

Appendix F: Details of Bus Service Expansion

In 2006, Mayor Meeker of Raleigh and Mayor Bell of Durham asked transit staff from the various Triangle transit agencies to work together on a plan to upgrade the existing bus services throughout the region.

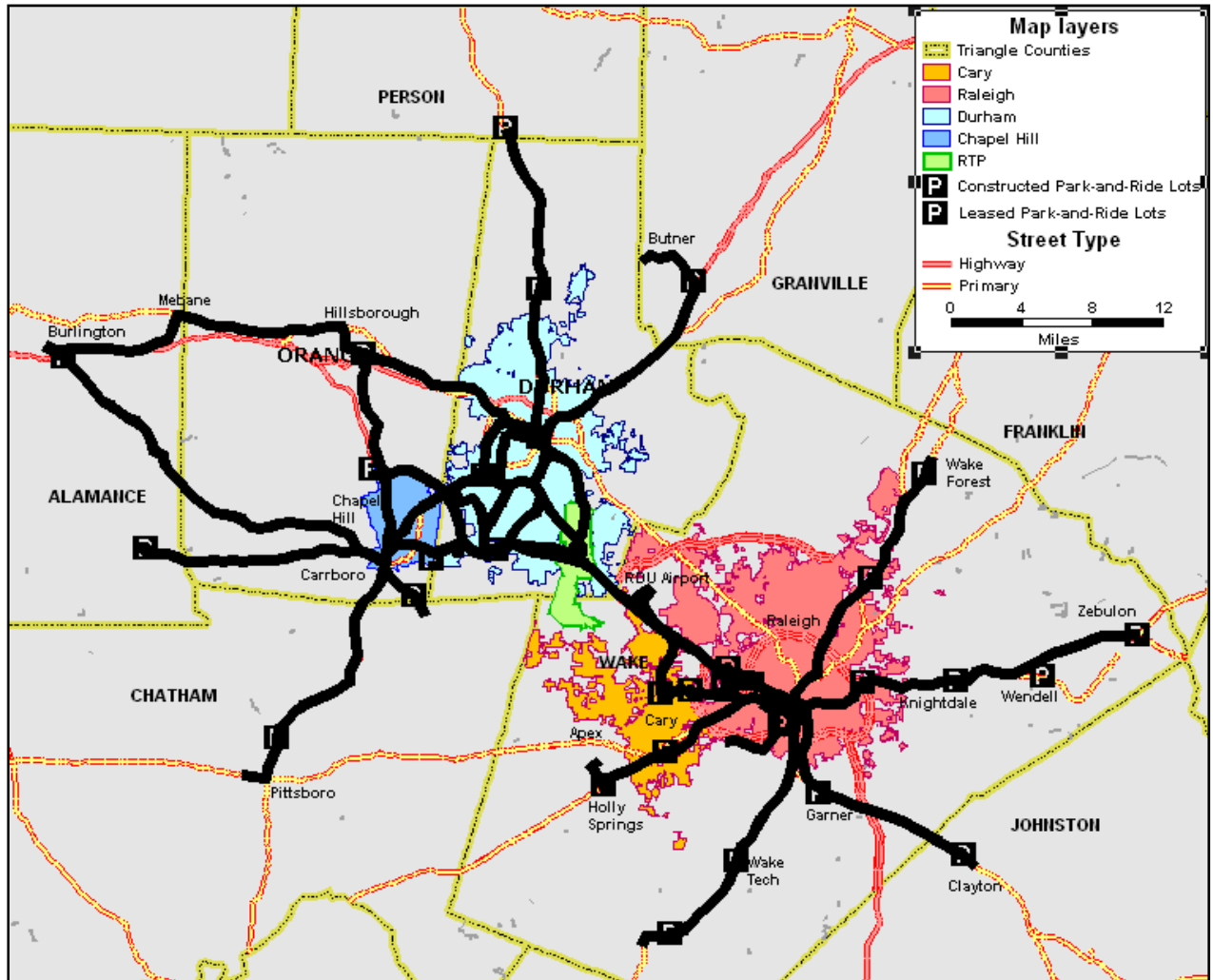
The product of this effort has become known as the Mayors' Bus Plan, a yet-to-be funded framework for Triangle bus service expansion and enhancement over a seven-year period.

The Mayors' Plan is the most advanced work to date on how bus service could be effectively expanded in the short term in the Triangle. The STAC believes that the Mayor's Plan offers a good starting point to represent the type of service expansion recommended as an initial investment.

Highlights of the Mayors' Plan Include:

- Service to five additional counties beyond Durham/Orange/Wake and eleven additional towns
- Real-time bus arrival information via satellite technology, internet, and phone
- Expanded Sunday Service throughout the region
- Added frequency on existing express routes
- Three local "Go Zones" with high-frequency service in the busiest local corridors
- Signal priority pilot projects to speed buses
- Bus Bypass Shoulder Pilot Project on I-40
- Eighty new buses operating during rush hour

Routes in the Mayors' Bus Expansion Plan
Source: Triangle Transit



STAC Regionwide Bus Service Proposal: Annual Operating and Maintenance Costs

Mayors' Plan Service Proposals

Jurisdiction	Nature of Service: Local or Regional?	Projects	Existing Service, Enhanced Service, or New?	Annual Operating Cost (\$2007)	New Buses Needed (Including Spares)	Service Concept
Durham/ Orange	Local/Regional	15-501 Express and local coordination	Enhanced	\$ 200,000	1	Connecting Transit-Friendly Neighborhoods
Durham/ Granville	Regional	Butner/Creedmoor to Durham/Duke	New	\$ 210,000	1	Serving Long-Haul Commuters
Durham	Regional	Durham-Person County Line to Durham/Duke	New	\$ 340,000	2	Serving Long-Haul Commuters
Durham	Local/Regional	South Square - RTP via MLK, Jr Blvd	New	\$ 570,000	3	Connecting Transit-Friendly Neighborhoods
Durham	Regional	Durham - RDU Direct	New	\$ 520,000	3	Serving Long-Haul Commuters
Orange/ Alamance	Regional	Burlington/Graham to UNC/Chapel Hill	New	\$ 420,000	2	Serving Long-Haul Commuters
Orange/ Chatham	Regional	Pittsboro to UNC/Chapel Hill	New	\$ 580,000	3	Serving Long-Haul Commuters
Orange	Regional	Hillsborough to UNC/Chapel Hill	Enhanced	\$ 190,000	1	Serving Long-Haul Commuters
Wake/ Johnston	Regional	Clayton/Garner to Raleigh	New	\$ 810,000	4	Serving Long-Haul Commuters
Wake	Regional	Zebulon to Raleigh	Enhanced	\$ 1,560,000	7	Serving Long-Haul Commuters
Wake	Regional	Wake Tech (extended to Fuquay-Varina) to Raleigh	New	\$ 1,000,000	5	Serving Long-Haul Commuters
Wake	Regional	Wake Forest to Raleigh	New	\$ 1,210,000	6	Connecting Transit-Friendly Neighborhoods
Wake	Regional	Apex/Cary to NCSU/Raleigh	Enhanced	\$ 900,000	4	Serving Long-Haul Commuters
Wake	Regional	RTP to Morrisville to Cary to NCSU/Raleigh (re-route and add mid-day)	Enhanced	\$ 910,000	4	Connecting Transit-Friendly Neighborhoods
Wake	Regional	Raleigh - RDU Direct	New	\$ 520,000	3	Serving Long-Haul Commuters
Wake	Regional	Cary - RDU Direct	New	\$ 750,000	4	Serving Long-Haul Commuters
Wake	Regional	Tryon Rd in Raleigh to NCSU	Enhanced	\$ 750,000	4	Serving Long-Haul Commuters
Wake	Local	Raleigh Hillsborough St Corridor	Enhanced	\$ 310,000	2	Connecting Transit-Friendly Neighborhoods
Wake	Regional	NW Raleigh to Downtown	New	\$ 370,000	2	Serving Long-Haul Commuters
DATA	Local	Southpoint to Duke/Durham via NC 751	New	\$ 620,000	3	Connecting Transit-Friendly Neighborhoods
DATA	Local	New Hope Commons-Southpoint-RTP	New	\$ 390,000	2	Connecting Transit-Friendly Neighborhoods
DATA	Local	Fayetteville St corridor	Enhanced	\$ 180,000	1	Connecting Transit-Friendly Neighborhoods
DATA	Local	DATA Route 6 (add skip stop service from downtown to Duke)	Enhanced	\$ 210,000	1	Circulating In Town
CHT	Local	MLK, Jr. Blvd Corridor	Enhanced	\$ 520,000	3	Circulating In Town
CHT	Regional	Old Greensboro Rd to UNC/Chapel Hill	New	\$ 200,000	1	Serving Long-Haul Commuters
CHT	Local	Mt. Carmel Church Rd to UNC/Chapel Hill	New	\$ 210,000	1	Serving Long-Haul Commuters
CHT	Local	Farrington Rd to UNC	New	\$ 460,000	2	Circulating In Town
TTA	Regional	Durham - Raleigh Express (added trips)	Enhanced	\$ 350,000	2	Serving Long-Haul Commuters
TTA	Regional	Chapel Hill - Raleigh Express (added trips)	Enhanced	\$ 350,000	2	Serving Long-Haul Commuters
TTA	Regional	Sunday Express	New	\$ 580,000	0	Serving Long-Haul Commuters
TOTAL				\$ 16,040,000	79	

STAC Corridors Not Served by Mayors' Plan

Jurisdiction	Projects	Existing Service, Enhanced Service, or New?	Annual Operating Cost (\$2007)	New Buses Needed (Including Spares)	Service Concept
Wake	Regional	Southern Arc 540 Transit	\$ 940,000.00	6	Serving Long-Haul Commuters
Alamance/Orange/Du	Regional	Burlington to Hillsborough to Duke/Durham	\$ 320,000.00	2	Serving Long-Haul Commuters
Wake/Durham	Regional	Durham to Apex	\$ 1,680,000.00	6	Serving Long-Haul Commuters
Wake/Durham	Regional	US 70	\$ 720,000.00	3	Serving Long-Haul Commuters
Wake	Regional	TMC to Johnston County via I-40	\$ 630,000.00	4	Serving Long-Haul Commuters
TOTAL			\$ 4,270,000.00	21	

STAC Regionwide Bus Service Proposal: Annual Operating and Maintenance Costs (con't.)

STAC Corridors Covered By Existing Services

Jurisdiction			Projects	Existing Service, Enhanced Service, or New?	Annual Cost (Already Paid for in Existing Triangle Transit Budget)	New Buses Needed (Including Spares)	Service Concept
Wake	Regional		Northern Arc 540 (Triangle Transit Route 201)	Existing	\$ 170,000	0	Serving Long-Haul Commuters
Wake	Regional		NC 55 to RTP (Triangle Transit Route 311)	Existing	\$ 290,000	0	Serving Long-Haul Commuters
Existing Spending Total					\$ 460,000	0	

Non-STAC Corridors to complete Municipal Coverage

New Services

Jurisdiction			Projects	Existing Service, Enhanced Service, or New?	Annual Cost (\$2007)	New Buses Needed (Including Spares)	Service Concept
Wake	Regional		DT Raleigh to Rolesville	New	\$ 630,000	4	Serving Long-Haul Commuters
Wake	Regional		Wake Forest to Franklinton	New	\$ 410,000	2	Serving Long-Haul Commuters
New Spending Total					\$ 1,030,000	6	

Circulators

Jurisdiction			Projects	Existing Service, Enhanced Service, or New?	Annual Operating Cost (\$2007)	New Buses Needed (Including Spares)	Service Concept
Wake	Local		Cary Circulator	Enhanced	\$ 2,650,000.00	7	Circulating In Town
Wake	Local		Raleigh Circulator 1 (DT Raleigh to Crabtree)	Enhanced	\$ 2,650,000.00	7	Circulating In Town
Wake	Local		Raleigh Circulator 2 (DT Raleigh to Wake Med)	Enhanced	\$ 2,650,000.00	7	Circulating In Town
Durham	Local		Durham Circulator	Enhanced	\$ 2,650,000.00	7	Circulating In Town
Orange	Local		Chapel Hill/Carrboro Circulator	Enhanced	\$ 2,650,000.00	7	Circulating In Town
TOTAL					\$ 13,250,000.00	35	

Additional Available Buses for Local Needs

Jurisdiction			Projects	Existing Service, Enhanced Service, or New?	Annual Operating Cost (\$2007)	New Buses Needed (Including Spares)	Service Concept
Wake	Local		New/Enhanced Local Service TBD	New/Enhanced	\$ 1,020,000.00	5	Circulating In Town
Durham	Local		New/Enhanced Local Service TBD	New/Enhanced	\$ 610,000.00	3	Circulating In Town
Orange	Local		New/Enhanced Local Service TBD	New/Enhanced	\$ 210,000.00	1	Circulating In Town
TOTAL					\$ 1,830,000.00	9	

					Annual Operating Cost (\$2007)	New Buses Needed (Including Spares)
GRAND TOTAL of BUS SERVICES					\$ 36,420,000.00	150

Total Number of Buses Funded by STAC Plan, with Accounting for Buses Redeployed After Rail Services Open

Year	Added STAC Buses	Total STAC Buses	Rail Re-Allocation Buses	Total Buses Providing Service that Does Not Exist Today	Total Peak Buses in the Region	Rail Investment
2008	0	0	0	0	263	
2009	0	0	0	0	263	
2010	0	0	0	0	263	
2011	25	25	0	25	288	
2012	20	45	0	45	308	
2013	20	65	0	65	328	
2014	12	77	0	77	340	
2015	9	86	0	86	349	
2016	7	93	0	93	356	
2017	3	96	22	118	381	Buses Redeployed from NW Cary to Durant Rd
2018	3	99	0	121	384	
2019	3	102	4	128	391	
2020	3	105	0	131	394	Buses Redeployed from Duke Medical to Triangle Metro Center
2021	3	108	0	134	397	
2022	3	111	12	149	412	Buses Redeployed from UNC Hospital to Durham Multimodal Center
2023	3	114	0	152	415	
2024	3	117	4	159	422	Buses Redeployed from Triangle Metro Center to NW Cary
2025	3	120	0	162	425	
2026	3	123	0	165	428	
2027	3	126	0	168	431	
2028	3	129	0	171	434	
2029	3	132	0	174	437	
2030	3	135	0	177	440	
2031	3	138	0	180	443	
2032	3	141	0	183	446	
2033	3	144	0	186	449	
2034	3	147	0	189	452	
2035	3	150	0	192	455	

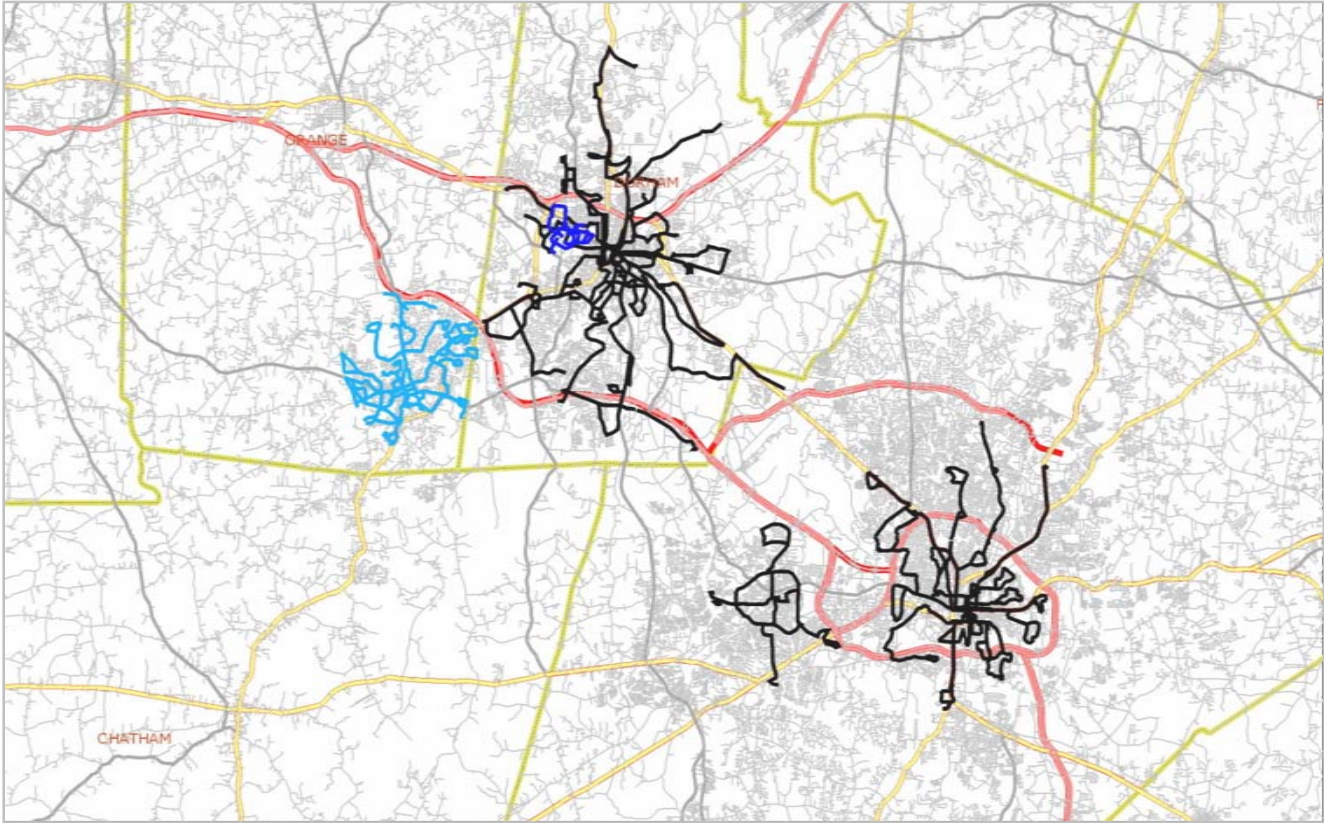
Note: This is one HYPOTHETICAL deployment of rail services. It does not reflect any official prioritization on behalf of the STAC or staff of the MPOs, RTA, Triangle Transit, or ITRE.

What this table is telling us:

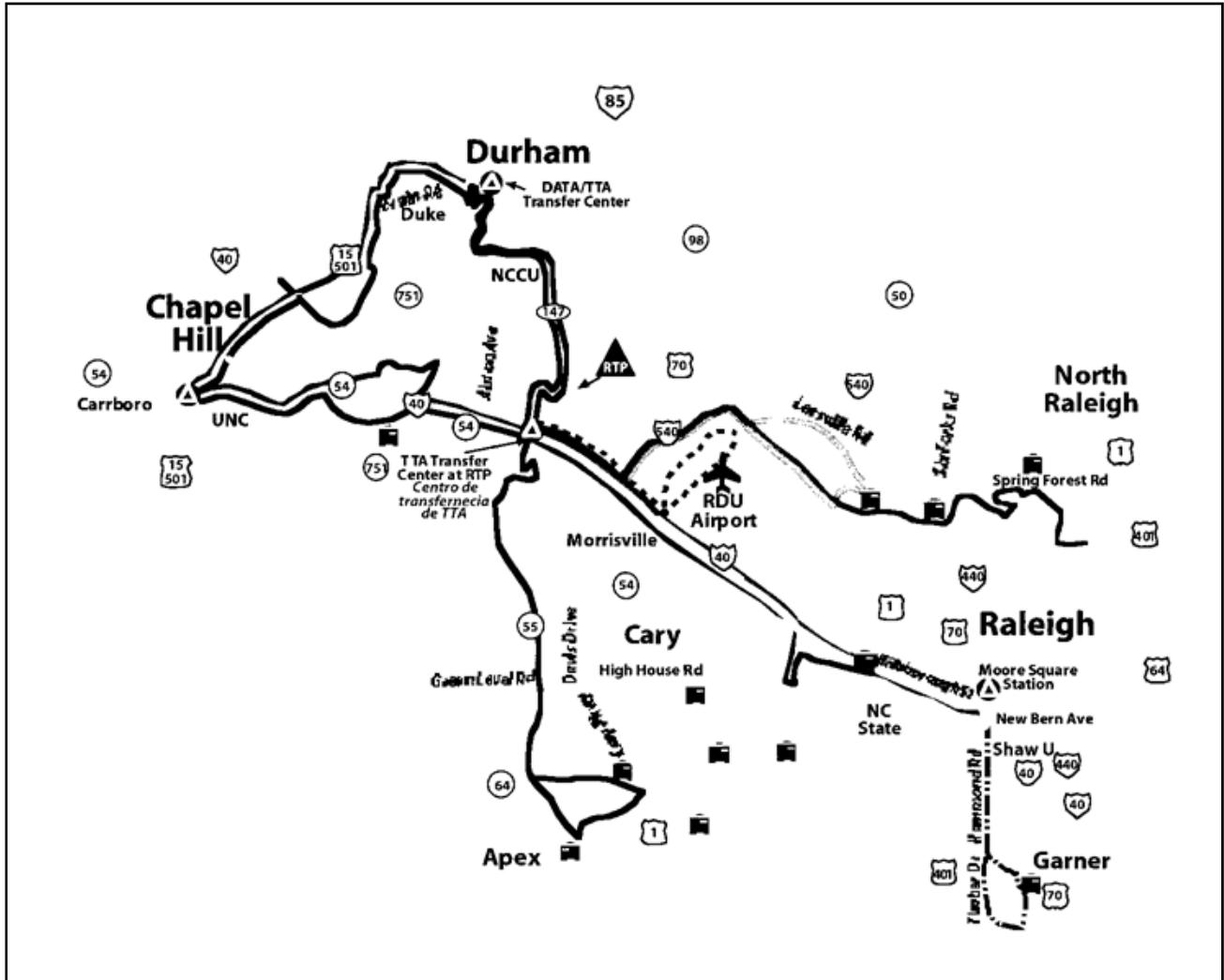
While the STAC plan provides funding for 150 buses across the region and rail investments from North Raleigh to Downtown Raleigh to Cary to RTP to Durham and Chapel Hill, the opening of those rail services provides superior transit in several congested corridors currently served by buses. When various rail segments opened, many buses will be able to change routes to connect outlying destinations to rail stations, or to provide crosstown services or local service enhancements. Staff's best estimate is that when all the rail segments proposed in the STAC plan are open, an additional 42 buses in total will be redeployed.

In short, the STAC plan pays for 150 new buses, but over the life of the plan, it introduces the service equivalent of 192 new buses.

Existing Local Bus Networks
Note: NCSU's Wolfline routes not included.
Source: Triangle Transit



2006 Regional Bus Network
Source: Triangle Transit



Triangle Region Data from National Transit Database, 2006

AGENCY	Total Annual Unlinked Passenger Trips	Total Annual Passenger Miles	Total Annual Revenue Miles	Total Annual Revenue Hours	Average Passenger Trip Length (Miles)	Average Passenger Trips Per Hour	Average Operating Expense Per Passenger Mile	Average Operating Expense Per Revenue Mile	Average Operating Expense Per Revenue Hour	Total Vehicles Operated During Rush Hour	Total Funds Expended on Operations	Total Funds Expended on Capital
Capital Area Transit (Raleigh)	3,937,310	14,666,531	2,116,629	165,178	3.7	23.8	\$0.85	\$5.89	\$75.49	48	\$ 12,469,613	\$ -
Chapel Hill Transit	5,874,247	15,096,815	1,824,976	145,145	2.6	40.5	\$0.64	\$5.25	\$66.03	77	\$ 9,583,346	\$ 4,391,746
Durham Area Transit Authority	4,448,972	18,069,244	2,319,403	166,272	4.1	26.8	\$0.73	\$5.71	\$79.64	37	\$ 13,241,753	\$ 191,569
Triangle Transit	802,570	9,046,653	1,976,007	89,932	11.3	8.9	\$0.93	\$4.26	\$93.46	49	\$ 8,405,306	\$ 757,181
Cary Transit	23,354	NA	160,990	9,946	NA	2.4	NA	\$3.81	\$61.75	5	\$ 614,166	\$ -
NCSU Wolfline	1,769,855	2,374,937	536,619	54,766	1.3	32.3	\$1.51	\$6.69	\$65.60	23	\$ 3,592,924	\$ 81,823

REGIONWIDE **16,856,308** **59,254,180** **8,934,624** **631,239** **3.5** **26.7** **\$ 0.83** **\$ 5.51** **\$ 78.02** **239** **\$ 47,907,108** **\$ 5,422,318**

NA = Not Available

Terms Explained:

Unlinked Passenger Trip - One boarding of a bus by a passenger; counting transfers separately. If a passenger boards one CAT bus, then transfers to another CAT bus, this is 2 unlinked trips, or 1 linked trip.

Passenger Mile - The distance traveled by transit passengers, as opposed to transit vehicles. If there are 20 passengers in a bus, and the bus travels 1 mile, this generates 20 passenger-miles of movement.

Revenue Mile - A mile traveled by a bus with its door open, receiving passengers. Driving from the garage to the first bus stop at the beginning of the day, or the reverse at the end of the day is not counted.

Revenue Hour - An hour of service by a bus with its door open, receiving passengers. Similar to Revenue Miles.

Additional Notes:

Capital spending can vary significantly from year to year for transit agencies- in a year when several new buses are purchased, capital expenditures may be high. In other years, it can be quite low. Operating spending tends to be more constant, and will vary more incrementally as services are introduced or changed.

Costs for paratransit operations and vanpool operations are not included in this spreadsheet; which was developed as an apples-to-apples comparison of the region's bus systems.

Duke University transit is not included because they do not report data to the National Transit Database.

The numbers above are in \$2007 dollars.

Source: 2006 National Transit Database (www.ntdprogram.gov)

Summary of Motorbus Operations as Reported in National Transit Database (NTD)

GENERAL INDICATORS	C-Tran (Cary)	Chapel Hill Transit	DATA (Durham)	Wolfline (NCSU)	CAT (Raleigh)	Triangle Transit	Total for Triangle	Charlotte
Service Area Population	107,973	52,440	187,000	40,000	347,729	1,002,876	1,002,876.00	681,310
Service Area Size (square miles)	50	25	93	9	125	1,525	1,525	445
Passenger Trips	23,354	5,874,247	4,448,972	1,769,855	3,937,310	802,570	16,856,308	20,407,190
Passenger Miles	n/a	15,096,815	18,069,244	2,374,937	14,666,531	9,046,653	59,254,180	90,115,129
Vehicle Miles	174,720	1,970,247	2,498,127	580,909	2,323,373	2,568,596	10,115,972	12,281,801
Revenue Miles	160,990	1,824,976	2,319,403	536,619	2,116,629	1,976,007	8,934,624	10,926,679
Vehicle Hours	10,354	155,749	175,208	56,358	176,855	116,504	691,028	859,835
Revenue Hours	9,946	145,145	166,272	54,766	165,178	89,932	631,239	798,013
Total Operating Expense	\$597,461	\$9,322,684	\$12,881,584	\$3,495,198	\$12,130,446	\$8,176,686	\$46,604,059	\$66,491,287
Total Operating Expense (in 2007 \$)	\$614,342	\$9,586,095	\$13,245,552	\$3,593,954	\$12,473,191	\$8,407,717	\$47,920,851	\$68,369,994
Total Maintenance Expense	\$56,421	\$1,465,332	\$3,979,009	\$875,128	\$2,333,981	\$1,796,681	\$10,506,552	\$14,731,180
Total Maintenance Expense (in 2007 \$)	\$58,016	\$1,506,734	\$4,091,436	\$899,854	\$2,399,926	\$1,847,447	\$10,803,413	\$15,147,409
Total Employee FTEs	n/a	122.2	n/a	n/a	154.85	104.59	381.64	740.72
Employee Operating FTEs	n/a	104.17	n/a	n/a	117.97	80.3	302.44	538.47
Maintenance Employee FTEs	n/a	14.7	n/a	n/a	28.75	17.21	60.66	139.63
Administrative Employee FTEs	n/a	3.34	n/a	n/a	8.13	7.08	18.55	62.62
Vehicles Available for Maximum Service	7	86	49	26	75	65	308	324
Vehicles Operated in Maximum Service	5	77	37	23	48	49	239	263
Spare Ratio (%)	40	11.69	32.43	13.04	56.25	32.65	28.87	36.03
Total Gallons Consumed	n/a	549,446	n/a	n/a	669,024	466,708	1,685,178	2,966,328

Note: Duke University transit is not included because they do not report to the NTD.

Capital Area Transit (CAT)

General Information

Urbanized Area (UZA) Statistics - 2000 Census

Raleigh, NC	
Square Miles	320
Population	541,527
Population Ranking out of 465 UZAs	67
Other UZAs Served	

Service Area Statistics

Square Miles	125
Population	347,729

Service Consumption

Annual Passenger Miles	15,248,677
Annual Unlinked Trips	4,049,995
Average Weekday Unlinked Trips	13,705
Average Saturday Unlinked Trips	7,555
Average Sunday Unlinked Trips	1,969

Service Supplied

Annual Vehicle Revenue Miles	2,242,619
Annual Vehicle Revenue Hours	173,877
Vehicles Operated in Maximum Service	54
Vehicles Available for Maximum Service	85
Base Period Requirement	27

Financial Information

Fare Revenues Earned \$1,970,955

Sources of Operating Funds Expended		
Fare Revenues	(15%)	\$1,970,955
Local Funds	(48%)	6,117,541
State Funds	(17%)	2,122,772
Federal Assistance	(19%)	2,361,805
Other Funds	(1%)	189,149
Total Operating Funds Expended		\$12,762,222
Sources of Capital Funds Expended		
Local funds	(39%)	\$164,494
State Funds	(5%)	23,000
Federal Assistance	(56%)	238,330
Other Funds	(0%)	0
Total Capital Funds Expended		\$425,824

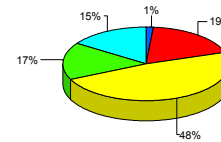
Summary of Operating Expenses

Salary, Wages and Benefits	\$8,211,427
Materials and Supplies	2,566,555
Purchased Transportation	0
Other Operating Expenses	1,984,240
Total Operating Expenses	\$12,762,222
Reconciling Cash Expenditures	\$0

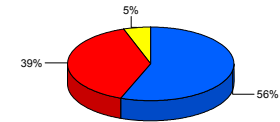
Vehicles Operated in Maximum Service and Uses of Capital Funds

	Directly Operated	Purchased Transportation ¹	Revenue Vehicles	Systems and Guideways	Facilities and Stations	Other	Total
Bus	48	0	\$0	\$0	\$0	\$0	\$0
Demand Response	6	0	\$396,825	\$0	\$0	\$28,999	\$425,824
Total	54	0	\$396,825	\$0	\$0	\$28,999	\$425,824

Sources of Operating Funds Expended



Sources of Capital Funds Expended



Modal Characteristics

	Operating Expenses ¹	Fare Revenues ¹	Uses of Capital Funds	Annual Passenger Miles	Annual Vehicle Revenue Miles	Annual Unlinked Trips	Annual Vehicle Revenue Hours	Fixed Guideway Directional Route Miles	Vehicles Available for Maximum Service	Average Fleet Age in Years	Vehicles Operated in Maximum Service	Peak to Base Ratio	Percent Spares
Bus	\$12,130,446	\$1,945,555	\$0	14,666,531	2,116,629	3,937,310	165,178	0.0	75	7.1	48	1.78	56%
Demand Response	\$631,776	\$25,400	\$425,824	582,146	125,990	112,685	8,699	N/A	10	4.2	6	N/A	67%

Performance Measures

Service Efficiency

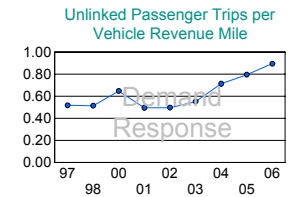
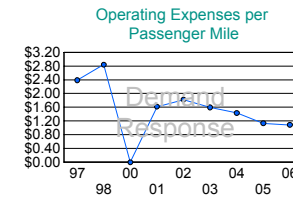
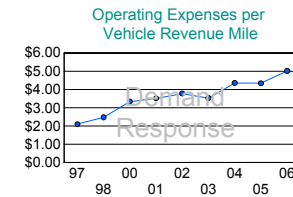
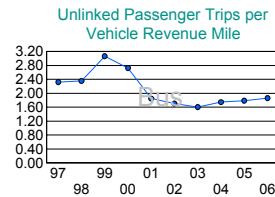
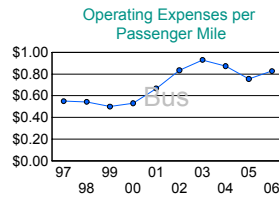
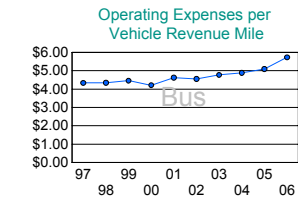
	Operating Expense per Vehicle Revenue Mile	Operating Expense per Vehicle Revenue Hour
Bus	\$5.73	\$73.44
Demand Response	\$5.01	\$72.63

Cost Effectiveness

	Operating Expense per Passenger Mile	Operating Expense per Unlinked Passenger Trip
Bus	\$0.83	\$3.08
Demand Response	\$1.09	\$5.61

Service Effectiveness

	Unlinked Passenger Trips per Vehicle Revenue Mile	Unlinked Passenger Trips per Vehicle Revenue Hour
Bus	1.86	23.84
Demand Response	0.89	12.95



¹ Excludes data for purchased transportation reported separately

General Information

Urbanized Area (UZA) Statistics - 2000 Census

Durham, NC	
Square Miles	157
Population	287,796
Population Ranking out of 465 UZAs	111
Other UZAs Served	

Service Area Statistics

Square Miles	25
Population	52,440

Service Consumption

Annual Passenger Miles	15,398,909
Annual Unlinked Trips	5,951,609
Average Weekday Unlinked Trips	24,336
Average Saturday Unlinked Trips	1,761
Average Sunday Unlinked Trips	852

Service Supplied

Annual Vehicle Revenue Miles	2,202,825
Annual Vehicle Revenue Hours	173,033
Vehicles Operated in Maximum Service	93
Vehicles Available for Maximum Service	108
Base Period Requirement	27

Financial Information

Fare Revenues Earned	\$5,709,140
Sources of Operating Funds Expended	
Fare Revenues (48%)	\$5,709,140
Local Funds (15%)	1,716,592
State Funds (26%)	3,098,760
Federal Assistance (10%)	1,178,509
Other Funds (1%)	113,158
Total Operating Funds Expended	\$11,816,159
Sources of Capital Funds Expended	
Local funds (0%)	\$0
State Funds (6%)	297,530
Federal Assistance (94%)	4,283,179
Other Funds (0%)	0
Total Capital Funds Expended	\$4,580,709

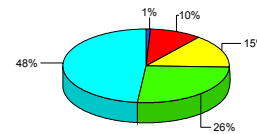
Summary of Operating Expenses

Salary, Wages and Benefits	\$8,289,671
Materials and Supplies	1,887,248
Purchased Transportation	0
Other Operating Expenses	795,211
Total Operating Expenses	\$10,972,130
Reconciling Cash Expenditures	\$844,029

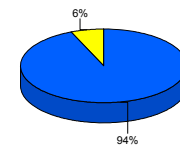
Vehicles Operated in Maximum Service and Uses of Capital Funds

	Directly Operated	Purchased Transportation ¹	Revenue Vehicles	Systems and Guideways	Facilities and Stations	Other	Total
Bus	77	0	\$2,135,717	\$88,913	\$1,968,398	\$79,265	\$4,272,293
Demand Response	16	0	\$308,416	\$0	\$0	\$0	\$308,416
Total	93	0	\$2,444,133	\$88,913	\$1,968,398	\$79,265	\$4,580,709

Sources of Operating Funds Expended



Sources of Capital Funds Expended



Modal Characteristics

	Operating Expenses ¹	Fare Revenues ¹	Uses of Capital Funds	Annual Passenger Miles	Annual Vehicle Revenue Miles	Annual Unlinked Trips	Annual Vehicle Revenue Hours	Fixed Guideway Directional Route Miles	Vehicles Available for Maximum Service	Average Fleet Age in Years	Vehicles Operated in Maximum Service	Peak to Base Ratio	Percent Spares
Bus	\$9,322,684	\$5,706,718	\$4,272,293	15,096,815	1,824,976	5,874,247	145,145	0.0	86	9.3	77	2.26	12%
Demand Response	\$1,649,446	\$2,422	\$308,416	302,094	377,849	77,362	27,888	N/A	22	3.2	16	N/A	38%

Performance Measures

Service Efficiency

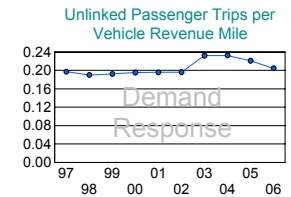
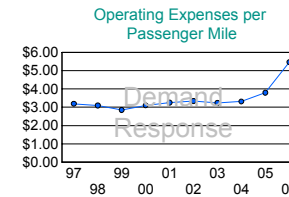
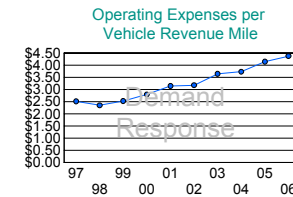
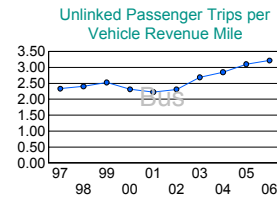
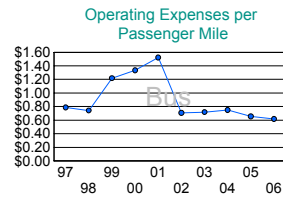
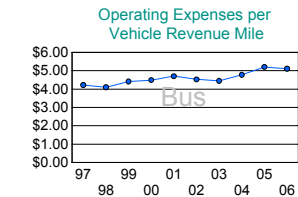
	Operating Expense per Vehicle Revenue Mile	Operating Expense per Vehicle Revenue Hour
Bus	\$5.11	\$64.23
Demand Response	\$4.37	\$59.15

Cost Effectiveness

	Operating Expense per Passenger Mile	Operating Expense per Unlinked Passenger Trip
Bus	\$0.62	\$1.59
Demand Response	\$5.46	\$21.32

Service Effectiveness

	Unlinked Passenger Trips per Vehicle Revenue Mile	Unlinked Passenger Trips per Vehicle Revenue Hour
Bus	3.22	40.47
Demand Response	0.20	2.77



¹ Excludes data for purchased transportation reported separately

Durham Area Transit Authority (DATA)

General Information

Urbanized Area (UZA) Statistics - 2000 Census

Durham, NC	
Square Miles	157
Population	287,796
Population Ranking out of 465 UZAs	111
Other UZAs Served	

Service Area Statistics

Square Miles	93
Population	187,000

Service Consumption

Annual Passenger Miles	18,646,223
Annual Unlinked Trips	4,530,367
Average Weekday Unlinked Trips	15,083
Average Saturday Unlinked Trips	8,670
Average Sunday Unlinked Trips	3,879

Service Supplied

Annual Vehicle Revenue Miles	2,975,062
Annual Vehicle Revenue Hours	205,977
Vehicles Operated in Maximum Service	68
Vehicles Available for Maximum Service	92
Base Period Requirement	32

Financial Information

Fare Revenues Earned \$2,533,896

Sources of Operating Funds Expended		
Fare Revenues	(17%)	\$2,533,896
Local Funds	(52%)	7,862,064
State Funds	(15%)	2,286,723
Federal Assistance	(16%)	2,424,028
Other Funds	(0%)	0
Total Operating Funds Expended		\$15,106,711
Sources of Capital Funds Expended		
Local funds	(0%)	\$0
State Funds	(0%)	0
Federal Assistance	(100%)	233,882
Other Funds	(0%)	0
Total Capital Funds Expended		\$233,882

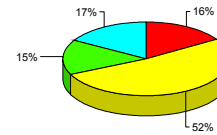
Summary of Operating Expenses

Salary, Wages and Benefits	\$84,213
Materials and Supplies	1,560,324
Purchased Transportation	11,597,866
Other Operating Expenses	1,864,308
Total Operating Expenses	\$15,106,711
Reconciling Cash Expenditures	\$0

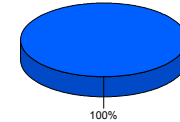
Vehicles Operated in Maximum Service and Uses of Capital Funds

	Directly Operated	Purchased Transportation ¹	Revenue Vehicles	Systems and Guideways	Facilities and Stations	Other	Total
Bus	0	37	\$0	\$10,000	\$31,993	\$144,365	\$186,358
Demand Response	0	31	\$0	\$0	\$0	\$47,524	\$47,524
Total	0	68	\$0	\$10,000	\$31,993	\$191,889	\$233,882

Sources of Operating Funds Expended



Sources of Capital Funds Expended



Modal Characteristics

	Operating Expenses ¹	Fare Revenues ¹	Uses of Capital Funds	Annual Passenger Miles	Annual Vehicle Revenue Miles	Annual Unlinked Trips	Annual Vehicle Revenue Hours	Fixed Guideway Directional Route Miles	Vehicles Available for Maximum Service	Average Fleet Age in Years	Vehicles Operated in Maximum Service	Peak to Base Ratio	Percent Spares
Bus	\$12,881,584	\$2,385,405	\$186,358	18,069,244	2,319,403	4,448,972	166,272	0.0	49	5.1	37	1.16	32%
Demand Response	\$2,225,127	\$148,491	\$47,524	576,979	655,659	81,395	39,705	N/A	43	0.0	31	N/A	39%

Performance Measures

Service Efficiency

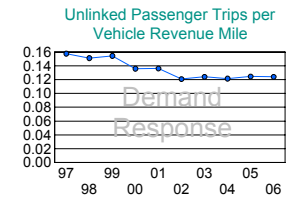
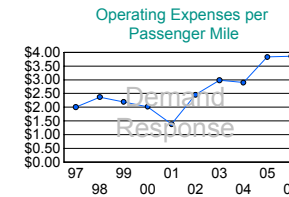
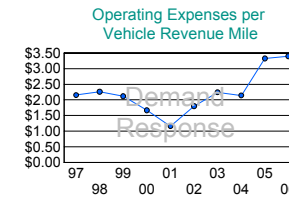
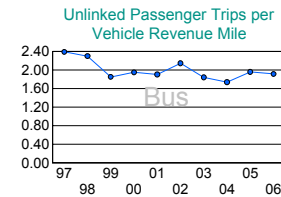
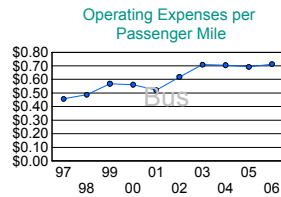
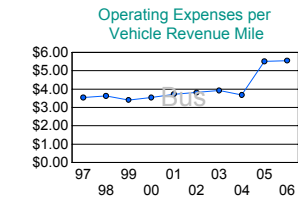
	Operating Expense per Vehicle Revenue Mile	Operating Expense per Vehicle Revenue Hour
Bus	\$5.55	\$77.47
Demand Response	\$3.39	\$56.04

Cost Effectiveness

	Operating Expense per Passenger Mile	Operating Expense per Unlinked Passenger Trip
Bus	\$0.71	\$2.90
Demand Response	\$3.86	\$27.34

Service Effectiveness

	Unlinked Passenger Trips per Vehicle Revenue Mile	Unlinked Passenger Trips per Vehicle Revenue Hour
Bus	1.92	26.76
Demand Response	0.12	2.05



¹ Excludes data for purchased transportation reported separately

General Information

Urbanized Area (UZA) Statistics - 2000 Census

Raleigh, NC	
Square Miles	320
Population	541,527
Population Ranking out of 465 UZAs	67
Other UZAs Served	

Service Area Statistics

Square Miles	9
Population	40,000

Service Consumption

Annual Passenger Miles	2,374,937
Annual Unlinked Trips	1,769,855
Average Weekday Unlinked Trips	8,843
Average Saturday Unlinked Trips	198
Average Sunday Unlinked Trips	176

Service Supplied

Annual Vehicle Revenue Miles	536,619
Annual Vehicle Revenue Hours	54,766
Vehicles Operated in Maximum Service	23
Vehicles Available for Maximum Service	26
Base Period Requirement	23

Financial Information

Fare Revenues Earned	\$2,250,582
Sources of Operating Funds Expended	
Fare Revenues (64%)	\$2,250,582
Local Funds (0%)	0
State Funds (0%)	0
Federal Assistance (0%)	0
Other Funds (36%)	1,244,616
Total Operating Funds Expended	\$3,495,198
Sources of Capital Funds Expended	
Local funds (0%)	\$0
State Funds (0%)	0
Federal Assistance (0%)	0
Other Funds (100%)	79,597
Total Capital Funds Expended	\$79,597

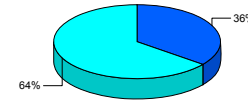
Summary of Operating Expenses

Salary, Wages and Benefits	\$118,064
Materials and Supplies	14,335
Purchased Transportation	3,221,926
Other Operating Expenses	140,873
Total Operating Expenses	\$3,495,198
Reconciling Cash Expenditures	\$0

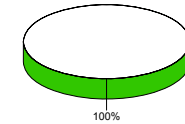
Vehicles Operated in Maximum Service and Uses of Capital Funds

	Directly Operated	Purchased Transportation ¹	Revenue Vehicles	Systems and Guideways	Facilities and Stations	Other	Total
Bus	0	23	\$0	\$0	\$0	\$79,597	\$79,597

Sources of Operating Funds Expended



Sources of Capital Funds Expended

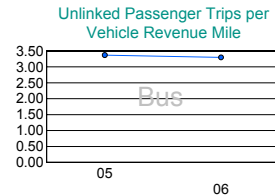
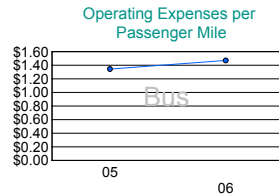
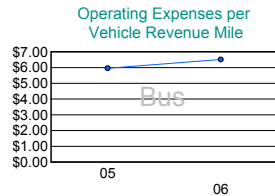


Modal Characteristics

	Operating Expenses ¹	Fare Revenues ¹	Uses of Capital Funds	Annual Passenger Miles	Annual Vehicle Revenue Miles	Annual Unlinked Trips	Annual Vehicle Revenue Hours	Fixed Guideway Directional Route Miles	Vehicles Available for Maximum Service	Average Fleet Age in Years	Vehicles Operated in Maximum Service	Peak to Base Ratio	Percent Spares
Bus	\$3,495,198	\$2,250,582	\$79,597	2,374,937	536,619	1,769,855	54,766	0.0	26	8.0	23	1.00	13%

Performance Measures

	Service Efficiency: Operating Expense per Vehicle Revenue Mile	Operating Expense per Vehicle Revenue Hour	Cost Effectiveness: Operating Expense per Passenger Mile	Operating Expense per Unlinked Passenger Trip	Service Effectiveness: Unlinked Passenger Trips per Vehicle Revenue Mile	Unlinked Passenger Trips per Vehicle Revenue Hour
Bus	\$6.51	\$63.82	\$1.47	\$1.97	3.30	32.32



¹ Excludes data for purchased transportation reported separately

Research Triangle Regional Public Transportation Authority (TTA)

General Information

Urbanized Area (UZA) Statistics - 2000 Census

Durham, NC	
Square Miles	157
Population	287,796
Population Ranking out of 465 UZAs	111
Other UZAs Served	66

Service Area Statistics

Square Miles	1,525
Population	1,002,876

Service Consumption

Annual Passenger Miles	22,779,971
Annual Unlinked Trips	1,229,451
Average Weekday Unlinked Trips	4,749
Average Saturday Unlinked Trips	657
Average Sunday Unlinked Trips	0

Service Supplied

Annual Vehicle Revenue Miles	3,205,446
Annual Vehicle Revenue Hours	121,922
Vehicles Operated in Maximum Service	120
Vehicles Available for Maximum Service	145
Base Period Requirement	12

Financial Information

Fare Revenues Earned \$1,609,219

Sources of Operating Funds Expended	
Fare Revenues (16%)	\$1,609,219
Local Funds (24%)	2,452,216
State Funds (22%)	2,250,915
Federal Assistance (28%)	2,915,666
Other Funds (10%)	1,059,646
Total Operating Funds Expended	\$10,287,662
Sources of Capital Funds Expended	
Local funds (46%)	\$11,667,812
State Funds (20%)	4,951,644
Federal Assistance (34%)	8,644,628
Other Funds (0%)	0
Total Capital Funds Expended	\$25,264,084

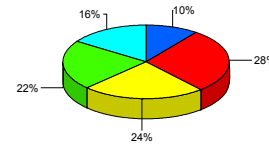
Summary of Operating Expenses

Salary, Wages and Benefits	\$6,085,185
Materials and Supplies	2,269,663
Purchased Transportation	0
Other Operating Expenses	1,922,446
Total Operating Expenses	\$10,277,294
Reconciling Cash Expenditures	\$10,368

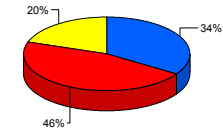
Vehicles Operated in Maximum Service and Uses of Capital Funds

	Directly Operated	Purchased Transportation ¹	Revenue Vehicles	Systems and Guideways	Facilities and Stations	Other	Total
Bus	49	0	\$0	\$736,586	\$0	\$0	\$736,586
Commuter Rail	0	0	\$0	\$0	\$0	\$24,527,498	\$24,527,498
Demand Response	5	0	\$0	\$0	\$0	\$0	\$0
Vanpool	66	0	\$0	\$0	\$0	\$0	\$0
Total	120	0	\$0	\$736,586	\$0	\$24,527,498	\$25,264,084

Sources of Operating Funds Expended



Sources of Capital Funds Expended

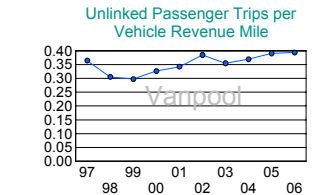
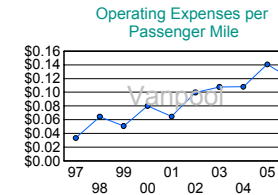
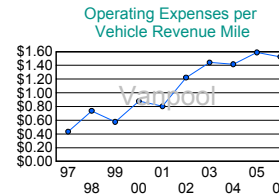
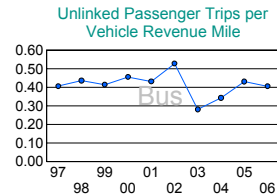
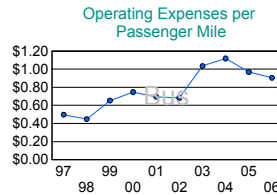
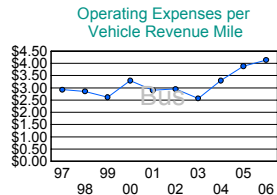


Modal Characteristics

	Operating Expenses ¹	Fare Revenues ¹	Uses of Capital Funds	Annual Passenger Miles	Annual Vehicle Revenue Miles	Annual Unlinked Trips	Annual Vehicle Revenue Hours	Fixed Guideway Directional Route Miles	Vehicles Available for Maximum Service	Average Fleet Age in Years	Vehicles Operated in Maximum Service	Peak to Base Ratio	Percent Spares
Bus	\$8,176,686	\$977,991	\$736,586	9,046,653	1,976,007	802,570	89,932	0.0	65	6.4	49	4.08	33%
Vanpool	\$1,611,250	\$509,443	\$0	13,486,165	1,056,781	415,932	26,312	N/A	74	4.8	66	N/A	12%
Demand Response	\$489,358	\$121,785	\$0	247,153	172,658	10,949	5,678	N/A	6	3.7	5	N/A	20%

Performance Measures

	Service Efficiency: Operating Expense per Vehicle Revenue Mile	Service Efficiency: Operating Expense per Vehicle Revenue Hour	Cost Effectiveness: Operating Expense per Passenger Mile	Cost Effectiveness: Operating Expense per Unlinked Passenger Trip	Service Effectiveness: Unlinked Passenger Trips per Vehicle Revenue Mile	Service Effectiveness: Unlinked Passenger Trips per Vehicle Revenue Hour
Bus	\$4.14	\$90.92	\$0.90	\$10.19	0.41	8.92
Vanpool	\$1.52	\$61.24	\$0.12	\$3.87	0.39	15.81
Demand Response	\$2.83	\$86.18	\$1.98	\$44.69	0.06	1.93



¹ Excludes data for purchased transportation reported separately

Town of Cary (CTRAN)

General Information

Urbanized Area (UZA) Statistics - 2000 Census

Raleigh, NC	
Square Miles	320
Population	541,527
Population Ranking out of 465 UZAs	67
Other UZAs Served	

Service Area Statistics

Square Miles	50
Population	107,973

Service Consumption

Annual Passenger Miles	357,070
Annual Unlinked Trips	63,016
Average Weekday Unlinked Trips	309
Average Saturday Unlinked Trips	69
Average Sunday Unlinked Trips	0

Service Supplied

Annual Vehicle Revenue Miles	598,933
Annual Vehicle Revenue Hours	33,131
Vehicles Operated in Maximum Service	16
Vehicles Available for Maximum Service	20
Base Period Requirement	3

Financial Information

Fare Revenues Earned

Sources of Operating Funds Expended	\$94,535
Fare Revenues (5%)	\$94,535
Local Funds (75%)	1,469,310
State Funds (12%)	236,296
Federal Assistance (8%)	165,614
Other Funds (0%)	0
Total Operating Funds Expended	\$1,965,755

Sources of Capital Funds Expended

Local funds	\$0
State Funds	0
Federal Assistance	0
Other Funds	0
Total Capital Funds Expended	\$0

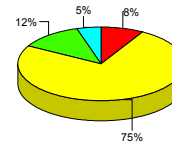
Summary of Operating Expenses

Salary, Wages and Benefits	\$86,085
Materials and Supplies	133,027
Purchased Transportation	1,715,483
Other Operating Expenses	31,160
Total Operating Expenses	\$1,965,755
Reconciling Cash Expenditures	\$0

Vehicles Operated in Maximum Service and Uses of Capital Funds

	Directly Operated	Purchased Transportation ¹	Revenue Vehicles	Systems and Guideways	Facilities and Stations	Other	Total
Bus	0	5	\$0	\$0	\$0	\$0	\$0
Demand Response	0	11	\$0	\$0	\$0	\$0	\$0
Total	0	16	\$0	\$0	\$0	\$0	\$0

Sources of Operating Funds Expended



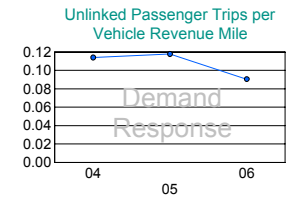
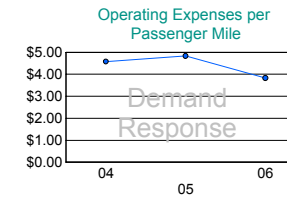
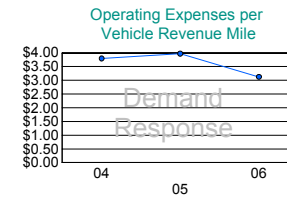
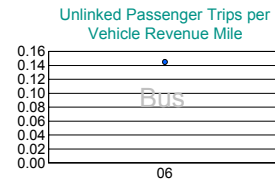
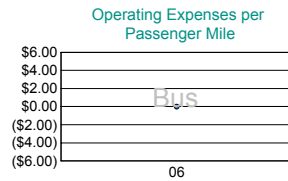
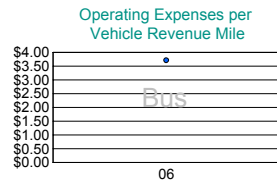
Sources of Capital Funds Expended

Modal Characteristics

	Operating Expenses ¹	Fare Revenues ¹	Uses of Capital Funds	Annual Passenger Miles	Annual Vehicle Revenue Miles	Annual Unlinked Trips	Annual Vehicle Revenue Hours	Fixed Guideway Directional Route Miles	Vehicles Available for Maximum Service	Average Fleet Age in Years	Vehicles Operated in Maximum Service	Peak to Base Ratio	Percent Spares
Bus	\$597,461	\$27,557	\$0	0 W	160,990	23,354	9,946	0.0	7	1.3	5	1.67	40%
Demand Response	\$1,368,294	\$66,978	\$0	357,070	437,943	39,662	23,185	N/A	13	2.7	11	N/A	18%

Performance Measures

	Service Efficiency: Operating Expense per Vehicle Revenue Mile	Service Efficiency: Operating Expense per Vehicle Revenue Hour	Cost Effectiveness: Operating Expense per Passenger Mile	Cost Effectiveness: Operating Expense per Unlinked Passenger Trip	Service Effectiveness: Unlinked Passenger Trips per Vehicle Revenue Mile	Service Effectiveness: Unlinked Passenger Trips per Vehicle Revenue Hour
Bus	\$3.71	\$60.07	\$0.00 W	\$25.58	0.15	2.35
Demand Response	\$3.12	\$59.02	\$3.83	\$34.50	0.09	1.71



Note: First year reporting

¹ Excludes data for purchased transportation reported separately

Appendix G: Financial Model and Funding for the Regional Transit Vision Plan

The STAC financial plan was developed on the basis of funding the entire vision which included enhanced region-wide bus service, urban circulators, and fixed guideway (rail) investments.

The financial model was adjusted to accommodate the purchase of 150 buses, replacement purchases after a 12-year life, all operations and maintenance costs, and associated maintenance facility requirements.

The fixed guideway (rail) portion of the vision included Chapel Hill to Durham, Durham to Cary, Cary to Raleigh, and Raleigh to Durant Road (north of I-540 off Capital Blvd). The total cost of the rail vision is estimated to be \$2.27 Billion in 2007 dollars.

Costs are broken out by project according to an assumed set of delivery dates. Although the STAC did not specify any priorities or timing for projects, the financial model assumed the order and timing of project delivery according to the table above in order to calculate the inflated values beyond CY2007. The completion dates listed are for modeling purposes only to allow for the projection of financing costs and revenue flows. Actual sequencing of projects will be influenced by a variety of factors.

Completion Date *	Project Description	Capital Cost in 2007 dollars **
2017	NW Cary to Durant Road (North of I-540)	\$774.1 million
2020	Duke Med Ctr to Triangle Metro Center (TMC)	\$400.0 million
2020	Triangle Metro Center (TMC) to RDU Airport	\$155.0 million
2022	Chapel Hill to Durham Multimodal Center	\$739.4 million
2024	Triangle Metro Center (TMC) to NW Cary	\$203.6 million

* Assumes the project is completed on December 31st of the given year with a corresponding opening date a day later. All years are calendar years.

** The total cost of the fixed guideway (rail) projects is \$2.27 Billion in 2007 dollars.

The following charts show costs and revenues in Year of Expenditure (YOE), e.g. inflated. The charts reflect a set of assumed revenue sources and total costs for capital and operations and maintenance. The cost elements include the costs associated with the Enhanced Bus service, the Urban Circulators, and the Rail investments shown above. See Section 7 for discussion of revenue and cost assumptions.

Cumulative Revenues and Cost

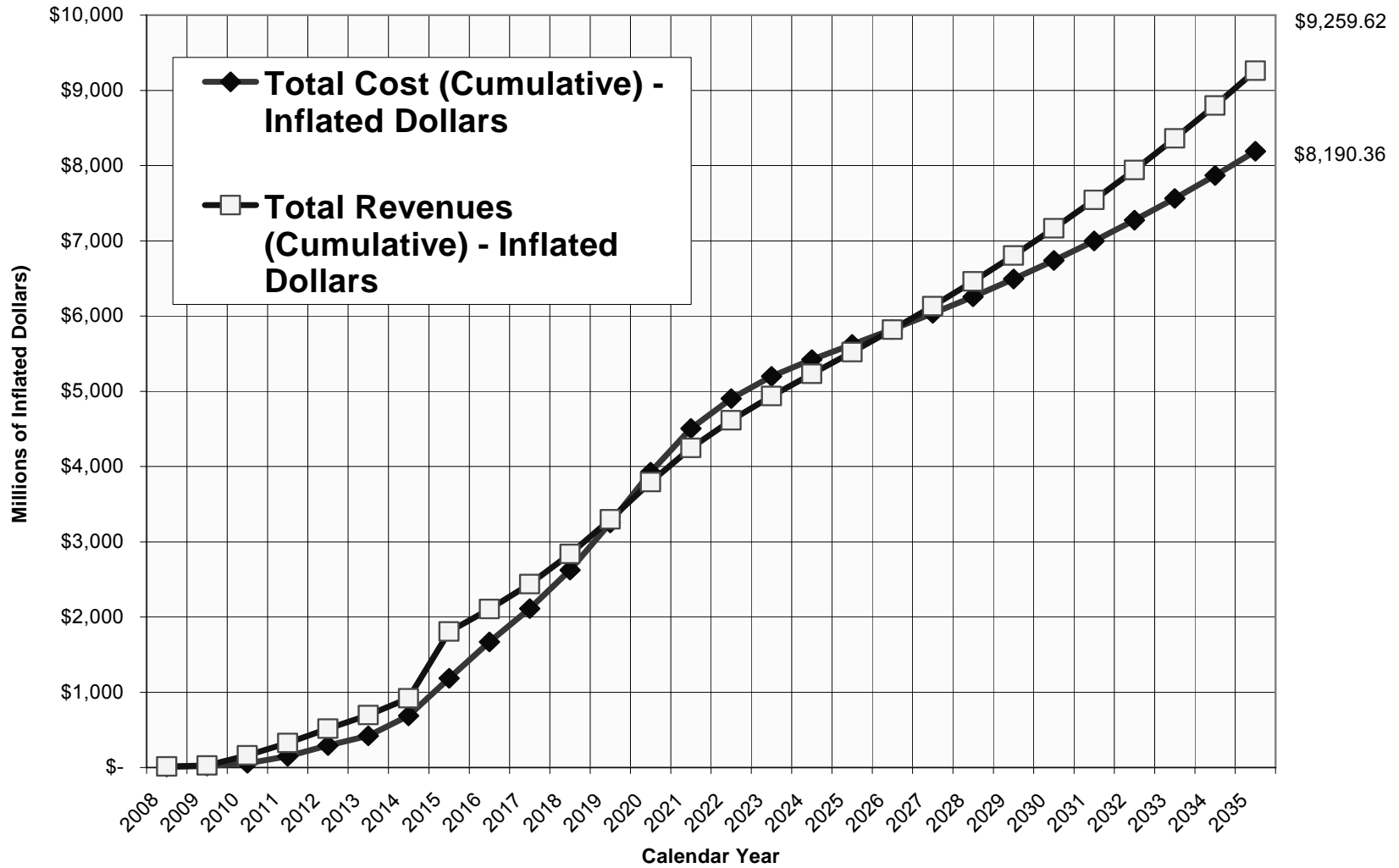


Chart 1: This chart depicts cumulative cost and revenues in Year of Expenditure (YOE, e.g. inflated \$).

Project Investment Ending Balances

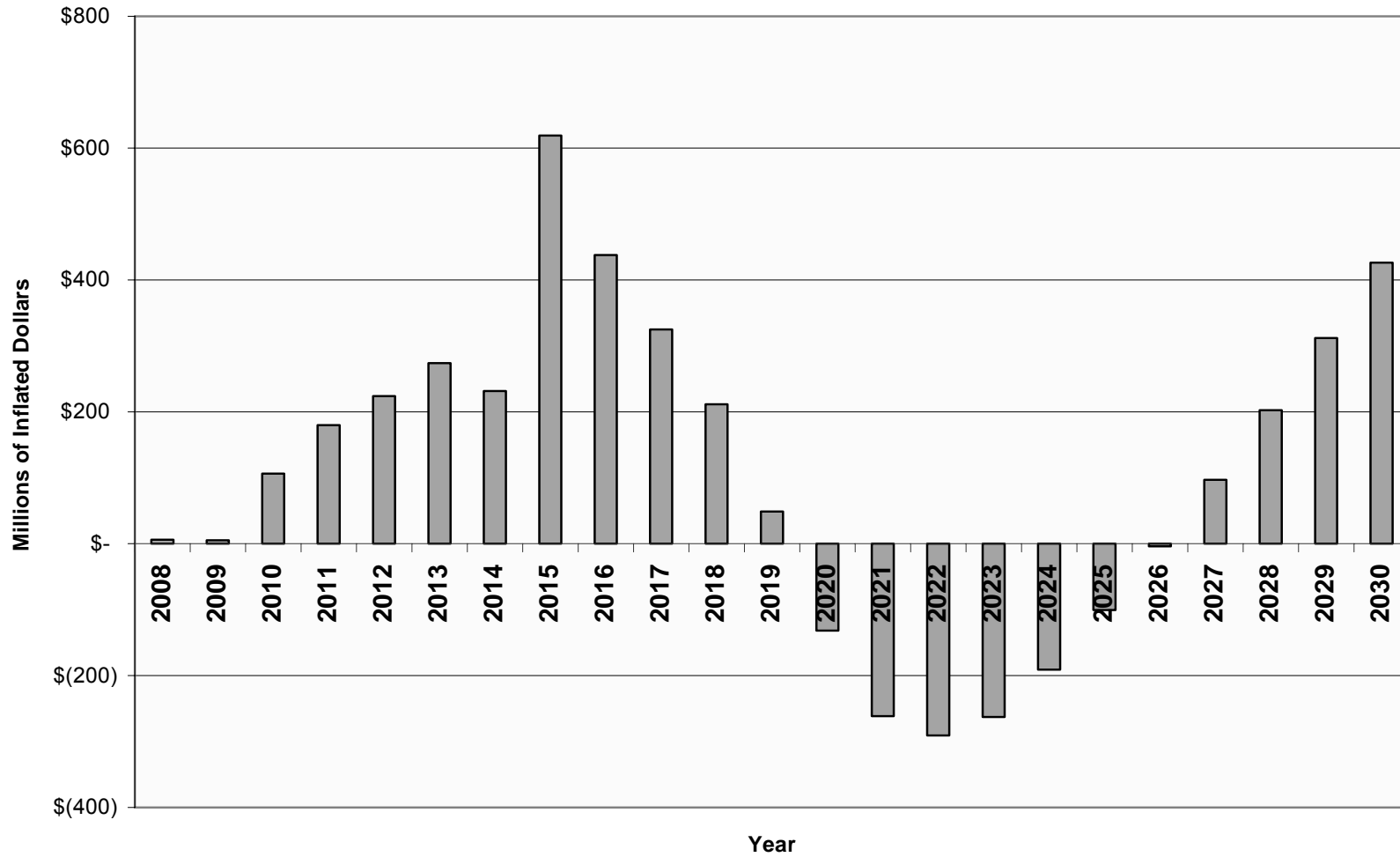


Chart 2: Although the assumed funding sources can cover the total expected costs, cash flow issues exist in the 2020 through 2025 years that can be resolved by additional financing that utilizes the surpluses created beyond 2026.

Annual Costs vs Annual Revenues

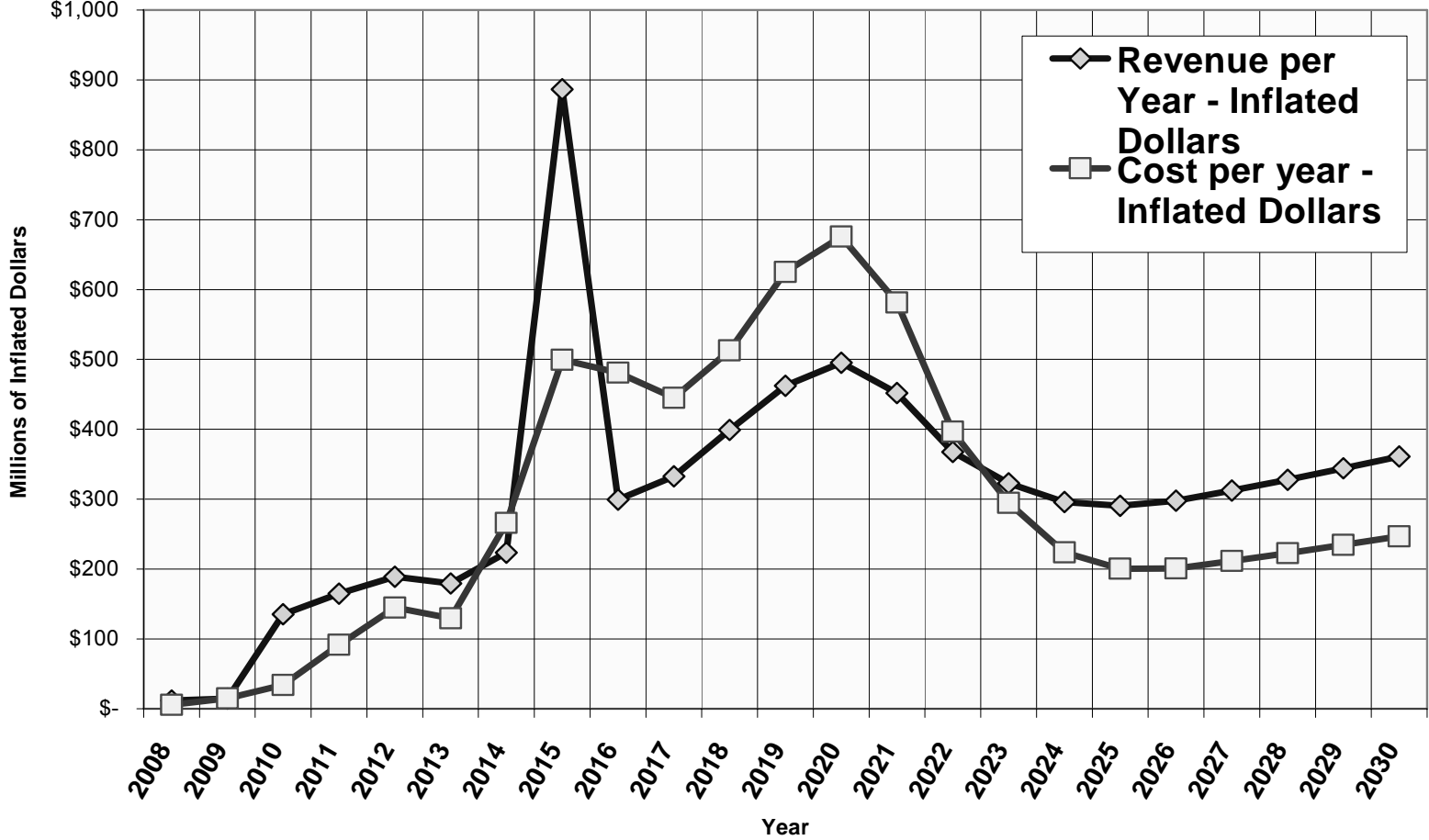


Chart 3: This chart shows the annual revenues and expenditures by calendar year. It depicts the areas where net cash flow is either positive or negative.

STAC Cost Elements + Current Bus Service

Year of Expenditure (YOE) thru 2035, in \$Millions

Total: \$11.9 Billion

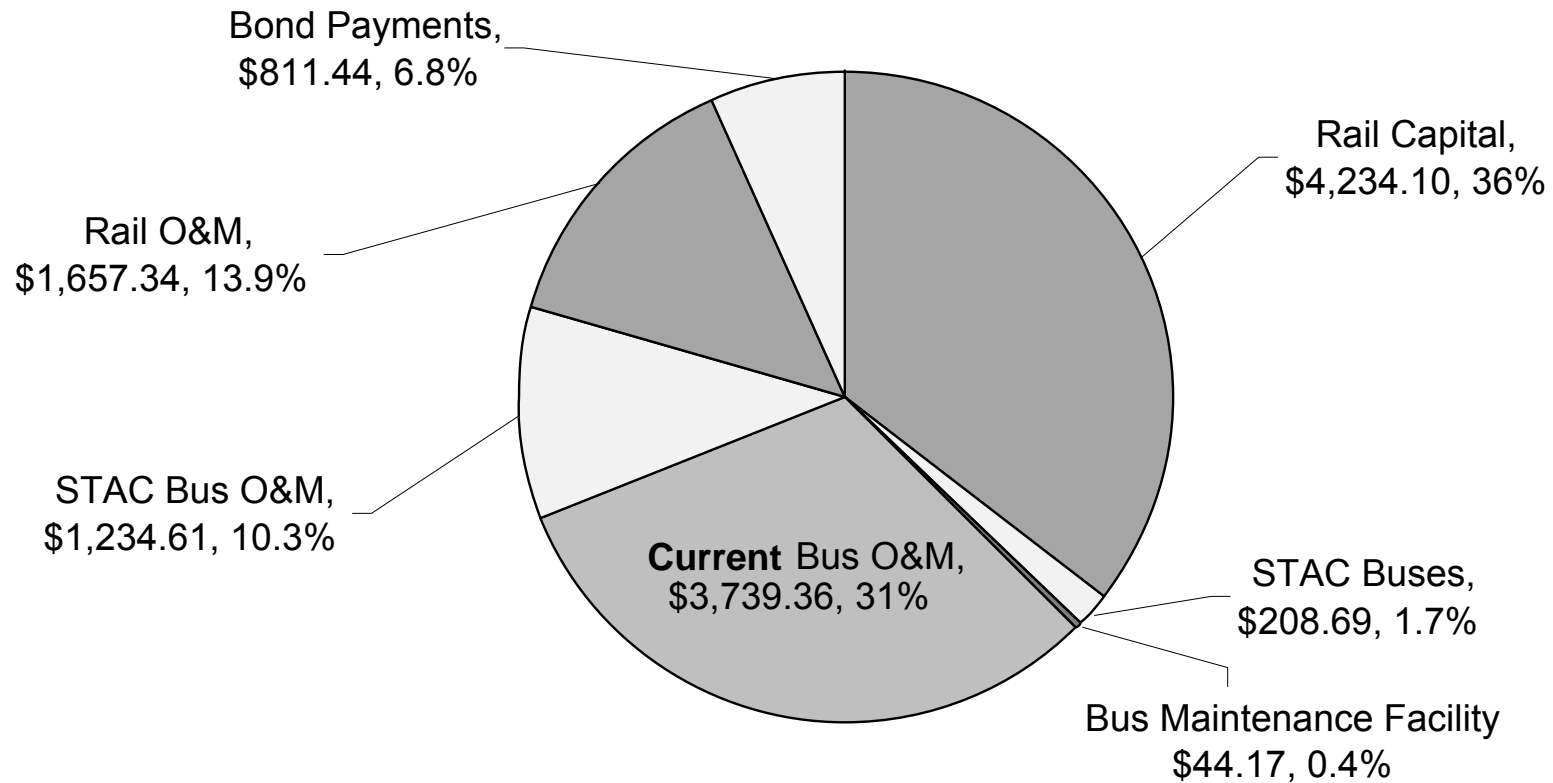


Chart 4: All charts other than this one only assume new incremental costs. The cost of current, region-wide bus operations (\$60 million/year inflated through 2035) has been added to reflect the impact of **all** cost elements through 2035.