended question were “great transportation,” “clean,” and “beneficial.” 76 percent of non-riders and 91 percent of riders rate FAST as very important to their community.
- FAST riders travel primarily for work and education. These two categories accounted for 77 percent of all trip purposes.
- FAST riders indicated more frequent bus service, later evening service, and Sunday service as the three most desirable system-wide service improvements.
- Not having access to a car is the primary reason that riders use FAST. Riders are more likely to have lower incomes and belong to a minority group than non-riders.
- The vast majority of non-riders do not use FAST because they have a car and prefer to drive. Respondents could give up to three reasons, but no other reason for non-use was cited by more than 20 percent of respondents.

### **Unmet Needs**

Several approaches are used to identify residential travel needs and current system needs. These include demographic analysis of neighborhoods within the City, analysis of survey results, identification of proposed new developments that could affect transit demand, public outreach efforts to elicit information from key stakeholders, and meetings with FAST’s bus and van operators.

The demographic analysis indicates that there are no major unmet needs in the study area in terms of service area coverage for residents. FAST transit service is available directly or within a short walking distance in nearly all transit-oriented neighborhoods within the City limits, although street patterns and widths can preclude buses from circulating within neighborhoods. Themes raised consistently throughout the public outreach process include:

- Greater frequency – more routes with 30-minute headways
- Later evening service
- Sunday service
- Flexibility to respond to emerging mobility needs

### **Future Growth**

Significant residential development is anticipated in the west and southwest part of the metropolitan area, along the US 401 corridor and into Hoke and Robeson counties. The low-to-medium density nature of this growth may prove challenging for the operation of efficient public transportation service. The core of the Fayetteville area is anticipated to experience infill, redevelopment, and growth over the next 30 years.

Changes in employment are not as pronounced in terms of their distribution as changes in household growth. This is significant if the expectation is that Downtown Fayetteville is going to grow into a larger, denser central business district which serves as the employment center for the outlying and more suburban areas of the metropolitan area. The impact on the public transportation system will be one that forces the transit agency to establish priorities for different types of service and levels of service in order to maintain efficiency and also demonstrate good stewardship of public funding.

### **FASTTRAC! Analysis**

The analysis of the complementary ADA paratransit service includes an assessment of ridership and cost associated with an expansion of FASTTRAC! to a citywide service area as well as a description of findings in various areas related to policies, demand management strategies, and cost efficiency strategies.

A critical area of interest was to evaluate the potential expansion to a citywide service area. Results suggest a 23% increase in demand and a fleet increase by a minimum of two vehicles. Operating costs under this scenario are projected to increase by \$361,000 annually.

### **Recommendations**

Recommendations are grouped into three categories:

- Short-term recommendations can be implemented in the next one to two years. A major focus of route recommendations in this time frame is the completion of the new Transit Center at the northeast corner of Robeson & Russell Streets.
- Mid-term recommendations are scheduled for implementation in the next three to five years.
- Long-term recommendations are scheduled for implementation in the next six to ten years. The chapter presents a re-imagined transit network for Fayetteville in this time frame.

Major short-term recommendations include:

- One new route, as Route 3 between downtown and southeast Fayetteville will be too long to continue operating every 60 minutes. The splitting of Route 3 into two routes will allow for better coverage throughout downtown and provide an opportunity for direct service between downtown and the Senior Center on Blue Street.
- 30-minute service on Route 6 between Cross Creek Mall and University Estates. This is the most productive route in the FAST network.
- Introduction of a new 14X route providing limited-stop service connecting Downtown, FTCC, and Cross Creek Mall. The new transit center shortens Route 14, allowing this new route to be introduced without added cost.
- The new Route 19 operating into Fort Bragg from Cross Creek Mall. This route is proposed for implementation in February 2013. The new Route 10 service along Strickland Bridge Road will be implemented at the same time.
- A new crosstown route on Country Club-Pamalee-Skibo. One alternative would connect this route to FSU. FSU has expressed interest in pursuing a university pass program with FAST that would allow its students to ride on any FAST route under a financial partnership between FAST and FSU. Details would obviously need to be finalized, but the concept is promising. This proposal has been moved to the short-term at the request of City Council.

Major mid-term recommendations include:

- Sunday service on eight routes, generally routes with late evening service. Sunday service would operate between 8 am and 8 pm. There was a great deal of interest from stakeholders and riders in Sunday service, but the cost kept us from including it in the short-term recommendations.
- Extension of Route 7 via Raeford Road to serve the new Veterans Administration Medical Center and a satellite campus of FTCC.
- Splitting Route 8 into two routes. One would serve the existing route with a few changes. The second would connect the Cross Creek Mall area with the Fayetteville Airport, also serving Topeka Heights Apartments and Purolator. It may be possible to extend service on select trips to the Enterprise Avenue apartments once the routes are split, although a neighborhood shuttle route may be a preferable solution.
- Extension of the new Route 10 Strickland Bridge Road route, assuming that it is successful in attracting ridership, to strengthen destinations at both ends of the route.
- Later evening service on three routes (Routes 3, 7, and 17).
- 30-minute service on four routes (Routes 5, 7 as far as Ireland Drive, 8A or the current Route 8, and 15).

Long-range recommendations assume that ridership will grow sufficiently by this time to justify a reimagining of FAST that is not constrained by how the system has been planned and developed. The FAST goals and objectives guide the network's development, which

emphasizes direct service on major corridors. Several observations can be made about the proposed network:

- The network keeps strong single-corridor routes that work well today intact, such as Routes 4, 5, 6, 12, and 14.
- There is more service in west Fayetteville. This assumes that growth will continue to occur in this area, and that at least some of the growth will be multi-family residential and transit-friendly retail.
- Some circulator routes in neighborhoods are continued, but could be converted to shuttles with connections to timed radial routes at specified locations. Additional neighborhood routes could be established in areas such as Fisher Lake Road, Bingham Drive, Fisher Road, and Lakewood Drive if development warrants service.
- All established routes are assumed to operate every 30 minutes on weekdays until 7 pm. Weekend service will be every 60 minutes. Some routes may be added to the Sunday network.

### **Financial Plan**

A five-year financial plan was prepared to present net costs associated with the service improvements in the TDP short- and mid-range plans. To organize the service improvement projects into the plan, an implementation schedule was developed where short-term projects are programmed in the first year, FY 2016, and mid-range projects are programmed in the latter four years, FY 2017 through FY 2020. An effort was made to distribute projects as evenly as possible over the five year planning horizon of the TDP in order to limit the amount of new net costs in any one year. Long-range projects are not included in the financial plan as they address the next six to ten years. Total new operating costs are partially offset by farebox revenues and the transfer of FTA 5307 funding for preventative maintenance to produce net operating costs.

New annual net operating costs associated with implementation of short-range service improvements are approximately \$750,000. Four new vehicles would be needed to implement those services. We expect that a portion of this cost would be borne by Fayetteville State University, with the actual amount subject to negotiation. Total new net operating costs in the fifth year of the plan, which reflect total new annual operating costs if all short- and mid-term improvements are implemented, is approximately \$2.5 million. Over the five-year period, the vehicle requirement is 11 new peak vehicles with two additional vehicles needed to meet the FTA spare ratio requirement of 20 percent.

Table ES.3 presents 5-year operating costs. Table ES.4 identifies 5-year revenue vehicle costs.

**Table ES.3  
Five-Year Net Operating Costs**

Service Improvement/Expansion*	Description	Revenue Hours	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	Total
<b>Short-Range</b>								
3A/3B Service	3A/3B routes split from Route 3	3,705	\$230,006	\$230,006	\$230,006	\$230,006	\$230,006	\$1,150,032
Route 6 Frequency Improvement	Improve frequency to 30 minutes	3,443	\$213,741	\$213,741	\$213,741	\$213,741	\$213,741	\$1,068,707
Country Club-Pamalee-Skibo Crosstown	New fixed route	4,726	\$293,390	\$335,884	\$335,884	\$335,884	\$335,884	\$1,636,928
Country Club-Pamalee-Skibo Crosstown ADA Service	Add complementary ADA Service		\$58,678	\$67,177	\$67,177	\$67,177	\$67,177	\$327,386
Country Club-Pamalee-Skibo Crosstown (FSU)	New fixed route	4,726	\$293,390	\$335,884	\$335,884	\$335,884	\$335,884	\$1,636,928
<b>Mid-Range</b>								
8A/8B Service	8A/8B routes split from Route 8	4,782	\$0	\$0	\$296,867	\$296,867	\$325,654	\$919,387
8A/8B ADA Service	Add complementary ADA Service		\$0	\$0	\$59,373	\$59,373	\$65,131	\$183,877
Sunday Improvements**	Sunday service improvements for 9 routes	4,992	\$0	\$339,955	\$339,955	\$339,955	\$339,955	\$1,359,821
Sunday Improvements ADA Service	Add complementary ADA Service		\$0	\$67,991	\$67,991	\$67,991	\$67,991	\$271,964
Route 7 Extension	Route realignment	3,552	\$0	\$220,508	\$220,508	\$220,508	\$241,891	\$903,416
Route 7 Extension ADA Service	Add complementary ADA Service		\$0	\$44,102	\$44,102	\$44,102	\$48,378	\$180,683
Route 10 Extension	Route realignment	3,552	\$0	\$0	\$0	\$220,508	\$220,508	\$441,016
Route 10 Extension ADA Service	Add complementary ADA Service		\$0	\$0	\$0	\$44,102	\$44,102	\$88,203
Late Evening Improvements	Late evening improvements on 3A,3B,7, and 17	3,825	\$0	\$0	\$0	\$237,456	\$237,456	\$474,912
Late Evening Improvements ADA Service	Add complementary ADA Service		\$0	\$0	\$0	\$47,491	\$47,491	\$94,982
Frequency Improvements	Improve frequency to 30 minutes on 5,7, and 15	12,240	\$0	\$0	\$0	\$0	\$759,859	\$759,859
<b>Total Operating Cost for Fixed-Route Service Improvement/Expansion</b>		<b>49,543</b>	<b>\$1,030,528</b>	<b>\$1,675,980</b>	<b>\$1,972,847</b>	<b>\$2,430,811</b>	<b>\$3,240,841</b>	<b>\$10,351,007</b>
<b>Total Operating Cost for ADA Service Expansion</b>			<b>\$58,678</b>	<b>\$179,270</b>	<b>\$238,643</b>	<b>\$330,236</b>	<b>\$340,270</b>	<b>\$1,147,096</b>
<b>Total Operating Cost for Service Improvement/Expansion (Fixed-Route and ADA)</b>			<b>\$1,089,206</b>	<b>\$1,855,250</b>	<b>\$2,211,490</b>	<b>\$2,761,047</b>	<b>\$3,581,111</b>	<b>\$11,498,103</b>
<b>Farebox Recovery Value</b>			<b>\$170,151</b>	<b>\$273,426</b>	<b>\$319,577</b>	<b>\$390,254</b>	<b>\$516,339</b>	<b>\$1,669,747</b>
<b>Preventative Maintenance</b>			<b>\$164,884</b>	<b>\$268,157</b>	<b>\$315,655</b>	<b>\$388,930</b>	<b>\$518,535</b>	<b>\$1,656,161</b>
<b>Net Operating Cost - Fixed-Route</b>			<b>\$754,170</b>	<b>\$1,313,667</b>	<b>\$1,576,258</b>	<b>\$1,981,863</b>	<b>\$2,546,237</b>	<b>\$8,172,194</b>
<b>Operating Cost per Revenue Hour</b>	<b>Full Cost (Fixed-Route)</b>	<b>\$68.10</b>	<b>\$68.10</b>	<b>\$68.10</b>	<b>\$68.10</b>	<b>\$68.10</b>	<b>\$68.10</b>	
<b>Operating Cost per Revenue Hour</b>	<b>Direct Cost (Fixed-Route)</b>	<b>\$62.08</b>	<b>\$62.08</b>	<b>\$62.08</b>	<b>\$62.08</b>	<b>\$62.08</b>	<b>\$62.08</b>	
<b>ADA Service Cost Ratio</b>		<b>20%</b>	<b>20%</b>	<b>20%</b>	<b>20%</b>	<b>20%</b>	<b>20%</b>	
<b>Farebox Recovery Ratio</b>			<b>16.5%</b>	<b>16.3%</b>	<b>16.2%</b>	<b>16.1%</b>	<b>15.9%</b>	
<b>Preventative Maintenance Ratio</b>			<b>16.0%</b>	<b>16.0%</b>	<b>16.0%</b>	<b>16.0%</b>	<b>16.0%</b>	

\*Complementary ADA service costs are included for improvements to hours of service, days of service, and for services to new areas.

\*\*The full allocated fixed-route cost per hour was used to calculate Sunday service costs; FSU Sunday route calculated separately above

**Table ES.4  
Five-Year Revenue Vehicle Costs**

Service Improvement/ Expansion	Description	# of Vehicles	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	Total
<b>Add New Transit Service/Service Area</b>								
<b>Short-Range</b>								
3A/3B Service	3A/3B routes split from Route 3	1	\$450,000	\$0	\$0	\$0	0	\$450,000
Route 6 Frequency Improvement	Improve frequency to 30 minutes	1	\$450,000	\$0	\$0	\$0	0	\$450,000
Country Club-Pamalee-Skibo Crosstown	New express service	1	\$450,000	\$0	\$0	\$0	0	\$450,000
Country Club-Pamalee-Skibo Crosstown (FSU)	New express service	1	\$450,000	\$0	\$0	\$0	0	\$450,000
<b>Mid-Range</b>								
8A/8B Service	8A/8B routes split from Route 8	1	\$0	\$0	\$450,000	\$0	0	\$450,000
Sunday Improvements	Sunday service improvements for 8 routes	0	\$0	\$0	\$0	\$0	0	\$0
Route 7 Extension	Route realignment	1	\$0	\$450,000	\$0	\$0	0	\$450,000
Route 10 Extension	Route realignment	1	\$0	\$0	\$0	\$450,000	0	\$450,000
Late Evening Improvements	Late evening improvements on 3A,3B,7, and 17	0	\$0	\$0	\$0	\$0	0	\$0
Frequency Improvements	Improve frequency to 30 minutes on 5,7, and 15	4	\$0	\$0	\$0	\$0	\$1,800,000	\$0
<b>ADA Paratransit Service</b>								
Short-Term	ADA service expansion		0	0	0	0	0	
Mid-Term	ADA service expansion		0	0	0	0	0	
<b>Total New Vehicles</b>		11	\$1,800,000	\$450,000	\$450,000	\$450,000	\$1,800,000	\$3,150,000
<b>Total New Vehicles - Spare Ratio</b>		2	\$450,000	\$0	\$0	\$0	\$450,000	\$900,000
<b>Total New Vehicle Costs - Fixed Route</b>		<b>13</b>	<b>\$2,250,000</b>	<b>\$450,000</b>	<b>\$450,000</b>	<b>\$450,000</b>	<b>\$2,250,000</b>	<b>\$4,050,000</b>