The Coweta Express

Exploring the Feasibility of Commuter Rail on the CSX Railroad's Atlanta & West Point Subdivision

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Abstract

This report explores the feasibility of commuter rail service from Coweta County to Atlanta's central business district over existing freight railroads, as recent studies have ignored such a service. A concept commuter rail line will be defined in the study area consisting of Fulton and Coweta Counties. Feasibility will be determined through a detailed analysis of direct costs (in terms of capital improvements and ongoing operating expenditures) and benefits (defined by varying ridership-based performance measures). Capital and operational cost estimation will be gathered from the unit costs of a recent Atlanta-region commuter rail study; benefits will be derived from the forecast ridership of the concept. Cost and benefit data will be used to populate standard measures used to evaluate the performance of the concept. The concept's performance will be compared to the performance of existing feasible commuter rail concepts to determine feasibility. The goal of this research is to inform policymakers as to whether a more detailed study is warranted in the study area to further explore the appropriateness of this particular mode of travel in the Atlanta region's southwest.

Introduction

To a large extent, Atlanta owes its existence to luck. Looking to expand markets for state industry, the Georgia Assembly created the Western & Atlantic Railroad in 1836. The goal of the W&A was to provide a link between Georgia and the Tennessee River, near Chattanooga. The W&A was to connect with the Georgia Railroad and the Macon and Western Railroad, which were already under construction, thereby linking Atlanta to the established industrial center at Macon and the Savannah River at the inland port of Augusta.[1] When offered in the 1830's to host the terminus of the W&A, the fledgling City of Decatur declined; citing concerns with the noise and pollution that would likely follow such an arrangement. Instead, W&A surveyors drove a stake into the ground some 7 miles west of Decatur and established the town of Terminus. [2] By 1846 both the Macon and Western and the Georgia Railroads also reached the town, known by then as Atlanta.[3] This confluence of railroad infrastructure, along with continued railroad growth into the early twentieth century cemented Atlanta's status as one of the South's main rail hubs, and hence guaranteed her continued economic growth throughout the same period.

While railroads helped Atlanta proper grow, another series of major infrastructure improvements, the National Defense Interstate Highway System, seems

[1] The New Georgia Encyclopedia. *Transportation: Railroads.* http://www.georgiaencyclopedia.org/nge/Article.jsp?path=/Transportation/LandTransportation&id=h-1281 Accessed February 9th 2009
[2] City of Decatur Homepage. *About Decatur* http://www.decaturga.com/com_about.aspx Accessed February 9th 2009
[3] The New Georgia Encyclopedia. *Cities and Counties: Atlanta* http://www.georgiaencyclopedia.org/nge/Article.jsp?id=h-2207 Accessed February 9th 2009

to have achieved the exact opposite effect. Six interstate highways were routed through the Atlanta region during the 1960's and 1970's. In 1960, at the beginning of this period of construction, Atlanta's population was estimated by the U.S. Census Bureau to be at 487,455.[4] It swelled to 495,039 in 1970 but then began a sharp decline: down to 424,922 by 1980; 415,200 by 1990. During the same twenty year time period that coincided with both the City of Atlanta's near 20% decline in population and the construction and completion of the interstate highway system in the region, population in the suburban counties in the region exploded, as illustrated in table 1.

	1970	1980	1990	% Change 1970 - 1990
Cherokee	31,059	51,699	91,000	192.99%
Clayton	98,126	150,357	184,100	87.62%
Cobb	196,793	297,718	453,400	130.39%
Dekalb	415,387	483,024	553,800	33.32%
Douglas	28,659	54,573	71,700	150.18%
Fayette	11,364	29,043	62,800	452.62%
Gwinnett	72,349	166,808	356,500	392.75%
Henry	23,724	36,309	59,200	149.54%
Rockdale	18,152	36,747	54,500	200.24%
City of Atlanta	495,039	424,922	415,200	-16.13%

Table 1:Atlanta regional population 1970-1990 (ARC)

As shown, the decentralizing effect (sprawl) of the interstate highway system is apparent. One of the many unfortunate side effects of sprawl (which include the loss of farmland, tree cover, water pollution) is increased traffic congestion. Commute times and distances in general are greater in sprawling regions like Atlanta than in more

[4] US Bureau of the Census, 1960. Table 19. http://www.census.gov/population/www/documentation/twps0027/tab19.txt Accessed February 9th 2009

compact regions such as Boston.[5] There are several indicators which can describe the extent of Atlanta's congestion problem. The travel time index is one of them. Per the Texas Transportation Institute, the travel time index is the ratio of automobile travel time spent in peak flow periods to the time spent in periods of free flow (defined by the TTI as 60 Mph on freeways and 35 Mph on local arterial roads). For example, Atlanta's 2005 travel time index of 1.34 means that a 30-minute trip in free flow conditions would take 40.2 minutes during peak conditions. According to reported TTI ranks between 1982 and 2005, the Atlanta region has the 11th worst overall time delay during peak periods amongst the 85 largest metropolitan areas in the U.S.[6] Atlanta fares worse when other congestion indicators are applied (see table 2). Amongst the same 85 peer metropolitan areas, Atlanta ranks 6th worst in terms of annual delay per traveler (measured by the extra time required to complete a trip in the peak period, above free-flow speeds, divided by the number of travelers who initiate a trip during the peak period), 7th worst in excess gallons of fuel consumed during peak periods (96,066,000 gallons) and 6th worst in terms of annual congestion cost ($2,581,000,000, measured by the cost of excess gallons of fuel consumed during peak periods plus foregone hours of productive labor, estimated at $14.60 per hour per person and $77.10 per hour of truck time).[7]

[5] Yang, Jiawen. *Commuting Impacts of Spatial Decentralization: A Comparison of Atlanta and Boston* Journal of Regional Analysis and Policy. (2005) 35:1 p 73
[6] Texas Transportation Institute. *Table 5.* http://mobility.tamu.edu/ums/congestion_data/tables/national/table_5.pdf Accessed February 9th 2009
[7] Texas Transportation Institute. *Table 2.* http://mobility.tamu.edu/ums/congestion_data/tables/national/table_2.pdf. Accessed February 9th 2009

	Travel Delay		Excess Fuel Consumed		Congestion Cost	
Urban Area	(1000 Hours)	Rank	(1000 Gallons)	Rank	($ Million)	Rank
Los Angeles	490,552	1	383,674	1	9,325	1
New York	384,046	2	241,976	2	7,383	2
Chicago	202,835	3	141,612	3	3,968	3
Dallas-Ft Worth	152,129	4	106,207	4	2,747	4
Miami	150,146	5	105,181	5	2,730	5
Atlanta	132,296	6	96,066	7	2,581	6
SF-Oakland CA	129,919	7	100,525	6	2,414	7
Washington DC	127,394	8	90,861	9	2,331	8
Houston	124,131	9	92,559	8	2,225	9
Detroit	115,547	10	76,062	10	2,174	10
Philadelphia	111,704	11	70,902	12	2,076	11
Boston	93,374	12	62,521	13	1,820	12
Phoenix	81,727	14	58,922	14	1,687	14
Seattle	74,098	15	54,707	15	1,413	15

Table 2:Components of the congestion problem

Compounding the problems of increased traffic congestion are the dual threats of decreasing air quality and global hydrocarbon depletion. The fact that the Atlanta region was found in violation of the 1990 Clean Air Act in 1998 is well documented and therefore will not be further discussed here.[8] Using TTI's excess fuel expended in congestion figure (96,066,000 gallons) and multiplying it by 20 (the amount of CO2 produced by burning a gallon of gasoline), it becomes apparent that the Atlanta drivers emit close to 1,921,320,000 pounds of CO2 while stuck in traffic.[9] Suffice to say that any policy that reduces vehicle miles traveled will help reduce CO2 emissions. Lastly, the prospect of hydrocarbon depletion (or "peak oil" as it is commonly referred to) threatens to render the sprawl land use pattern obsolete and unsustainable. As documented by geophysicist M. K. Hubbert, the extraction of conventional crude oil

[8] U.S. Department of Transportation *Atlanta "Conforms" to Clean Air Requirements.* http://www.tfhrc.gov/pubrds/septoct00/atlanta.htm Accessed February 10th, 2009

[9] EPA Fueleconomy.gov webpage. *How can a gallon of gasoline produce 20 pounds of carbon dioxide?* http://www.fueleconomy.gov/Feg/co2.shtml Accessed February 10th 2009

from any well follows a normal distribution. Using available production data for all domestic crude oil wells, Hubbert correctly predicted that the Lower 48 states would reach a production peak (and therefore never produce more oil than the previous year from that point forward) around 1970 (see figure 1).[10]

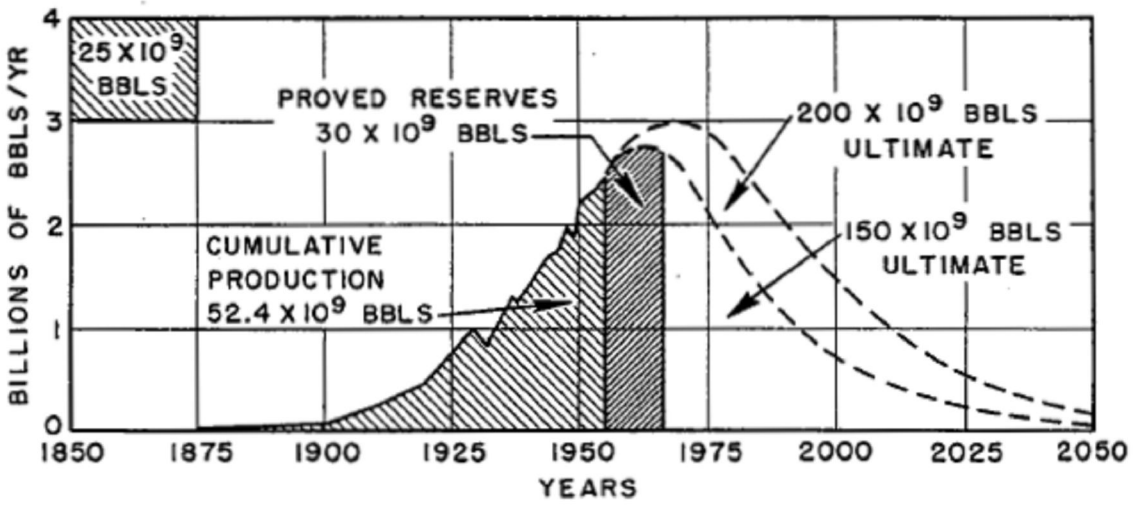


Figure 1: U.S. peak crude oil production (Hubbert, 1956)

With time, Hubbert's ideas have gained traction and numerous global peak oil production studies have been conducted. Estimates of the exact date of global peak oil production vary; the Department of Energy's National Energy Technology Laboratory cites anywhere from 2006 to 2025.[11] To summarize, supplies of today's dominant fuel for automobiles will not last forever. The likely outcomes of increasingly expensive transportation costs are either a reversal of current residential patterns (perhaps further

[10] Hubbert, M. King. *Nuclear Energy and the Fossil Fuels.* Shell Development Company (Publication 95:1956) http://www.hubbertpeak.com/Hubbert/1956/1956.pdf p. 22
[11] Hirsch, Bezdek and Wendling. *Peaking of World Oil Production: Impacts, Mitigation and Risk Management.* DOE National Energy Technology Laboratory. (2005). http://www.netl.doe.gov/publications/others/pdf/Oil_Peaking_NETL.pdf p. 19

stressing Atlanta's already crumbling infrastructure) or rethinking how suburban residents commute.

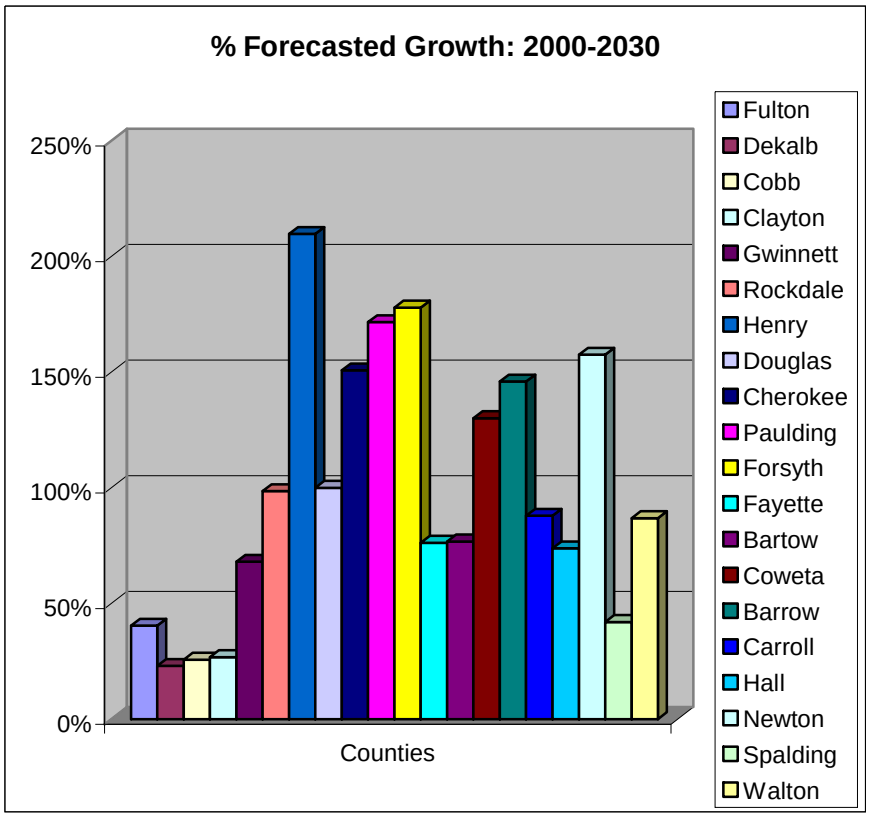


Figure 2: Forecasted growth by percentage 2000-2030 (ARC)

In short, none of this bodes well for Atlanta's future: even with the slight reversal of the "Atlanta exodus" during the first decade of the twenty-first century, the region's far-flung suburban counties continue to grow at a high rate, their commutes are both among the longest in the nation and the principle fuel that powers their automobiles is likely to decline in availability and increase in price in the coming decades. While the trend of modest growth within Atlanta proper may continue, it is likely that in the face of the aforementioned challenges to the Atlanta region's dominant land-use pattern,

new arrangements for mobility will need to be made. One such arrangement, commuter rail, may prove to be particularly well suited to the region. Commuter rail has been previously studied in Atlanta and has been deemed a feasible transportation alternative as recently as 2007. This paper seeks to build upon these findings by exploring a corridor for this service in Coweta County, which is one of the fastest growing counties in the 20-county Atlanta region (see figure 2 above).

Chapter one provides an overview of previous studies on commuter rail in the Atlanta region and updates the reader on the commuter rail planning in Georgia. Chapter two defines a study area for a potential Coweta County commuter rail service. Chapter three further refines this study area into a defined "Coweta line" commuter rail concept, utilizing existing freight railroads in Fulton and Coweta Counties. Chapter four explores the ridership potential of the Coweta line by utilizing the Atlanta Regional Commission's travel demand model for the 2030 network year. In chapter five, data collected from previous reports listed in chapter one are analyzed to provide a thorough estimate the costs associated with both construction and operation of the Coweta line. Chapter six brings everything together by comparing the Coweta line to existing feasible Atlanta-region commuter rail lines. All lines are ranked, using common performance measures used in other commuter rail feasibility studies, in order to determine whether or not the Coweta line concept is feasible.

Chapter 1: Overview of Previous Commuter Rail Planning Efforts

Commuter rail, as defined by the American Public Transportation Association, includes any "electric or diesel propelled railway for urban passenger train service consisting of local short distance travel operating between a central city and adjacent suburbs."[12] Commuter rail service focuses on capturing trips to urbanized areas from small towns and suburban areas, during peak periods of travel (namely the AM and PM rush hours). Service therefore is usually provided only on workdays, as opposed to *regional rail* (whose definition is often confused with commuter rail service), which operates throughout the day and during weekends. Commuter rail vehicles can be either self propelled or hauled by locomotives and usually are capable of carrying 100 to 130 passengers per passenger car. Operating speeds vary by the condition of the railroad; top speeds can reach 110 miles per hour. [13]

The State of Georgia at one time was saturated with passenger rail routes; little of this service remains in place presently. Although Georgia has retained much of the physical railroad infrastructure (operated by private freight railroads) only four passenger routes are operational today. These four long-distance intercity routes (operated by Amtrak) attract slightly more than 162,000 travelers each year.[14]

[12] American Public Transportation Association. *APTA: Rail Definitions.* http://www.apta.com/research/stats/rail/definitions.cfm. Accessed January 25th 2009
[13] Transit Planning Board. *Commuter Rail/Regional Rail.* http://www.tpb.ga.gov/Documents/TPB/02-22-07/Microsoft%20Word%20-%20Commuter%20Rail.pdf Accessed January 25th 2009
[14] National Passenger Railroad Corporation. *Amtrak Fact Sheet, Fiscal Year 2007 State of Georgia.* http://www.amtrak.com/pdf/factsheets/GEORGIA07.pdf. Accessed January 25th 2009

Although today there is no commuter rail service in the Atlanta region or anywhere else in the state, the concept has been studied by several agencies over the last 25 years. At the state level, in 1985 the Georgia Assembly created the Georgia Rail Passenger Authority, chiefly concerned with the "construction, financing, operation, and development of rail passenger service and other public transportation projects within and without the State of Georgia".[15] Unfortunately the GRPA got off to a slow start, mainly due to the fact that Authority members are required to be directly appointed by the Governor.[16] Board members were not appointed until nine years later by Governor Zell Miller.[17] The Metropolitan Atlanta Rapid Transit Authority (MARTA) released a plan in 1987 for commuter rail in north Georgia and the Georgia Department of Transportation (GDOT) completed its own commuter rail study. The route selection process of the MARTA study identified nine corridors for potential Atlanta service and further study, including a line to the city of Newnan in Coweta County. Ultimately, only two lines (Greensboro and Macon) made the cut and were studied in detail. [18] Since the study's release in 1987, MARTA has taken no further action in the planning or implementation of commuter rail.

[15] O.C.G.A. § 46-9-270
[16] O.C.G.A. § 46-9-274
[17] Goldberg, David. 1994. Miller to Appoint Board to Revive Rail Travel in State. *The Atlanta Journal-Constitution,* April 16. Section B, Page 8.
[18] Metropolitan Atlanta Rapid Transit Authority. *Study of Commuter Rail Service in North Georgia.* 1987. Hardcopy available upon request.

GDOT's 1995 Commuter Rail Plan offered a thorough examination of the potential for commuter rail in the Atlanta region and has long been considered the planning foundation for Georgia's yet built passenger rail system. The 1995 plan identified and evaluated the feasibility of implementing commuter rail service on twelve potential routes (figure 3), operating on tracks owned by three separate railroads (Norfolk-Southern, CSX and the Georgia Northeastern Railroad) and an inactive track owned by GDOT. The twelve routes all served downtown Atlanta and the following endpoint stations/counties: Rome (Floyd County), LaGrange (Troup County), Forsyth (Monroe County), Cedartown (Polk County), Cartersville, (Bartow County), Jackson (Butts County), Canton (Cherokee County), Madison (Morgan County), Bremen (Haralson County), Gainesville (Hall County), Athens (Clarke County) and Senoia (Coweta County).[19] Socioeconomic forecasts were created from data available in the 1990 US Census, the Atlanta Regional Commission and the various counties within the study's 50-county study area. This data was used to supplement the ARC travel demand model, which only covered 10 counties at the time. The modified travel demand model produced ridership forecasts for 1990, 1995 and 2010, assuming three daily round trips operating on business days for most routes.[20]

[19] Georgia Department of Transportation Commuter Rail Plan (1995). p 3. Available upon request.
[20] Ibid, p 4.

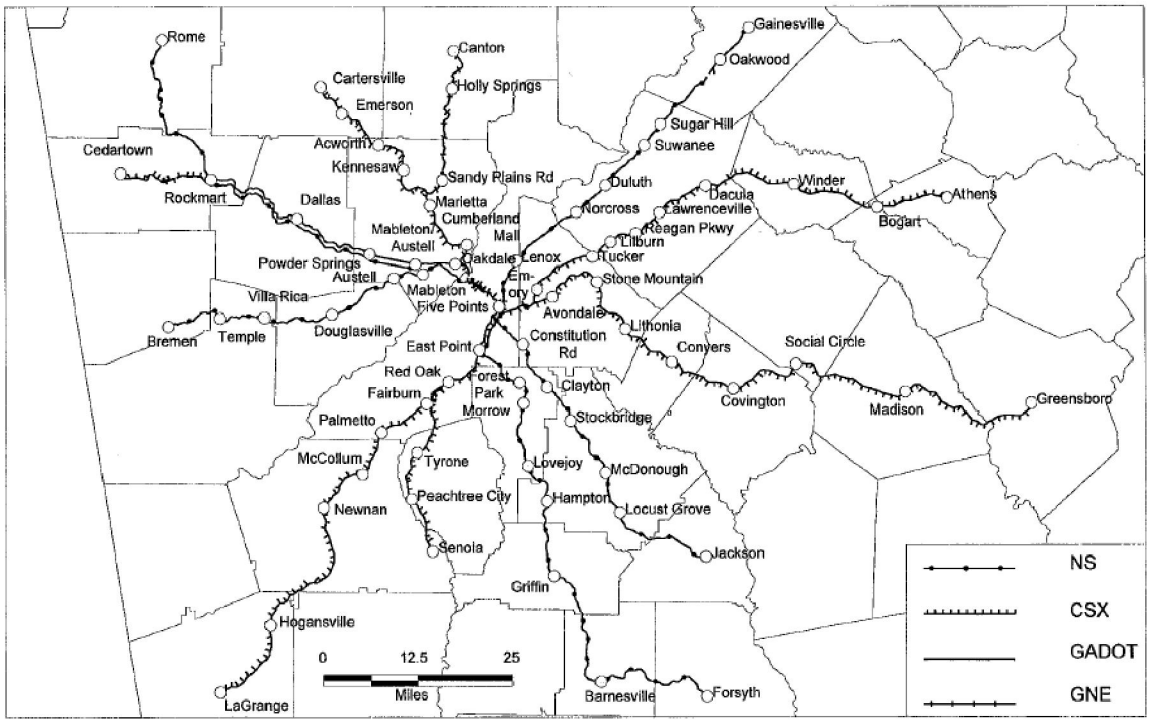


Figure 3: 12 passenger rail routes and operators (1995 GDOT Commuter Rail Study)

Next, the 1995 study analyzed the existing conditions of the twelve rail lines and identified improvements to accommodate future passenger rail service. Recommendations were made on a line by line basis. Typical recommended improvements included (but were not limited to) construction of double track, adding new passing sidings, rebuilding/redesigning grade crossings and installation of centralized traffic control (CTC).[21] Using these improvement recommendations and ridership forecasts, capital and operational cost estimates were created. Capital costs were derived from unit improvement costs (e.g. cost per mile of new track) which were obtained from study area railroads and industry publications. Operating costs were

[21] Ibid. p 22-33.

estimated by review of peer commuter rail agencies. Net costs were determined by subtracting operating revenues from operating costs. [22]

Finally, with operating and capital costs estimates in hand, as well as ridership forecasts, a comprehensive comparison of the twelve potential commuter rail routes determined that service was feasible on six of the twelve lines. Feasibility was measured by each line's annualized cost per rider and farebox recovery ratio (operating revenue divided by operating cost). Lines found to have a farebox recovery ratio of greater than 50 percent and an annualized cost per trip of less than eleven dollars were recommended for implementation. As such, the study found commuter rail service to Gainesville, Athens, Senoia, Bremen, Madison and Canton feasible. The Lagrange line (which operates through Coweta County), with a 38 percent farebox recovery ratio and annualized cost per trip at $14.48, did not make the cut. [23] Interestingly, the Forsyth line, which constitutes around three-fourths of the Atlanta-Macon commuter rail line (which today is slated to be the first commuter rail line in the state to be constructed) also did not meet the 1995 study's feasibility criteria.

Since the release of the 1995 study, GDOT has focused its efforts on implementation of two commuter rail lines: Atlanta to Athens (as described in the 1995 study) and Atlanta to Macon (which uses the same alignment of the Forsyth line rejected for implementation feasibility in the 1995 study). The first phase of the Atlanta-Macon commuter rail line terminates in Lovejoy, a small city in south Clayton County.

[22] Ibid. p 34-44.
[23] Ibid. p 47-48.

Due to the availability of more than $100 million in Federal earmarked funds and a completed Federal Transit Administration Environmental Assessment (which issued the concept a "finding of no significant impact", thereby green-lighting the project for preliminary engineering), this line is now first in line for possible implementation. [24] An FTA EA has also been issued for the Atlanta-Athens line (with a similar "finding of no significant impact") but no earmarked funds are available for this more expensive line (estimated to cost $419 million to complete compared to $405 for the Atlanta-Macon line)[25]

The latest study to cover commuter rail in Georgia was a direct result of the formation of the Transit Planning Board in 2007. According to their webpage, "The Transit Planning Board (TPB) is a joint venture between MARTA, ARC and the Georgia Regional Transportation Authority (GRTA). It is established through joint resolution of the governing boards of the three agencies. The TPB was created as a result of the lack of a clear institutional and financing structure to expand transit in the Atlanta region. *Its primary mission is the creation of a regional transit plan* and subsequently a new regional source of funds to implement and operate the system (emphasis added)." [26] That the TPB was creating a regional transit plan was worrisome to the Metro Atlanta Chamber of Commerce (MACOC), a body that favors commuter rail service for Atlanta. Their main concern was that outside of recent planning efforts to implement the

[24] Georgia Department of Transportation. *2006 Fact Sheet Georgia Rail Passenger Program.* 2006. Available at http://www.garail.com/Pages/pdf/grpp2006factsheet.pdf
[25] Ibid
[26] Transit Planning Board – Seamless Transit for Metro Atlanta. *Frequently Asked Questions* http://tpb.ga.gov/faq.html Accessed February 2nd 2009

Atlanta-Macon and Atlanta-Athens lines, data and forecasts for the other proposed commuter rail lines were twelve years old. MACOC staff believed that without a comprehensive update to the 1995 plan, TPB planning and prioritization regarding commuter rail would build upon antiquated information and consequently be at a disadvantage to other modes of transit that the Board was to consider. To remedy this situation, MACOC contracted with R. L. Banks & Associates Inc. to update the 1995 study, specifically the findings of the six feasible routes plus the Atlanta-Macon corridor. All routes not found feasible in the 1995 study (including the LaGrange Line) were ignored. This study (referred to hereafter as the Banks study) was completed in December of 2007.[27] The Banks study found all lines studied to be feasible for future commuter rail implementation.

Chapter 2: Study Area Definition

The study area chosen is composed of the general area of Coweta and Fulton Counties, where most of the trip productions are expected to originate from and the more specific CSX railroad corridor which serves the area, as shown in figure 4.

[27] Metro Atlanta Chamber of Commerce. *Public Policy – Transportation* http://www.metroatlantachamber.com/pp_transportation.html#crstudy Accessed February 2nd 2009

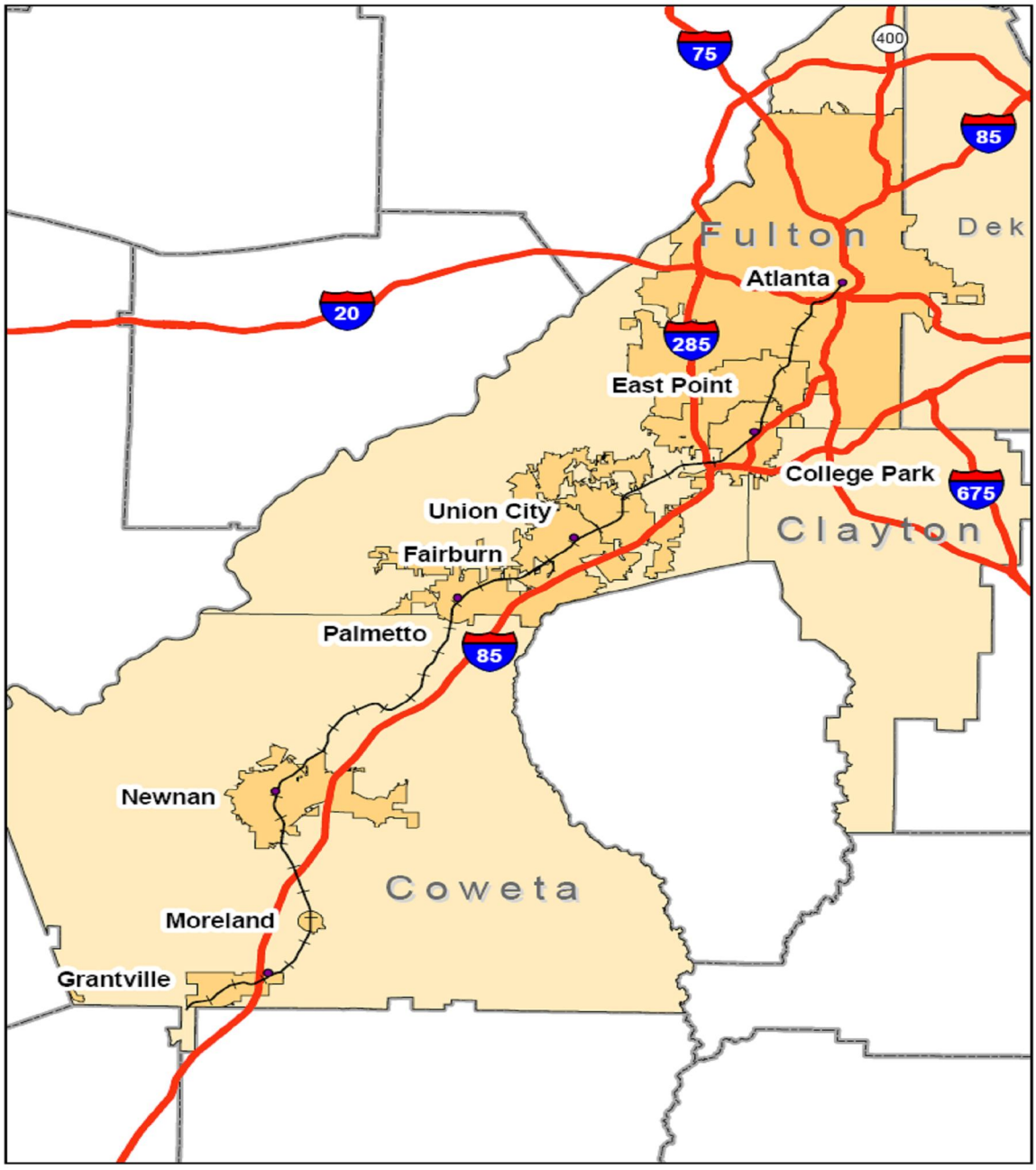


Figure 4: Study area counties with cities served by the CSX A&WP subdivision

Also included within the study area is a small portion of Clayton County, which the CSX right-of-way traverses near Hartsfield-Jackson International Airport.

As mentioned earlier, Coweta is amongst the fastest growing counties in the Atlanta region. As shown by in figure 6, ARC is forecasting that Coweta's population will

double by 2030. The south Fulton portion of the study area (made up of the Shannon and South Fulton ARC superdistricts) has also experienced rapid growth, expanding 72%

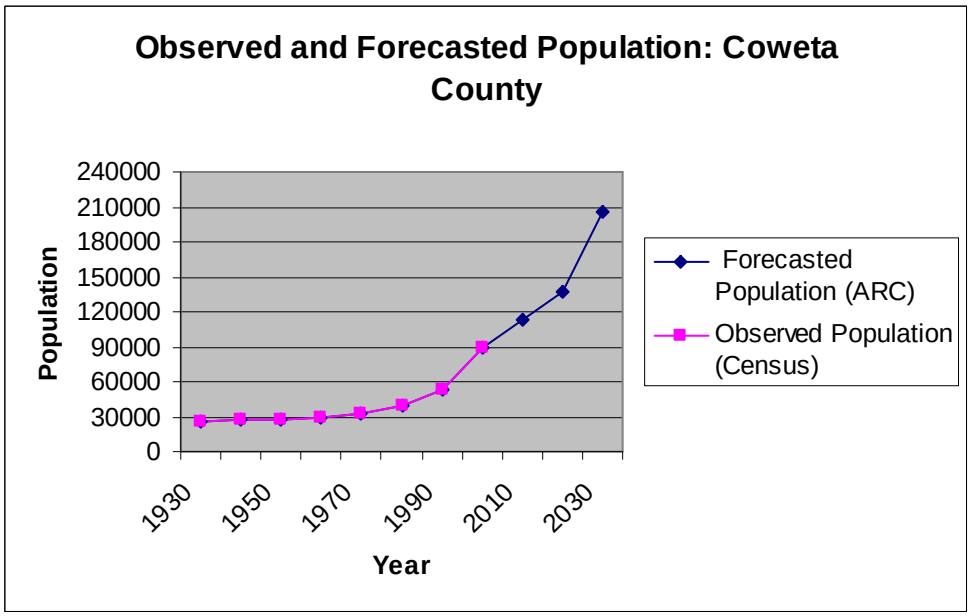


Figure 5: Coweta County observed and forecasted population (ARC)

between 2000 and 2008.[28] Employment growth is also fairly strong in Coweta County, as the county added over 4,800 jobs between 2000 and 2006 for a total growth rate of roughly 18%. On the other hand, job growth has slowed in Fulton, as the county lost jobs at a rate of around 2% during the same time period.[29] Many of the region's top paying jobs are clustered in Fulton (see appendix A).

Transportation options vary throughout the study area. Fulton County is served by Interstate highways 75, 85, 20 and 285. Toll road GA-400 provides access to population and employment centers in the Perimeter activity center and north Fulton County. Fulton also falls within the MARTA service area and is served by heavy rail and

[28] ARC, 2008. http://www.atlantaregional.com/documents/Population08.XLS
[29] ARC, 2008. http://www.atlantaregional.com/documents/mastersummary1.xls

local bus transit. Additionally, GRTA provides express commuter bus service (with limited reverse commute trip options) to important employment centers such as Midtown, Downtown, Buckhead and the Perimeter. Options in Coweta are more limited; the county currently lacks local public transportation. GRTA route 550 offers limited express commuter service to and from the Atlanta central business district (CDB) as well as Midtown Atlanta. I-85 is the county's only interstate highway.

Chapter 3: Concept Definition

The commuter rail concept for the study area was developed through examination of the Atlanta-LaGrange concept in the 1995 study. That original line (shown in figure 4) utilized 61 miles of the CSX A&WP subdivision from LaGrange to Stonewall Connection in Union City, where the line transfers to the CSX Atlanta Terminal subdivision for 10 miles until its final stop at the proposed multimodal passenger terminal (MMPT) in the Atlanta CDB. The track was considered to be in good condition with top freight operating speeds to range from 50 to 70 mph.[30] The proposed route had nine stations in seven cities within three counties.

From this original route, this paper's concept route was constructed through a series of steps. First, Troup County was removed from the original route's study area. This was a necessity due to the fact that the travel demand modeling effort in this report makes use of the readily available ARC travel demand model, which does not include socioeconomic data from Troup County. This immediately eliminated twenty-two route miles and two stations (Hogansville and LaGrange). Next, a station was added

[30] Georgia Department of Transportation Commuter Rail Plan (1995). p. 27. Available upon request.

adjacent to the Georgia International Convention Center (GICC) near Hartsfield-Jackson International Airport. Currently, the City of Atlanta is building an automated people mover (APM) system to ferry passengers to and from the airport terminal and a new consolidated rental car facility, also under construction west of the GICC. The APM system will include an intermediate stop at the GICC and provide a free, two and a half minute trip to the airport, with frequent headways.[31] The original LaGrange line was conceived long before plans were laid to build the Hartsfield-Jackson APM, so access to the airport was provided by a MARTA transfer at East Point, a station shared with the Forsyth commuter rail line (now studied as the Atlanta-Macon line). Assuming similar transfer times between commuter rail and either the East Point MARTA station or the GICC APM, the APM option is one and a half minutes faster. East Point is roughly five additional traveled minutes from the GICC APM location, adding a total of around seven and a half extra minutes for a commuter rail to airport transfer. For these reasons, the East Point station was dropped from the new concept. Next, due to its proximity to the new GICC/Airport station, the proposed Red Oak station was also dropped. Finally, station was added at Grantville at the southern end of Coweta County and the McCollum Road station was removed (due to the lack of housing nearby) to produce the new Coweta commuter rail concept (figure 6)

[31] Hartsfield-Jackson International Airport homepage. *Future APM Projects.* *http://www.atlanta-airport.com/Airport/APM/APM_FutureProjects.aspx*. Accessed February 13th 2009.

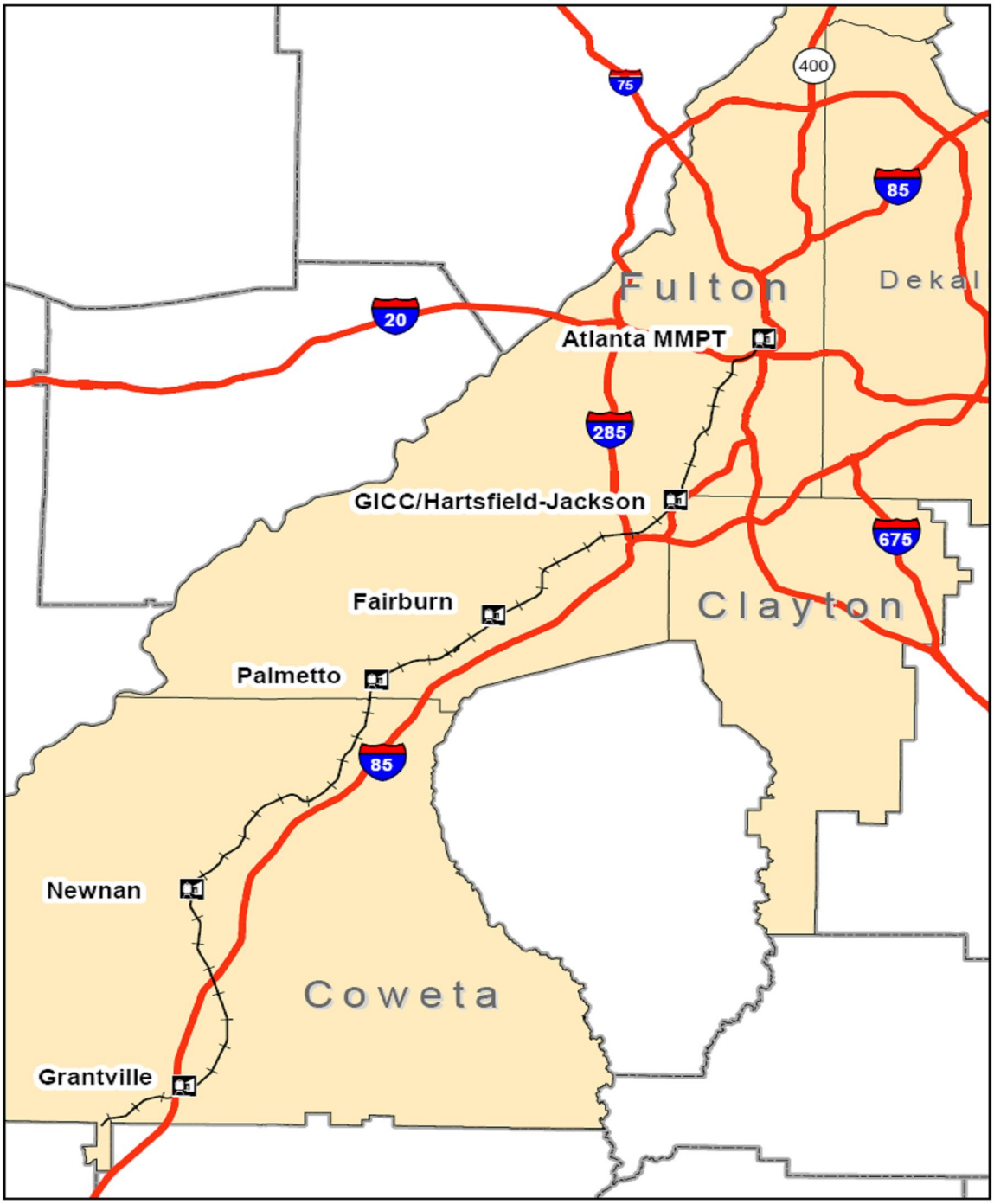


Figure 6: Coweta-Atlanta commuter rail concept

Coincidentally, this concept is nearly identical to the last passenger service to be offered through this corridor in the late 1960's under A&WP ownership.[32] Please refer to Appendix E for more detail regarding proposed station locations.

Chapter 4: Ridership Forecasting Methodology

Forecasted ridership along the Coweta line was determined by the latest revision of the 2030 Atlanta Regional Commission's travel demand model, released in November 2008. The model is based upon the traditional four-step method of forecasting travel demand, which consists of trip generation (which predicts the number of trips originating from or attracted to a given area), trip distribution (where trip origins are matched with destinations), mode choice (which predicts the mode of transportation that will be used) and trip assignment (where specific routes are predicted between origins and destinations). It utilizes ARC's latest socioeconomic forecasts, which will consider the explosive growth of the outer suburban counties better than GDOT's 20-year forecasts in the 1995 study, which underestimated population growth in Coweta County by more than 30% (table 3). The Banks study utilized the same socioeconomic data in the ARC travel demand model for modeling activities within the 20-county ARC region.

Using the model's TP+/Cube interface, a five-link, six-station transit route was created to represent the Coweta commuter rail concept. Stations were placed within the transportation network file at the locations listed in Appendix E and connected by

[32] Refer to "Georgia Railroad, Atlanta & West Point Railroad, and Western Railway of Alabama 1969 map" http://railga.com/georgia69.html

links. Each link was coded for the appropriate distance between stations (table 4) and transit vehicle operating speed. Each station (except the Atlanta MMPT) was linked to the highway network and assigned its own park & ride node. Park & ride lots were assumed to attract drivers from all directions. Since the Hartsfield-Jackson/CONRAC APM is not currently coded in the ARC model, a short walk link was added between Hartsfield-Jackson International Airport and the proposed GICC/Hartsfield-Jackson to allow for transfer to the airport and simulate the expected five minute trip between areas.

County	GDOT Study Estimates	ARC Forecasts	Difference	% Difference
Barrow	36,843	65,915	-29,072	-44.11%
Bartow	77,872	92,425	-14,553	-15.75%
Carroll	84,127	107,172	-23,045	-21.50%
Cherokee	141,344	201,545	-60,201	-29.87%
Clayton	294,241	276,170	18,071	6.54%
Cobb	809,582	668,960	140,622	21.02%
Coweta	72,351	113,265	-40,914	-36.12%
DeKalb	701,315	722,708	-21,393	-2.96%
Douglas	156,336	126,462	29,874	23.62%
Fayette	111,636	107,220	4,416	4.12%
Forsyth	66,102	153,768	-87,666	-57.01%
Fulton	939,609	906,371	33,238	3.67%
Gwinnett	720,558	760,134	-39,576	-5.21%
Hall	113,332	166,481	-53,149	-31.92%
Henry	80,390	187,382	-106,992	-57.10%
Newton	64,554	89,326	-24,772	-27.73%
Paulding	53,168	126,618	-73,450	-58.01%
Rockdale	123,736	81,825	41,911	51.22%
Spalding	63,152	64,987	-1,835	-2.82%
Walton	42,950	77,166	-34,216	-44.34%
Totals	**4,753,198**	**5,095,900**	**-342,702**	**-6.73%**

Table 3: GDOT 1995 and current ARC 2010 population forecasts

Additionally, the following assumptions were placed into the model:

1. A free transfer to MARTA's heavy rail system would be provided at the Atlanta MMPT station.
2. Service consists of three inbound trains during AM peak period and three outbound trains during the PM peak period. No midday or reverse commute service was provided.
3. The transfer between commuter rail and the GICC/Hartsfield-Jackson Airport station would also remain free.
4. Between links, the average speed of service would be 42 MPH. This mirrors the assumptions made by the Banks study.[33]
5. Parking would be free and provided at all stations, excluding the Atlanta MMPT station.
6. Two flat fare schemes accounting for the only differences between the two model runs. The first model run assumes a $1.75 flat fare, constituting the model default. Ridership numbers generated by the first model run were then applied to the inflation-adjusted Banks study distance-based fare model, which worked out to a base fare of $2.31 plus 9 cents per mile traveled.[34] The revenues generated under this assumption were divided by the total ridership figure to arrive at a mean fare of $4.68. Since the ARC travel demand model does not yet have the capability of using a distance-based fare structure, this mean fare was applied to the second model run in an attempt to achieve more realistic results.

[33] R.L. Banks & Associates *Commuter Rail Update*. http://www.tpb.ga.gov/Documents/Commuter%20Rail%20Plan%20Update%20-%20Final12-11-07.pdf p 57
[34] Ibid.

See Appendix C for full documentation of fare calculations and related information.

Station	Milepost	Time (MIN)
Grantville	0	0
Newnan	10	15
Palmetto	23	19
Fairburn	29	9
GICC/Hartsfield-Jackson	39	14
Atlanta/MMPT	49	13

Table 4:Coweta commuter rail route characteristics

The two fare scenarios produced a range between 1,925 and 2,078 AM productions and attractions. As expected, the costlier fare assumption in model run two attracted fewer riders than model run one, with its cheaper fare. However, while the fare more than doubled, the forecasted ridership only decreased by seven percent. Using standard methods, the modeled demand for commuter rail amongst its riders appears to be highly inelastic: changes in fare price have little comparative effect on model-forecasted ridership.[35] AM productions, attractions, revenue and elasticity outputs from the two model runs are summarized in the table below.

Model Run 1: Fare = $1.75				**Model Run 2: Fare = $4.68**		
Station	**Productions**	**Attractions**	**Revenues**	**Productions**	**Attractions**	**Revenues**
Grantville	87	0	$152.25	77	0	$360.36
Newnan	580	0	$1,015.00	528	0	$2,471.04
Palmetto	580	0	$1,015.00	526	0	$2,461.68
Fairburn	832	0	$1,456.00	794	0	$3,715.92
GICC/Hartsfield-Jackson	0	192	$0.00	0	174	$0.00
Atlanta - MMPT	0	1885	$0.00	0	1751	$0.00
Total	**2078**	**2078**	**$3,638.25**	**1925**	**1925**	**$9,009.00**
Price Elasticity of Demand:		**0.083**				

Table 5:Passenger ridership, revenues and elasticity of two model scenarios

[35] Colander, David (2006). *Economics.* New York: McGraw-Hill/Irwin

As noted, figures listed above are for the AM peak period only. Doubling each number produces the total daily ridership (AM plus PM trips) for a range of 3,850 (model run two) to 4,156 (model run one) trips. This gives a total daily revenue range of $7,273 to $18,018 between model run one and two.

It is worth noting that the ARC travel demand model does not account for future development that could be spurred by any new transit improvement. Should the Coweta line (or any commuter rail concept in the Atlanta region) be implemented, the adoption of local land use policies which encourage higher-density development around commuter rail stations could have a positive effect on ridership and should be encouraged.[36] Such policies could result in ridership figures higher than those forecast in this report.

Chapter 5: Cost Estimation

Cost estimation methodology relied primarily upon the assumptions and methodologies outlined by the Banks study. This is due to the relative newness of the study, the study's consideration of previous work regarding Atlanta region commuter rail cost estimation, the study's contact and collaboration with the host railroads and the overall comprehensive nature of the study's analysis of likely costs associated with proposed commuter rail lines in the Atlanta area. The Coweta line's cost estimation includes two broad cost categories: capital costs and operating & maintenance costs. Operating and maintenance (O&M) costs are required to provide commuter rail service

[36] Transit Cooperative Research Program. *Web Project Report 102: Transit-Oriented Development in the United States: Experiences, Challenges and Prospects.* 2004. http://onlinepubs.trb.org/Onlinepubs/tcrp/tcrp_rpt_102.pdf Accessed April 6, 2009.

on an ongoing basis. Associated costs include labor, maintenance of way, diesel fuel, host railroad access fees, administrative overhead, insurance, operating contingencies, station and equipment maintenance, contractor management, and marketing.[37] Capital costs can be further classified into two subcategories: infrastructure costs and equipment costs. The infrastructure cost component includes "capital costs associated with track, bridge and other infrastructure improvements deemed necessary to implement commuter rail service."[38] The equipment cost component encompasses the rail vehicles (locomotives and passenger coaches) needed to satisfy the daily forecasted passenger demand for service. All cost estimation components provided by the Banks study are in 2007 dollars and have been adjusted to 2008 dollars in this report, using the average 2007 and 2008 consumer price indices from the Bureau of Labor Statistics.[39]

O&M Costs

Commuter rail O&M costs are largely a product of the overall length of a given route in miles.[40] Accordingly, O&M cost determination for the Coweta line was achieved by averaging the O&M costs of routes listed in the Banks study that were of similar length. The Coweta line is approximately 49 miles long, comparing well with the Bremen, Gainesville and Canton lines. The average costs are listed below

[37] R.L. Banks & Associates, p 84
[38] R.L. Banks & Associates, p 75
[39] BLS. *Consumer Price Index*. ftp://ftp.bls.gov/pub/special.requests/cpi/cpiai.txt
[40] R.L. Banks & Associates, p 84

Line	Length (miles)	O&M Costs (2007)	2008 $
Bremen	52	$11,700,000	$12,149,227
Gainesville	53	$11,700,000	$12,149,227
Canton	43	$10,600,000	$11,006,992
Average O&M Costs			**$11,768,482**

Table 6:Average O&M costs for routes of similar length to the Coweta line

Next, estimated Coweta line revenues are subtracted from the averaged O&M figure to arrive at a final (net) operating cost. The following assumptions are made in calculating revenues:

1. The Coweta line is assumed to operate on 252 business days each year.
2. The fare and ridership results in model run two (3,850 daily trips produced from a fare of $4.68) are assumed.
3. While conservative, potential revenues from potential special event services (such as weekend sporting events in Atlanta) and concessions operations (cafés, newspaper stands, etc) are not considered

Under these assumptions, the forecasted 970,200 trips will generate $4,540,536 in annual revenues ($18,018 per day). Subtracting the annual revenues from the O&M costs renders the final net annual O&M cost of $7,227,946.

Capital costs: Infrastructure

The Banks study outlines very detailed infrastructure improvement recommendations for all seven lines considered. The unit costs provided in the Banks study, “which were discussed with a Class I railroad to assure reasonableness”, are adjusted for inflation and applied to estimated infrastructure needs on the Coweta line. Also, as mentioned in the Banks study, officials from both CSX and Norfolk Southern are

supportive of passenger operations over their tracks only as long as operations are transparent to the host railroad and do not cause any delay to current and future freight rail traffic.[41] These statements mirror policy statements by the American Association of Railroads (AAR), an industry group representing U.S. freight railroads.[42] These statements form the guiding principle regarding infrastructure cost estimation for the Coweta line: "Safe, not sorry". Capital cost estimates listed below are conservative, not optimistic. With this in mind, the estimated infrastructure costs related to the Coweta line are listed below in table 7. For more information on how infrastructure costs were formulated, please refer to Appendix D.

[41] R.L. Banks & Associates, p 71
[42] American Association of Railroads. *Support Passenger Rail, But Not At the Expense of Freight Rail.* http://www.aar.org/Home/AAR/GovernmentAffairs/~/media/AAR/PositionPapers/290.ashx Accessed February 17th 2009

Infrastructure Cost Estatimation: Coweta Commuter Rail Concept					
Item	Unit	Unit Cost (2007)	Unit Cost (2008)	Qty.	Total 2008 Cost
New Track Installation	Mile	$1,593,000	$1,654,164	41.7	$68,978,640
CTC Installation: Main line	Mile	$170,000	$176,527	41.7	$7,361,186
CTC Installation: Siding	Mile	$127,500	$132,395	7.3	$966,487
Overhead Bridge Reconstruction	Each	$250,000	$259,599	7	$1,817,192
Grade Crossing	Each	$175,000	$181,719	18	$3,270,946
Turnout Installation	Each	$358,000	$371,746	3	$1,115,237
Junction/Crossover Turnout Removal	Each	$8,000	$8,307	3	$24,921
Overnight Storage Tracks	Lump Sum	$620,000	$643,805	1	$643,805
East Point to MMPT Total Capital Cost	Lump Sum	$10,023,000	$10,407,838	0	$0
Station Cost: Parking	Space	$4,921	$5,110	1925	$9,836,643
Station Cost: Platform	Each	$647,500	$672,361	5	$3,361,805
Station Cost: Pedestrian Bridge	Each	$1,165,500	$1,210,250	1	$1,210,250
Station Cost: Elevator	Each	$129,500	$134,472	2	$268,944
Station Cost: Property	Lump Sum	$2,262,264	$2,349,125	1	$2,349,125
Station Cost: MMPT Platform	Each	$647,500	$672,361	1	$672,361
Maintenance Facility Building	Lump Sum	$10,037,000	$10,422,376	1	$10,422,376
Maintenance Facility Property	Lump Sum	$10,878,000	$11,295,666	1	$11,295,666
Station Cost-Related Contingency	20%	$971,437	$1,008,736	1	$1,008,736
General Contingency (non-station)	10%	$3,423,950	$3,555,414	1	$3,555,414
Total					**$128,159,734**

Table 7: Estimated infrastructure costs (2008 dollars)

Equipment Costs

Estimating equipment costs for the Coweta line was fairly straightforward: Banks study cost estimates for a line with similar forecasted passenger demand (the Athens line) for the equivalent provided service (three daily trains) was adjusted for inflation and applied. Thus, the figure of $44,400,000 was chosen and adjusted for inflation for a final equipment cost of $46,104,760. The sum of estimated equipment and

infrastructure costs produces an overall capital cost estimate of $174,264,495 for the Coweta line.

Chapter 6: Feasibility Determination

As mentioned earlier, the Banks study found all seven commuter rail lines studied to be feasible, "based upon ridership comparisons with other new start commuter rail systems over the past two decades."[43] This standard was used to determine feasibility of commuter rail service on the Coweta line: if the Coweta line performs well in comparison to its regional peer concept lines, then it will be deemed feasible. In order to compare the 8 lines, four performance measurements were used: total annual ridership (all trips taken), operating cost per trip (net annual operating costs divided by annual trips), farebox recovery ratio (annual revenues divided by gross annual operating costs) and annualized cost per trip (the amortized annual capital cost divided by total annual ridership.

The last two methods, farebox recovery ratio and annualized capital cost per trip, were used as the sole determinants of feasibility in the 1995 GDOT study. The methods used to calculate farebox recovery in this report and the 1995 study are identical. However, this report differs in its calculation method of annualized capital cost. On a per-line basis, the 1995 study annualizes the capital by multiplying each line by 1/10, adding to that the net annual operating costs (gross O&M less operating revenues) and dividing by the annual ridership.[44] This report uses the same method but

[43] R.L. Banks & Associates, p 89
[44] Georgia Department of Transportation Commuter Rail Plan (1995). p 45. Available upon request

utilizes a more realistic method for annualizing costs by utilizing the standard amortization calculation listed below:

$$A = P\frac{i(1+i)^n}{(1+i)^n - 1} = \frac{P * i}{1 - (1+i)^{-n}}$$

Where: *A* = periodic payment amount

P = amount of principal, net of initial payments, meaning "subtract any down-payments"

i = periodic interest rate

n = total number of payments

This report annualized the costs for all lines using this method, assuming a repayment period of thirty years, an interest rate of 5% and a principal containing the net operating costs plus the total capital costs (infrastructure plus equipment).

Each line's rankings (determined with figures provided by the Banks study, adjusted for inflation where appropriate) in the selected performance measures are listed below:

Line	Daily Trips	Annual Trips	Rank
Madison	4,650	1,171,800	1
Coweta	3,850	970,200	2
Athens	3,710	934,920	3
Canton	3,410	859,320	4
Gainesville	2,450	617,400	5
Bremen	2,200	554,400	6
Macon	2,150	541,800	7
Senoia	1,680	423,360	8

Table 8: Annual trips by line

Line	2007 Daily Revenues	Daily Revenues (2008 $)	2008 Annual Revenues	Operating Costs (2008 gross)	Operating Costs (2008 net)	Operating Cost Per Trip	Rank
Madison	$24,700	$25,648	$6,463,389	$14,433,697	$7,970,309	$6.80	1
Coweta	N/A	$18,018	$4,540,536	$11,768,482	$7,227,946	$7.45	2
Canton	$17,500	$18,172	$4,579,324	$11,006,992	$6,427,668	$7.48	3
Athens	$18,600	$19,314	$4,867,167	$15,575,933	$10,708,765	$11.45	4
Gainesville	$11,600	$12,045	$3,035,438	$12,149,227	$9,113,790	$14.76	5
Bremen	$11,200	$11,630	$2,930,767	$12,149,227	$9,218,460	$16.63	6
Senoia	$8,100	$8,411	$2,119,573	$9,553,239	$7,433,666	$17.56	7
Macon	$11,600	$12,045	$3,035,438	$17,860,403	$14,824,965	$27.36	8

Table 9: Operating cost per trip and supporting figures by line

Line	Farbox Recovery Ratio	Rank
Madison	45%	1
Canton	42%	2
Coweta	39%	3
Athens	31%	4
Gainesville	25%	5
Bremen	24%	6
Senoia	22%	7
Macon	17%	8

Table 10:Farebox recovery ratio by line

Line	Equipment Cost (2008 $)	Infrastructure Cost (2008 $)	Total Capital Costs	Annualized Capital + Net Operations Cost	Annualized Capital Cost per Trip	Rank
Madison	$53,269,689	$102,519,749	$155,789,439	$18,104,635	$15.45	1
Canton	$38,939,831	$110,456,206	$149,396,038	$16,146,095	$18.79	2
Coweta	$46,104,760	$128,159,734	$174,264,495	$18,564,102	$19.13	3
Gainesville	$31,774,902	$116,973,176	$148,748,079	$18,790,066	$30.43	4
Senoia	$31,774,902	$78,284,637	$110,059,539	$14,593,197	$34.47	5
Bremen	$38,939,831	$124,046,727	$162,986,558	$19,820,969	$35.75	6
Athens	$46,104,760	$443,766,625	$489,871,385	$42,575,602	$45.54	7
Macon	$38,939,831	$340,812,826	$379,752,657	$39,528,420	$72.96	8

Table 11: Annualized capital cost per trip and supporting figures by line

The Coweta concept performs well compared to other lines, as shown above. Also of note is the overall superior performance of the Madison line, which ranks first in all categories but is scheduled for implementation last.[45] In light of this, a reevaluation of the priority list for commuter rail line implementation may be warranted.

Conclusion

Further study is recommended to answer "unknowns" and explore topics that are beyond the scope of this report. Recommendations for further study to address these unknowns are listed below.

- Travel Demand Modeling: One of the weaknesses of this study is the lack of ability to forecast ridership on the Coweta line concept with a more realistic distance-based fare, rather than the modified flat-rate fare scheme utilized for this planning effort. Distance-based fares are common amongst commuter rail operators and the ability to account for this in the model is likely to improve ridership and revenue forecasts. Also, ridership at the concept's terminus station of Grantville could be understated, as the boundary of ARC's model precludes the potential ridership from outlying counties (such as Meriwether, Troup and Heard Counties). Due to these shortcomings, a concept-specific model should be developed and utilized for any future study of the Coweta line.
- Costs: A detailed assessment of the operational and capital costs of the Coweta line would be necessary for further action, since determining the engineering

[45] Georgia Department of Transportation. *2006 Fact Sheet Georgia Rail Passenger Program.* 2006. Available at http://www.garail.com/Pages/pdf/grpp2006factsheet.pdf

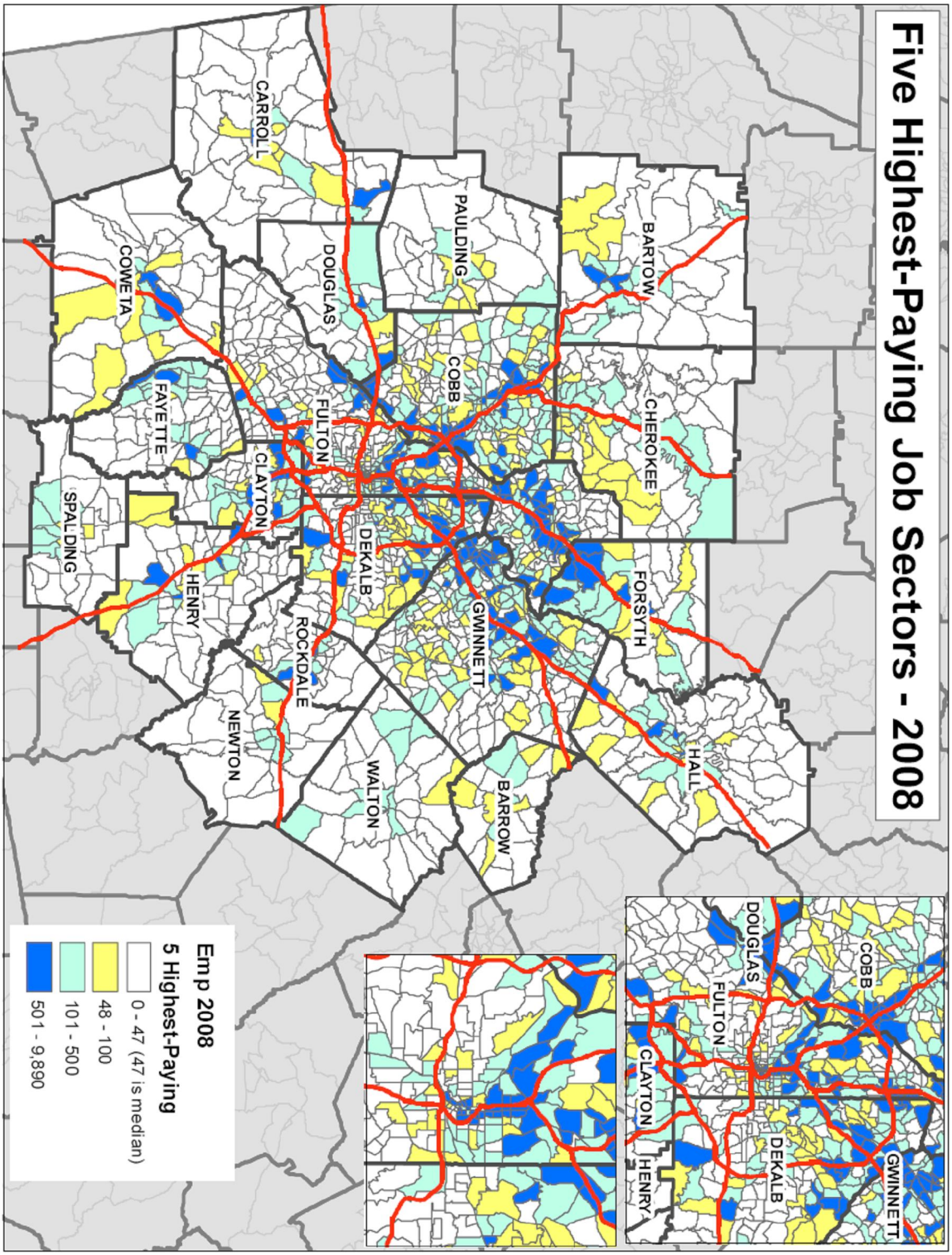
requirements of the concept is beyond the scope of this study. Related to this is the assumption that commuter rail service over host railroads must be transparent. For this reason a dialog between policymakers and CSX and Norfolk-Southern must precede any updated cost estimation.

- Stations: This study did not account for possible input from local citizens and policymakers regarding station location. Certain assumptions made by the author (such as the availability of existing historic depots for commuter rail service) might not be compatible with each community's long-term vision. A station study that considers local input would be a necessary component of any further study of the Coweta line.
- Funding: While the GDOT has had a completed commuter rail plan for nearly fifteen years, little progress has been made towards implementation. Obviously, a funding plan for commuter rail construction and operations is necessary before further action can be taken.
- Transportation Security: As mentioned earlier in this report, the likely future scarcity of cheap and plentiful fossil fuels (specifically conventional crude oil) could have grave implications for an Atlanta region that is currently heavily dependant on the automobile as the primary feasible alternative for transportation. Under a future scenario of drastically higher retail gasoline costs, the transportation niche that commuter rail fills could serve as a lifeline to small towns and exurbs in the region, ensuring their resident's access to both high-

wage jobs in the region's core and the affordable housing options that these small towns offer.

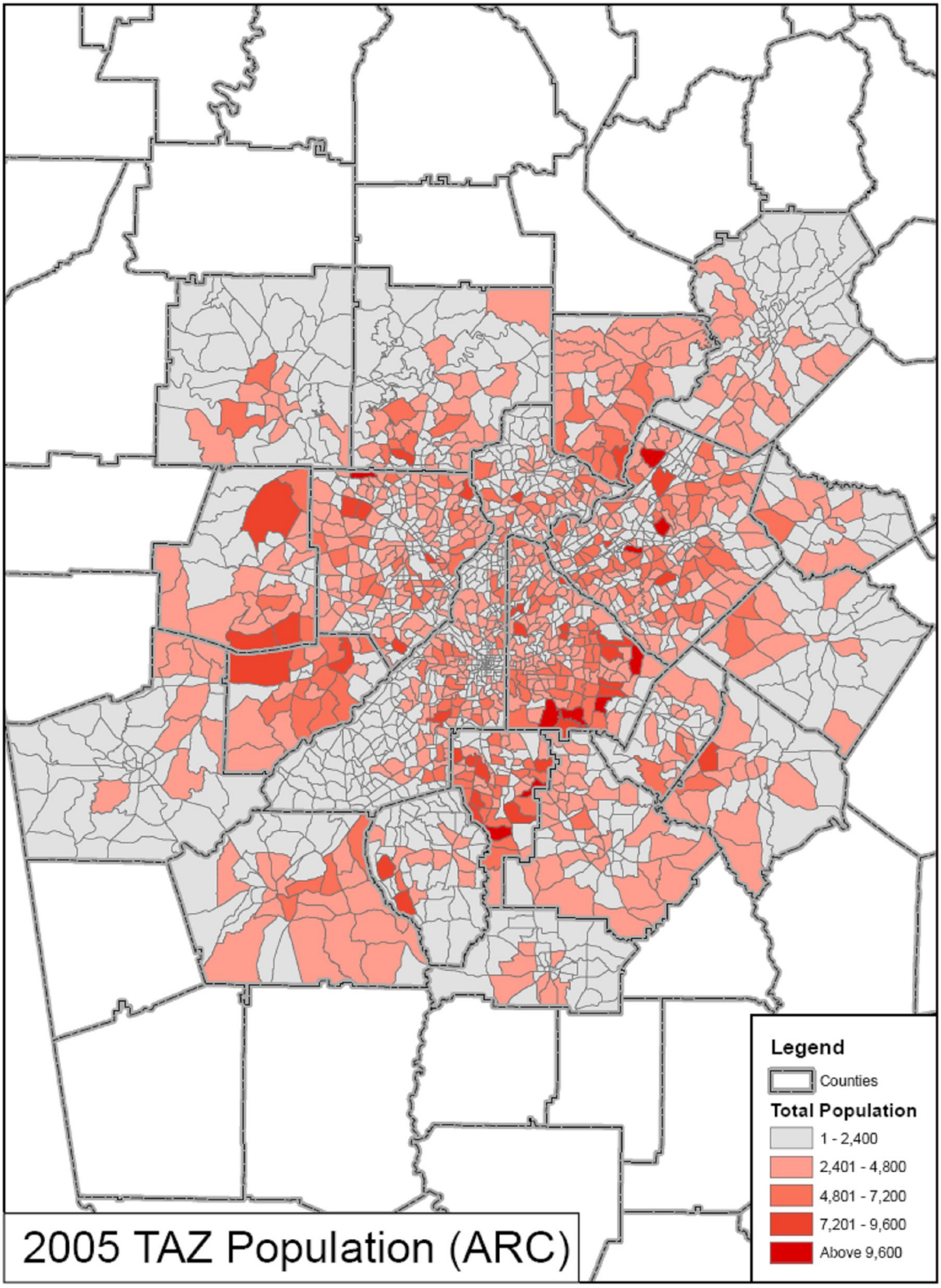
Aside from these needs for further study, the Coweta line concept compares well to previously studied lines when using performance measures common to this report, the Banks study and the 1995 GDOT study. It ranks third or better amongst the eight lines in terms of annual trips, operating cost per trip, farebox recovery ratio and annualized capital cost per trip. Based on these findings, this report deems the Coweta line feasible. When all these factors are taken into consideration, it would appear that a future commuter rail service is possible for Coweta County.

Appendix A: Highest Paying Job Sectors by TAZ

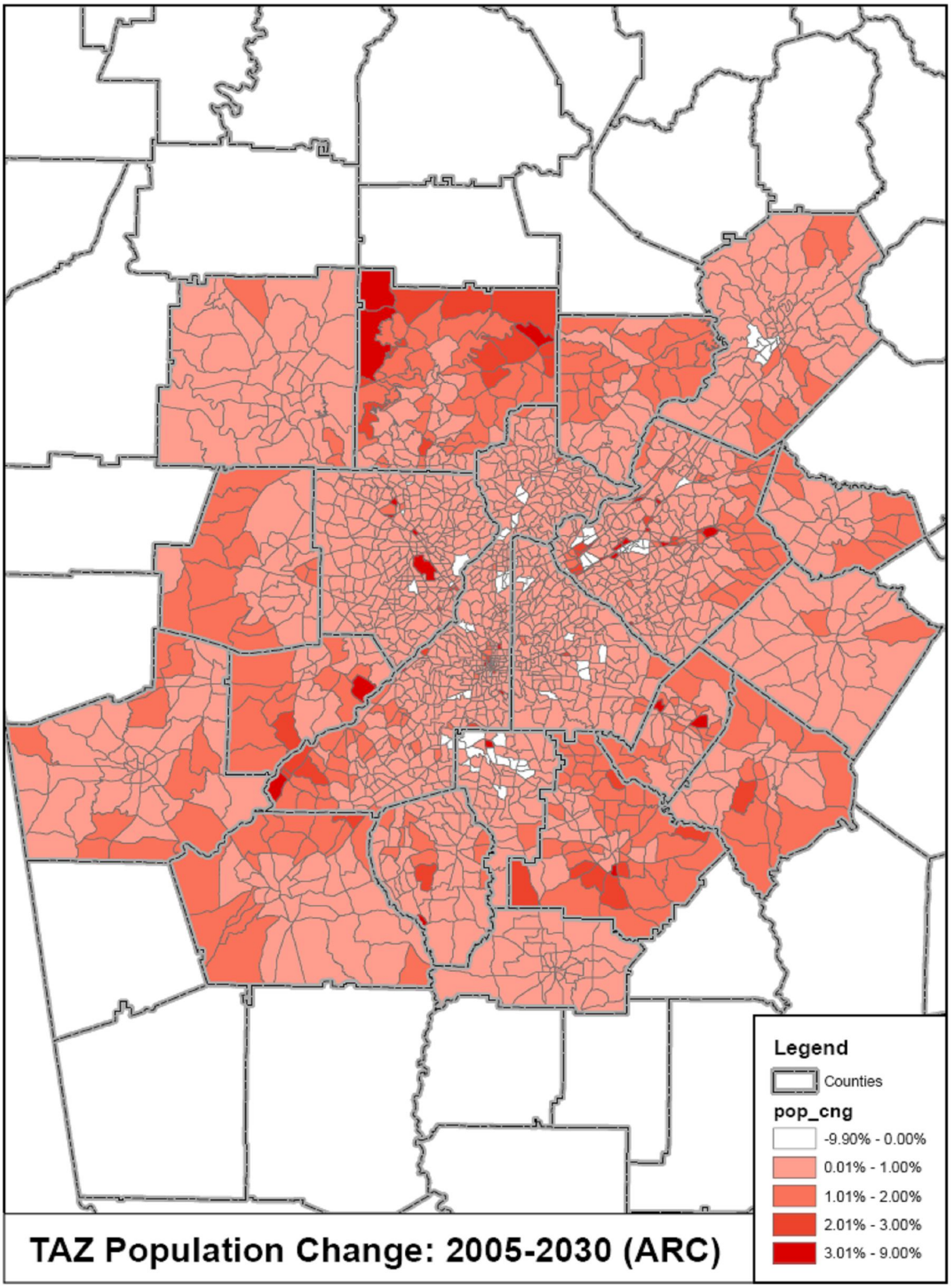


Source: ARC (http://www.atlantaregional.com/documents/top5.pdf)

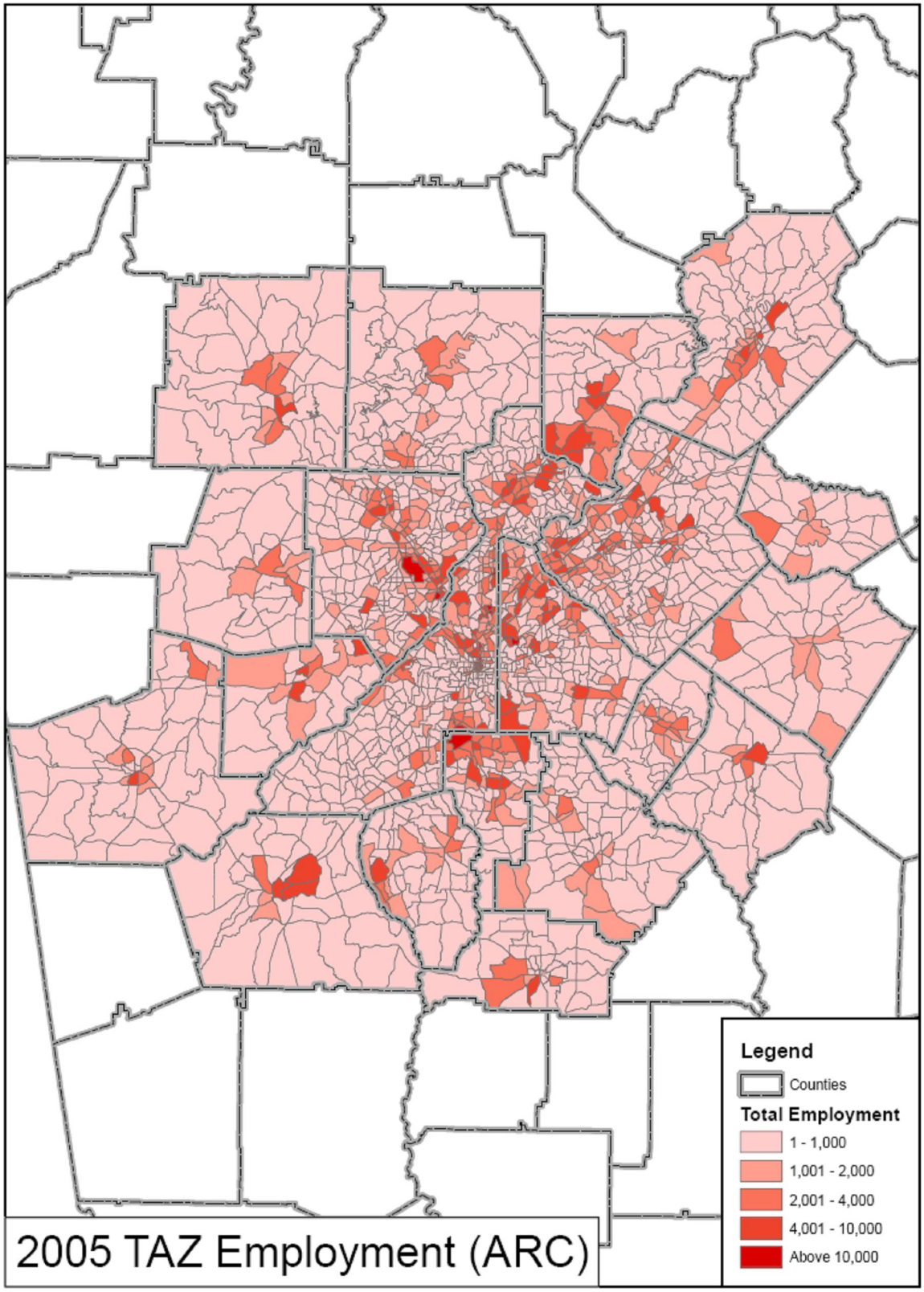
Appendix B: Population and Employment Documentation



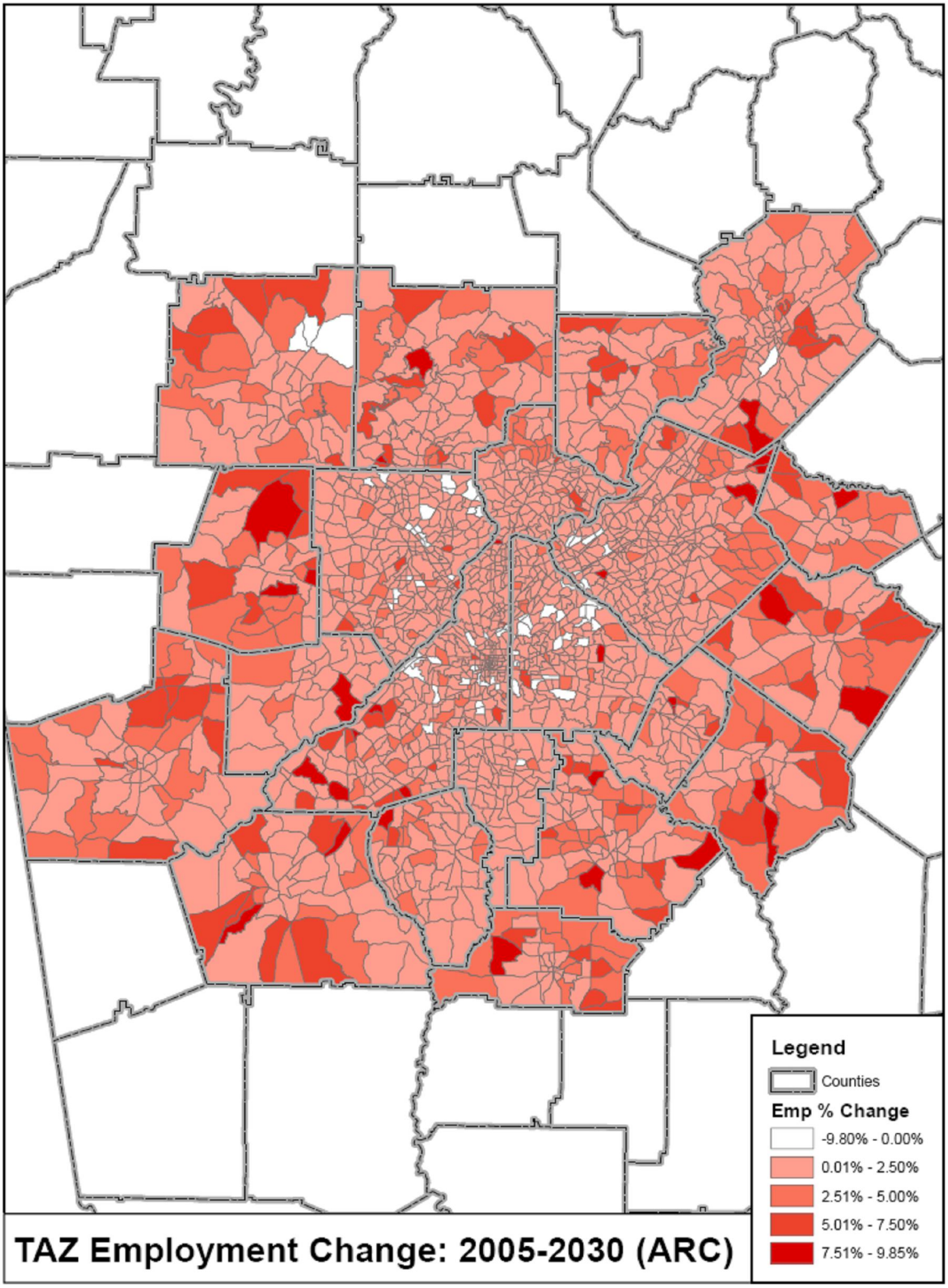
Source ARC GIS data (available at http://www.atlantaregional.com/html/4716.aspx)



Source ARC GIS data (available at http://www.atlantaregional.com/html/4716.aspx)



Source ARC GIS data (available at http://www.atlantaregional.com/html/4716.aspx)



Source ARC GIS data (available at http://www.atlantaregional.com/html/4716.aspx)

Appendix C: ARC Travel Demand Model Documentation

The default fare for commuter rail in the 2030 ARC travel demand model is a flat $1.75. That is, each trip, no matter where the origin or destination, costs $1.75 (identical to MARTA's current fare structure). Running the Coweta line concept through the model with those default fare assumptions produced the following result for the AM peak period:

Station	Productions	Attractions
Grantville	87	0
Newnan	580	0
Palmetto	580	0
Fairburn	831	0
GICC/Hartsfield-Jackson	0	193
Atlanta - MMPT	0	1885
Total	2078	2078

The ARC travel demand model lacks an easy means to implement a distance-based fare for a given transit route. Unfortunately, most commuter rail operations in the U.S. use a distance-based fare. The best approximation for a distance based fare was determined to be the average fare per trip if the fare assumptions of the Banks study were applied to the first model run output. This average rate was found to be $4.68 and was subsequently applied to the second model run as the Coweta line's fare. While far from perfect, this was deemed the best method available at the time of this report.

As shown, close to 91% (0.907122 to be exact) of all alightments occur at Atlanta – MMPT while around 9% (0.092878) occur at GICC/Hartsfield-Jackson. Since detailed origin/destination data for each rider on the modeled Coweta line was unavailable, the

above numbers were applied to each station's production total to estimate their end destinations, as shown below:

Destination by Station: AM Peak Period			Rider Destination	
Station	**Productions**	**Attractions**	**GICC/APM**	**MMPT**
Grantville	87	0	8	79
Newnan	580	0	54	526
Palmetto	580	0	54	526
Fairburn	831	0	77	754
Hartsfield	0	193	0	0
Atlanta - MMPT	0	1885	0	0
Total	2078	2078	192	1885

With this data, the mileage between each production and attraction station was measured. Next, the Banks study fare assumption ($2.25 base fare plus 9 cents per mile traveled) was applied to get the following results:

Banks Study Fare * Model Run 1 Trips			Rider Destination		Revenues by Station	
Station	**Distance to Hartsfield**	**Distance to MMPT**	**GICC/APM**	**MMPT**	**GICC/APM**	**MMPT**
Grantville	39.64	48.73	8	79	$47	$528
Newnan	29.31	38.4	54	526	$267	$3,034
Palmetto	15.96	25.05	54	526	$202	$2,402
Fairburn	9.62	18.71	77	754	$245	$3,011
Hartsfield	N/A	N/A	0	0	$0	$0
Atlanta - MMPT	N/A	N/A	0	0	$0	$0
Total			192	1885	$761	$8,974
Total Revenue						**$9,735**

Finally, the total revenues generated on the AM peak period are divided by the AM peak period trips to arrive at the average distance-based fare paid, $4.68. This figure became the flat fare for model run two.

Appendix D: Capital Cost Documentation

The following assumptions were made during the calculation of the infrastructure component of the Coweta line's capital costs:

1. All necessary infrastructure costs for passenger operation on shared CSX/NS ROW from Atlanta/MMPT station to the East Point (milepost 6.4) are assumed to be covered by a lump sum cost listed in table 20 of the Banks study. This is further assumed to be accounted for during the construction of the Macon commuter rail line, which currently has federal funding and therefore is likely to be implemented before any Coweta commuter rail concept.[46] Therefore it is removed from infrastructure cost estimations for the Coweta line. All infrastructure assumptions listed below exclude this segment from cost estimates.[47]
2. The Coweta line (including railroad passing) will be wired for Centralized Traffic Control (CTC) as recommended for all lines in the Banks study.[48]
3. All portions of the Coweta line with single main track will be upgraded to double track, as recommended in the Banks study for "lines with freight traffic exceeding 20 trains per day".[49] According to GDOT maps, the CSX A&WP subdivision on which the Coweta line would operate has a daily traffic count of

[46] Georgia Department of Transportation. 2006 Fact Sheet Georgia Rail Passenger Program. 2006. Available at http://www.garail.com/Pages/pdf/grpp2006factsheet.pdf
[47] R.L. Banks & Associates, p 77
[48] R.L. Banks & Associates, p 71
[49] Ibid

15 to 34 trains.[50] Also taken into consideration is the construction of a Kia Motors assembly plant under construction in West Point, Georgia which may lead to higher traffic on the A&WP when it opens in late 2009.[51] Areas along the route where a passing siding exists adjacent to main track will be considered existing double track and not be assessed this cost. See Appendix F for a detailed rail schematic of host railroads on which the Coweta line is proposed to operate.

4. All overhead bridges along the route are assumed to need some form of improvement, including but not limited to crash wall construction, track realignment and bridge modification.[52] Overhead bridges were inventoried using Google Maps® aerial photography.
5. As determining the Coweta line's needs for railroad (grade) crossing upgrading is beyond the scope of this report, the median number of grade crossing improvements from each line was calculated and applied to the unit cost to estimate the grade crossing costs associated with the Coweta line.
6. Miscellaneous costs (related to turnout installation and removal) associated with shared portions of track on the Senoia and Coweta lines are applied.[53]
7. Lump sum costs for overnight storage tracks (located near Grantville station at the end of the line) and a rail vehicle maintenance facility are assumed.[54]
8. All stations require a platform.

[50] Georgia Department of Transportation. *Atlanta Train Traffic.* http://wwwb.dot.ga.gov/dot/plan-prog/intermodal/rail/Documents/PDF/Atlanta_Trains_Per_Day.pdf Accessed February 17th 2009
[51] Kia Motors Manufacturing of Georgia. *Our Company.* http://www.kmmgusa.com/our_company.aspx Accessed on February 17th 2009
[52] R.L. Banks & Associates, p 76
[53] R.L. Banks & Associates, Appendix C, table 20.
[54] Ibid

9. The Atlanta MMPT station will require no further infrastructure investment other than an additional platform to handle incoming Coweta line trains. This follows the Banks study's assumption that the MMPT's construction takes place independently from the construction of each line; costs are considered separate from the incremental cost of each commuter rail line. [55]
10. GICC/Hartsfield-Jackson station requires a pedestrian bridge to connect the station platform to the far side of Roosevelt Highway. Two elevators are also needed to provide ADA access to and from this bridge.
11. 1,925 total parking spaces are provided between Grantville, Newnan, Palmetto and Fairburn stations to accommodate forecasted 2030 daily ridership.
12. A lump sum for estimated required station property (again, excluding Atlanta MMPT). See Appendix E for a more details.
13. A twenty percent station-related expense contingency (that is, 20% of the cost of items 8 though 12 above) to mitigate unforeseen costs and uncertainties.
14. A non-station related contingency of ten percent (that is, 10% of the entire project's estimated infrastructure costs, irrespective of station costs).

[55] Ibid, p 3

Appendix E: Proposed Rail Station Locations

Below is a listing of parcels in Coweta and Fulton counties whose sum value forms the basis of the station property costs (see table 7). Identified parcels in Grantville and Newnan are assumed to accommodate parking and station needs. Parcels identified in Palmetto and Fairburn are assumed to accommodate parking only. The existing passenger depot in Palmetto is owned by the City of Palmetto and it was assumed that the City would make necessary improvements to the terminal itself. Similar assumptions were made for Fairburn. Detailed parcel maps were unavailable for the proposed site of the GICC/Hartsfield-Jackson station, so the property cost estimate from a planned nearby commuter rail station previously studied in Banks was adjusted for inflation and used (Red Oak station on the Senoia line). No property needs were assumed for the MMPT, as its property acquisition and construction are considered a separate project. A 20% station-related contingency (table 7) was allocated to cover unknown variables.

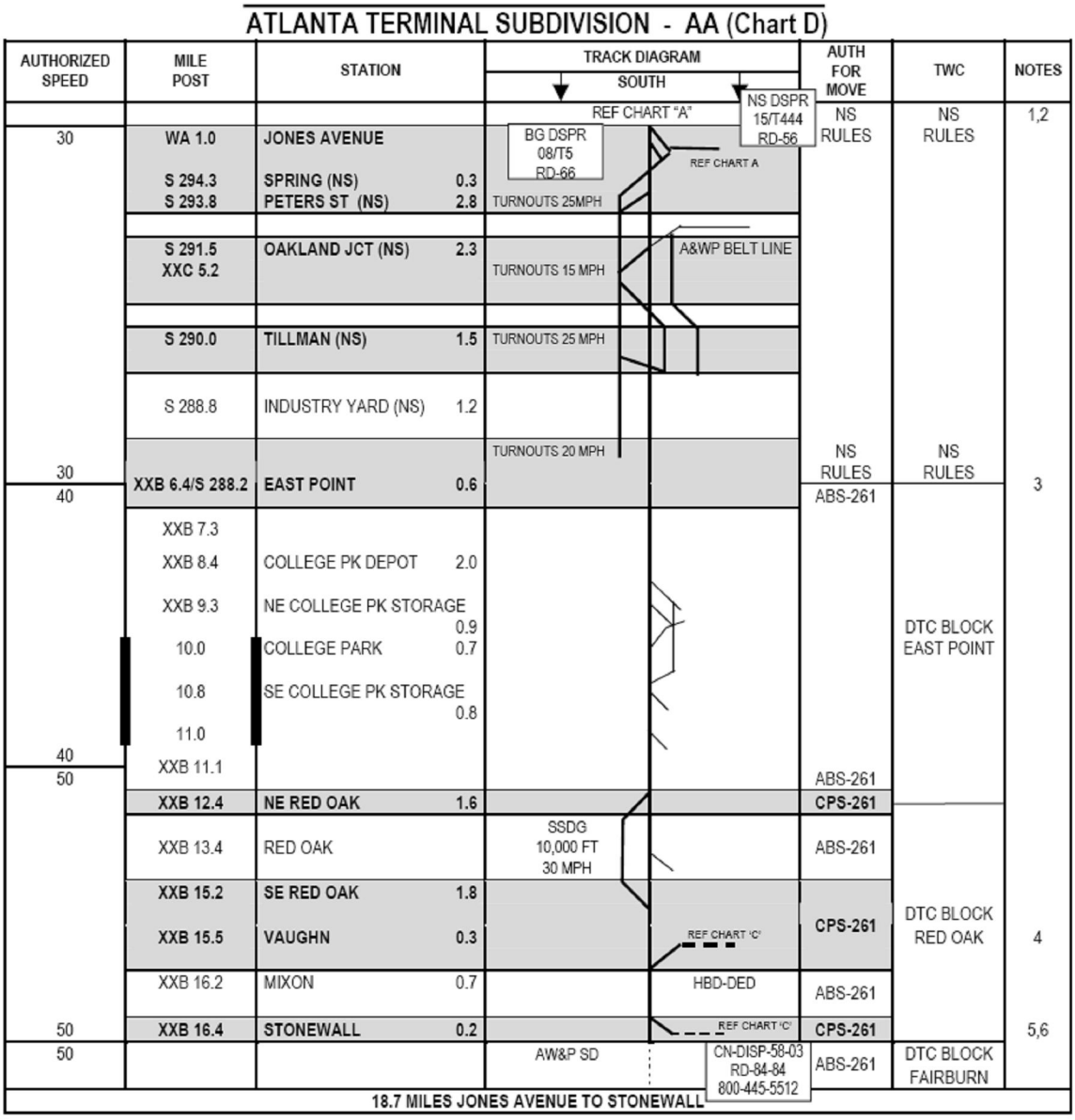
Station	County	Parcel Number(s)	Acres	2007 Total Digest Value	Notes
Grantville	Coweta	G09 0003 001	44.14	$217,225	Parking/station/over night storage
Newnan	Coweta	N05 0005 033, N05 0005 001A	5.67	$484,798.00	parking/station
Palmetto	Fulton	07 -3507-0062-027-5, 07 -3507-0062-006-9, 07 -3507-0062-007-7	0.93	$538,400.00	Land for parking
Fairburn	Fulton	09F-1003-0052-049-4, 09F-1003-0052-050-2	0.85	$398,066.00	Land for parking
GICC/APM	Clayton	Unknown		$841,000.00	Assumes Red Oak station costs from Banks study, adjusted to 2008 $
Total				**$2,262,264.00**	

[56]

[56] Parcel data available from the Coweta Board of Tax Assessors (http://qpublic.net/ga/coweta/) and the Fulton County Board of Assessors (http://www.fultonassessor.org/Search/GenericSearch.aspx?mode=ADDRESS)

Appendix F: CSX Timetables

Listed below are portions of the CSX Transportation Atlanta Division Timetable which aided in determining necessary infrastructure costs, especially related to required additional track and CTC networking needs. This timetable is available in its entirety upon request.

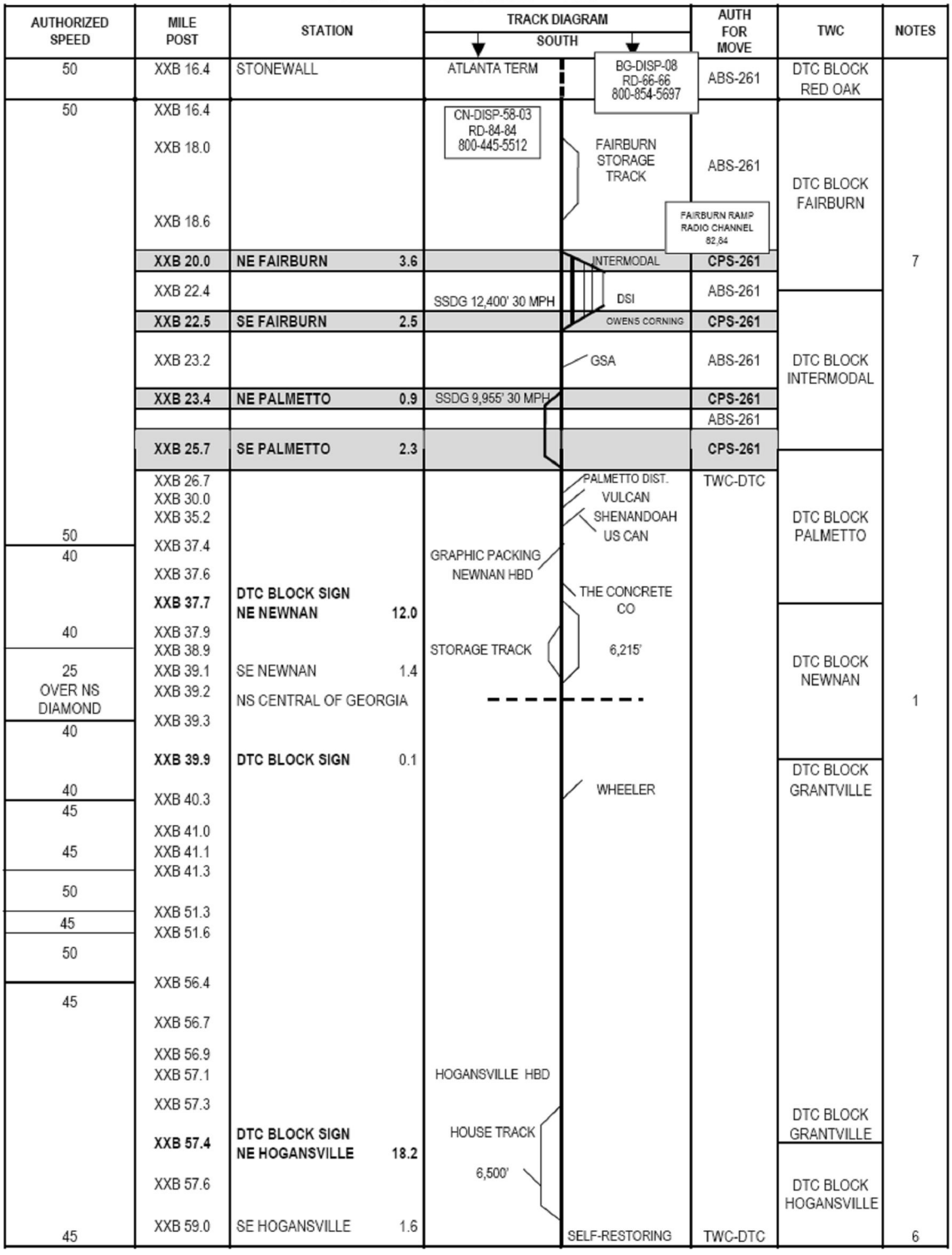


ATLANTA TERMINAL SUBDIVISION - AA (Chart D)

AUTHORIZED SPEED	MILE POST	STATION	TRACK DIAGRAM (SOUTH)	AUTH FOR MOVE	TWC	NOTES
			REF CHART "A"; NS DSPR 15/T444 RD-56	NS RULES	NS RULES	1,2
30	WA 1.0	JONES AVENUE	BG DSPR 08/T5 RD-66; REF CHART A			
	S 294.3	SPRING (NS) 0.3				
	S 293.8	PETERS ST (NS) 2.8	TURNOUTS 25MPH			
	S 291.5 XXC 5.2	OAKLAND JCT (NS) 2.3	TURNOUTS 15 MPH; A&WP BELT LINE			
	S 290.0	TILLMAN (NS) 1.5	TURNOUTS 25 MPH			
	S 288.8	INDUSTRY YARD (NS) 1.2				
30	XXB 6.4/S 288.2	EAST POINT 0.6	TURNOUTS 20 MPH	NS RULES	NS RULES	
40				ABS-261		3
	XXB 7.3					
	XXB 8.4	COLLEGE PK DEPOT 2.0				
	XXB 9.3	NE COLLEGE PK STORAGE 0.9			DTC BLOCK EAST POINT	
	10.0	COLLEGE PARK 0.7				
	10.8	SE COLLEGE PK STORAGE 0.8				
	11.0					
40	XXB 11.1			ABS-261		
50	XXB 12.4	NE RED OAK 1.6		CPS-261		
	XXB 13.4	RED OAK	SSDG 10,000 FT 30 MPH	ABS-261		
	XXB 15.2	SE RED OAK 1.8			DTC BLOCK RED OAK	
	XXB 15.5	VAUGHN 0.3	REF CHART 'C'	CPS-261		4
	XXB 16.2	MIXON 0.7	HBD-DED	ABS-261		
50	XXB 16.4	STONEWALL 0.2	REF CHART 'C'	CPS-261		5,6
50			AW&P SD; CN-DISP-58-03 RD-84-84 800-445-5512	ABS-261	DTC BLOCK FAIRBURN	

18.7 MILES JONES AVENUE TO STONEWALL

A&WP SUBDIVISION - AW



CSX Transportation
Atlanta Division Timetable No. 3

A&WP SUBDIVISION - AW

Effective January 1, 2005

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