NORTH CAROLINA LOCAL GOVERNMENT
PERFORMANCE MEASUREMENT PROJECT

Final Report on City Services for Fiscal Year 2011–2012

PERFORMANCE AND COST DATA

FEBRUARY 2013

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CONTENTS

Preface v

Introduction 3

Residential Refuse Collection 11

Household Recycling 44

Yard Waste / Leaf Collection 76

Police Services 108

Emergency Communications 138

Asphalt Maintenance And Repair 164

Fire Services 197

Building Inspections 231

Fleet Maintenance 255

Central Human Resources 289

Water Services 323

Wastewater Services 353

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PREFACE

North Carolina municipalities are continually looking for ways to improve the efficiency and effectiveness of service delivery. As part of this effort, a group of municipalities joined together with the School of Government and the North Carolina Local Government Budget Association to create an ongoing project to compare performance and cost data for selected governmental services. This joint undertaking is known as the North Carolina Local Government Performance Measurement Project or, more commonly, as the North Carolina Benchmarking Project. This report presents performance and cost data for the fiscal year ended June 30, 2012, for the fourteen North Carolina municipalities participating in the benchmarking project—Apex, Asheville, Burlington, Cary, Charlotte, Concord, Greensboro, Greenville, Hickory, High Point, Salisbury, Wilmington, Wilson, and Winston-Salem. Sixteen previous reports have been published regarding municipal services. All of these reports are available through the Publications Sales Office of the School of Government (919.966.5381). The previous four reports may be purchased online by using the following URL: http://shopping.netsuite.com/s.nl?c=433425&sc=7&category=107&search=final%20report

The benchmarking project is a collaborative effort. Officials from the participating local governments have made vital contributions to the success of the project, including budget and finance staff, program and service staff, and city and town managers. Special thanks are owed to the members of the steering committee, who provide the necessary leadership demanded by such a project: Suzanne Parmentier, Accounting and Budget Manager of Apex; Tony McDowell, Budget Manager, and John Sanchez, Budget Analyst of Asheville; Aaron Noble, Human Resources Director of Burlington; Scott Fogleman, Budget Director, Kathy Lleras, Budget Analyst, and Josh Edwards, Budget Analyst of Cary; Melia Gordon, Budget and Evaluation Analyst of Charlotte; Robin Barham, Budget and Performance Manager, and Lesley Reder, Management Analyst of Concord; Jon Decker, Budget Analyst of Greensboro; Kim Branch, Financial Services Manager, and Rupal Patel, Financial Analyst of Greenville; Karen Hurley, Budget Analyst of Hickory; Laura Altizer, Budget Analyst, and Glenda Barnes, Budget Analyst of High Point; Evans C. Ballard, Budget and Benchmarking Analyst of Salisbury; Kathy Mann, Senior Budget Analyst of Wilmington; Susan Rhodes, Senior Budget Analyst of Wilson; and Ben Rowe, Budget and Evaluation Director of Winston-Salem.

The benchmarking project receives contributions from other individuals who strongly support benchmarking and performance measurement. William C. Rivenbark, David N. Ammons, and A. John Vogt, faculty members with the School of Government, serve as project advisors. Special thanks go to Michael R. Smith, dean of the School of Government, and Thomas H. Thornburg, senior associate dean of the School of Government, for their leadership and support of the benchmarking project. The author wishes to acknowledge other School of Government staff who have contributed many hours to the benchmarking project, including Melissa Twomey and Dan Soileau in the Publications Division and Mark Mallon, who worked on this report as a research assistant.

Dale J. Roenigk
February 2013

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Performance and Cost Data

INTRODUCTION

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INTRODUCTION

Can local governments measure their performance and cost in a meaningful way? Can performance measures in one local government be legitimately compared to the performance of another? In the fall of 1995, fourteen large municipalities and counties in North Carolina agreed to participate in a collaborative project to answer these and other questions relating to benchmarking. Seven of the jurisdictions were municipalities, forming Phase I of what is now known as the North Carolina Local Government Performance Measurement Project or, more commonly, the North Carolina Benchmarking Project. The other seven jurisdictions were counties, constituting Phase II of the benchmarking project. A third phase of the benchmarking project began in January 1997, consisting of fourteen municipal and county, small and medium size North Carolina jurisdictions. These phases represented the pilot stage of the benchmarking project.

Since that beginning, the benchmarking project has proceeded with an ongoing agreement to collect, clean, and report comparative performance and cost data from the participating municipalities. Listed below are the fourteen municipalities that are included in this report:

- Apex
- Asheville
- Burlington
- Cary
- Charlotte
- Concord
- Greensboro
- Greenville
- Hickory
- High Point
- Salisbury
- Wilmington
- Wilson
- Winston-Salem

This report is the result of a joint undertaking of the participating municipalities, the School of Government, and the North Carolina Local Government Budget Association. The North Carolina League of Municipalities and the Local Government Commission also have contributed to the development of this report. The goals of the benchmarking project are as follows:

1. To develop/expand the use of performance measurement in local government.
2. To produce reliable performance and cost data for comparison.
3. To facilitate the use of performance and cost data for service improvement.

SERVICES

This report presents performance and cost data and accompanying explanatory information for the following service areas:

- Residential Refuse Collection
- Household Recycling
- Yard Waste/Leaf Collection
- Police Services
- Emergency Communications
- Asphalt Maintenance and Repair
- Fire Services
- Building Inspections
- Fleet Maintenance
- Central Human Resources
- Water Services
- Wastewater Services

The participating units did not agree to continue the benchmarking project to endure the challenges of data collection and "data cleaning" simply to produce a report. They continue with the belief that performance measurement and benchmarking are catalysts to service improvement. No jurisdiction can be the best in every service that it provides, highlighting the notion that even outstanding performers can learn from the practices of others. Performance measurement and benchmarking are about tracking performance and cost data and making changes based on both internal and external comparisons over time.

This report is the seventeenth publication representing municipal services. The previous fifteen reports are listed below along with their publication dates:

- *Performance and Cost Data: Phase I City Services* (October 1997)
- *Performance and Cost Data: Phase III City Services* (March 1999)
- *Final Report on City Services for Fiscal Year 1997–98* (March 1999)
- *Final Report on City Services for Fiscal Year 1998–99* (February 2000)
- *Final Report on City Services for Fiscal Year 1999–2000* (February 2001)
- *Final Report on City Services for Fiscal Year 2000–2001* (February 2002)
- *Final Report on City Services for Fiscal Year 2001–2002* (February 2003)
- *Final Report on City Services for Fiscal Year 2002–2003* (February 2004)
- *Final Report on City Services for Fiscal Year 2003–2004* (February 2005)
- *Final Report on City Services for Fiscal Year 2004–2005* (February 2006)
- *Final Report on City Services for Fiscal Year 2005–2006* (February 2007)
- *Final Report on City Services for Fiscal Year 2006–2007* (February 2008)
- *Final Report on City Services for Fiscal Year 2007–2008* (February 2009)
- *Final Report on City Services for Fiscal Year 2008–2009* (February 2010)
- *Final Report on City Services for Fiscal Year 2009–2010* (February 2011)
- *Final Report on City Services for Fiscal Year 2010–2011* (February 2012)

REPORTING FORMAT

This is primarily a data report. It incorporates graphs, summary tables, and explanatory information to present the performance and cost results for each service area under study. The results of each service area by municipality are displayed with a standard, two-page format. The following information is contained in this report:

1. **Explanatory Information.** This segment of the report describes how the service is provided and identifies conditions or dimensions that affect performance and cost data of service delivery.
2. **Municipal Profile.** This includes a limited number of characteristics of each municipality, such as population density and median family income, which may affect service performance and cost. Some of the general characteristics, such as population, appear in the municipal profiles for all of the service areas. Others, such as weather and tax base served, appear only in selected profiles.
3. **Service Profile.** This area provides input and output data and identifies important dimensions of service delivery.
4. **Full Cost Profile.** A cost accounting model is used to calculate full or total cost of providing each service area under study. Although the cost data were collected in detail, using a collection instrument with more than seventy specific line items, the reporting format aggregates the detailed cost data into three general categories for the purpose of presentation: personal services for the direct expenses of salaries, wages, and related fringe benefits; operating costs that include direct operating expenses and indirect cost allocations; and capital costs that represent depreciation for equipment and facilities.
5. **Resource Measures.** These measures gauge the amount of resources or inputs municipalities allocate for the provision of a given service.
6. **Performance Measures.** Three types of performance measures are used and reported—workload, efficiency, and effectiveness. A municipality's performance is compared to the performance average, noting that the average is based on services with numerous variations and should be viewed with caution. The measures used in this report do not assess total service performance. They gauge certain service dimensions and should be approached with an understanding of the service being provided.

SUMMARY OF OVERALL RESULTS

What the project has achieved

1. The project's methodology, consisting of service profiles, performance measures, cost accounting, and explanation of results, works extremely well for data consistency and comparability. The project's accounting model is especially effective in producing reliable and materially accurate cost data.

2. The performance data have been used in numerous jurisdictions for service improvement, especially in the areas of residential refuse collection, household recycling, police services, and fleet services.
3. The project's success is directly correlated with consensus about service definitions and measurement formulas, involving numerous local government officials from the participating units.

What we have learned

1. Local governments can produce accurate, reliable, and comparable performance and cost data, which can then be used for service improvement.
2. Specific service definitions are vital to performance measurement, including explanatory information.
3. Data availability and quality are very important to performance measurement.
4. Performance measurement and cost accounting are time consuming. However, performance measures provide valuable feedback when the goal is quality services at reasonable cost.

READING THE REPORT

This report presents the performance and cost data for the fourteen North Carolina municipalities participating in the benchmarking project for the fiscal year ending June 30, 2012. It also presents multiyear data for participants based on the number of fiscal years that each municipality has participated in the benchmarking project. The following table provides the five fiscal years of performance measures (by final report) contained within the present report and the corresponding municipalities by fiscal year of participation.

Final Report	Jurisdictions
Final Report on City Services for Fiscal Year 2007–2008	Asheville, Burlington, Carrboro, Cary, Charlotte, Concord, Durham, Gastonia, Greensboro, Hickory, High Point, Matthews, Raleigh, Salisbury, Wilmington, Wilson, and Winston-Salem
Final Report on City Services for Fiscal Year 2008–2009	Asheville, Burlington, Carrboro, Cary, Charlotte, Concord, Durham, Gastonia, Greensboro, Greenville, Hickory, High Point, Raleigh, Salisbury, Wilmington, Wilson, and Winston-Salem
Final Report on City Services for Fiscal Year 2009–2010	Asheville, Burlington, Cary, Charlotte, Concord, Durham, Greensboro, Greenville, Hickory, High Point, Salisbury, Wilmington, Wilson, and Winston-Salem
Final Report on City Services for Fiscal Year 2010–2011	Apex, Burlington, Cary, Charlotte, Concord, Greensboro, Greenville, Hickory, High Point, Salisbury, Wilmington, Wilson, and Winston-Salem
Final Report on City Services for Fiscal Year 2011–2012	Apex, Burlington, Cary, Charlotte, Concord, Greensboro, Greenville, Hickory, High Point, Salisbury, Wilmington, Wilson, and Winston-Salem

The municipal profile, full cost profile, service profile, and explanatory information for each municipality are based solely on performance and cost data for the fiscal year ending June 30, 2012. Readers should be extremely careful when

interpreting the performance and cost data for municipalities with multiyear data. Municipal profiles, full cost profiles, service profiles, and explanatory information that support performance measures for the fiscal years ending June 30, 2008, through June 30, 2011, are located in prior year performance and cost data reports and can be obtained from the School of Government.

The benchmarking project considers new service areas and service changes on an annual basis under the guidance of the steering committee. Asphalt Maintenance and Repair represented a new service area for the fiscal year ending June 30, 2000. This service was previously reported as Street Pavement Maintenance. Police Services represented a new service area for the fiscal year ending June 30, 2001. This service was presented as Police Patrol and Police Investigations in prior reports. Fleet Maintenance represented a new service area for the fiscal year ending June 30, 2002. Central Human Resources represented a new service area for the fiscal year ending June 30, 2004. Water Services represented a new service area added in the fiscal year ending June 30, 2007. Finally, Wastewater Services was added for this report using data starting with the fiscal year ending June, 30, 2012.

Municipalities do not participate in every service area for a variety of reasons. Certain ones do not participate in Emergency Communications and Building Inspections because those services are often county functions. In some cases, a municipality may not participate due to organizational structures or other issues. The following table provides the jurisdictions participating in each service area contained in this report.

Service Area	Jurisdictions
Residential Refuse Collection	Apex, Asheville, Burlington, Cary, Charlotte, Concord, Greensboro, Greenville, Hickory, High Point, Salisbury, Wilmington, Wilson, and Winston-Salem
Household Recycling	Apex, Asheville, Burlington, Cary, Charlotte, Concord, Greensboro, Greenville, Hickory, High Point, Salisbury, Wilmington, Wilson, and Winston-Salem
Yard Waste/Leaf Collection	Apex, Asheville, Burlington, Cary, Charlotte, Concord, Greensboro, Greenville, Hickory, High Point, Salisbury, Wilmington, Wilson, and Winston-Salem
Police Services	Apex, Asheville, Burlington, Cary, Concord, Greensboro, Greenville, Hickory, High Point, Salisbury, Wilmington, Wilson, and Winston-Salem
Emergency Communications	Apex, Asheville, Burlington, Cary, Concord, Greensboro, Greenville, Hickory, High Point, Salisbury, and Winston-Salem
Asphalt Maintenance and Repair	Apex, Asheville, Burlington, Cary, Charlotte, Concord, Greensboro, Greenville, Hickory, High Point, Salisbury, Wilmington, Wilson, and Winston-Salem
Fire Services	Apex, Asheville, Burlington, Cary, Charlotte, Concord, Greensboro, Greenville, Hickory, High Point, Salisbury, Wilmington, Wilson, and Winston-Salem
Building Inspections	Apex, Asheville, Burlington, Cary, Greensboro, Greenville, High Point, Wilson, and Winston-Salem
Fleet Maintenance	Apex, Asheville, Burlington, Cary, Charlotte, Concord, Greensboro, Greenville, Hickory, High Point, Salisbury, Wilmington, Wilson, and Winston-Salem

Service Area	Jurisdictions
Central Human Resources	Apex, Asheville, Burlington, Cary, Charlotte, Concord, Greensboro, Greenville, Hickory, High Point, Salisbury, Wilmington, Wilson, and Winston-Salem
Water Services	Apex, Asheville, Burlington, Cary, Charlotte, Concord, Greensboro, Hickory, High Point, Salisbury, Wilson, and Winston-Salem
Wastewater Services	Apex, Cary, Charlotte, Concord, Greensboro, Hickory, High Point, Salisbury, Wilson, and Winston-Salem

It also should be noted that not all municipalities submit performance and cost data for each performance measure contained within the respective service area. Therefore, data are missing for selected performance measures regardless of service participation.

Performance and Cost Data

RESIDENTIAL REFUSE COLLECTION

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PERFORMANCE MEASURES FOR RESIDENTIAL REFUSE COLLECTION

SERVICE DEFINITION

This is regularly scheduled collection of household refuse or “garbage” from residential premises and other locations, including small businesses, using containers small enough that residents and/or workers can move or lift them manually. The service excludes collection of waste from dumpsters; regular or special collection of yard waste and leaves; collection of recyclable materials, white goods, or other bulky items; and any special or non-routine service provided to residences. Transportation of refuse to a landfill or a transfer station is included, but the disposal of refuse and tipping costs are excluded.

NOTES ON PERFORMANCE MEASURES

1. Tons of (Residential) Refuse Collected per 1,000 Population and per 1,000 (Residential) Collection Points

“Tons of refuse collected” is widely used as a measure of workload for this service. A collection point or pickup point is a single locale (active address) from which residential refuse is collected; it can be a single-family residence, a condominium, an apartment, or a small business that uses containers that residents or sanitation workers can move or lift. Pickup points directly generate collection work, so this measure provides a good assessment of workload. “Tons of refuse collected per 1,000 population” and “per 1,000 collection points” also serve as measures of need for this service. Because of citizen expectations and public health requirements, sanitation crews or contractors must pick up all or virtually all household refuse that residents put out for collection.

2. Cost per Ton of Residential Refuse Collected and per Residential Collection Point

These are the project’s principal measures of efficiency for this service. Because of differences in the number of people per household and the percentage of the municipal population served by curbside collection, the comparisons for these two efficiency measures can vary.

3. Full-Time Equivalent (FTE) Positions

The number of full-time equivalent (FTE) positions for residential refuse collection is the number of employees directly involved in providing the service as approved in the annual operating budget during the fiscal year. This number includes both full-time and part-time workers and both permanent and temporary workers. One FTE equates to 2,080 hours of work per year. Any combination of employees providing 2,080 hours of work annually equals one FTE. Cost data reflect all such workers. The measure “tons collected per collection FTE,” however, includes only those workers who actually collect refuse and not supervisory or support personnel.

4. Number of Complaints and Number of Valid Complaints

All of the participating units take calls about residential refuse collection, and nearly all maintain records of one kind or another about such calls. However, the municipalities follow very different procedures in processing and recording these calls and in determining which ones are complaints and which are not. For these reasons, the project is able to present limited comparative data about complaints or valid complaints for residential refuse collection or other solid waste services. Nonetheless, the project recommends that the participating municipalities devise common criteria for identifying complaints and procedures for processing and recording calls.

Residential Refuse Collection

Summary of Key Dimensions of Service

City or Town	Normal Collection Location	Collection Points	Tons Collected	Weekly Routes	Percentage Contracted Service	Crew Size (most commonly used)	City FTE Collection Positions	Main Equipment		Landfill/Transfer	
								Packers	Automated	Trips per Day	Distance
Apex	Curbside	11,717	10,478	13	100%	Contracted	NA	NA	NA	1	5 miles
Asheville	Curbside	30,169	22,446	33	0%	1 & 3 person	14	1	7	2	6 miles
Burlington	Curbside	16,633	15,002	21	0%	1 & 2 person	9	2	4	2	17 miles
Cary	Curbside	44,493	28,580	48	0%	1 & 4 person	25	2	10	1	20 miles
Charlotte	Curbside	212,973	173,203	320	0%	1 & 2 person	80	7	57	1.5	13 miles
Concord	Curbside	28,131	23,221	25	100%	Contracted	0.59	0	Contractor 5	1	8 miles
Greensboro	Curbside	80,640	55,865	72	0%	1 & 2 person	27	3	23	1.8	8 miles
Greenville	Curbside and backyard	38,357	23,771	32	0%	3 person	27	8	0	2	6 miles
Hickory	Curbside	12,100	8,489	15	0%	1 & 2 person	3.75	0.25	3.25	2	5 miles
High Point	Curbside	35,544	27,854	40	0%	1 & 3 person	22	0	9	2	8 miles
Salisbury	Curbside	11,956	9,355	15	0%	1 & 2 person	10	7	0	1	10 miles
Wilmington	Curbside	31,247	23,808	36	0%	2 & 3 person	32	15	0	2	10 miles
Wilson	Curbside	17,950	18,725	17	0%	1 & 3 person	11	2	5	2	10 miles
Winston-Salem	Curbside	76,240	52,035	100	0%	1 & 3 person	94.15	16	9	1	10 miles

NOTES

All of the municipalities currently collect residential refuse once per week.
All of the municipalities have special provisions for collecting from the back or side yards of individuals with disabilities or mobility restrictions.

EXPLANATORY FACTORS

These are factors that the project found affected residential refuse collection performance and cost in one or more of the municipalities:

Backyard or curbside collection
Routing
Climate
Topographic conditions
Population density
Size of crews
Type of equipment used (automated)
Privatization
Participation in recycling program
Economies of scale
Distance to landfill/transfer station
Fee policies (volume-based or other)

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Apex contracts with Waste Industries for refuse collection, disposal, and recycling. Only the refuse collection is reflected on this page.

Residents pay $9.64 per month for collection. Refuse is collected once a week curbside, although backyard collection is provided for disabled customers at no additional charge.Residents receiving service are provided with one ninety-six-gallon container.

The contractor collects five days a week from different routes. Trash is trucked to the landfill.

The contractor collected 10,478 tons of residential refuse during FY 2011–12, at a cost of $132 per ton. The cost per ton does not include the disposal cost per ton of $47.35 at the landfill.

Conditions Affecting Service, Performance, and Costs
Apex began participation in the benchmarking project in July 2011, with FY 2010–11 being the first reporting year.

Municipal Profile

Population (OSBM 2011)	38,696
Land Area (Square Miles)	15.63
Persons per Square Mile	2,477
Median Family Income U.S. Census 2010	$97,201

Service Profile

FTE Positions—Collection	Contractor
FTE Positions—Other	Contractor
Type of Equipment	Contractor
Size of Crews (most commonly used)	Contractor
Weekly Routes	13
Average Distance to Disposal Site	5 miles
Average Daily Trips to Disposal Site	1
Percentage of Service Contracted	100%
Collection Frequency	1 x week
General Collection Location	Curbside
Residential Customers (number represents collection points)	11,717
Tons Collected	10,478.0
Monthly Service Fee	$9.64

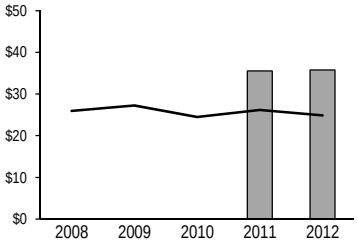
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	0.0%
Operating Costs	100.0%
Capital Costs	0.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$0
Operating Costs	$1,385,591
Capital Costs	$0
TOTAL	$1,385,591

Key: Apex ■ Benchmarking Average — Fiscal Years 2008 through 2012

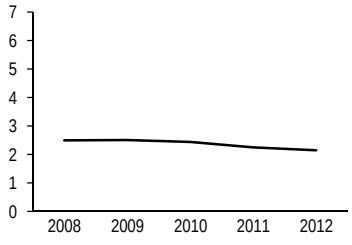
Resource Measures

Residential Refuse Collection Costs per Capita



	2008	2009	2010	2011	2012
Apex				$35.57	$35.81
Average	$25.94	$27.21	$24.50	$26.19	$24.86

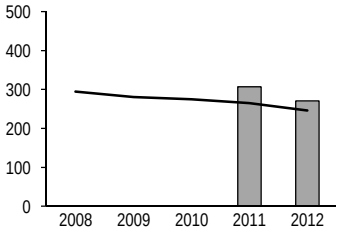
Residential Refuse FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Apex					
Average	2.49	2.51	2.45	2.25	2.16

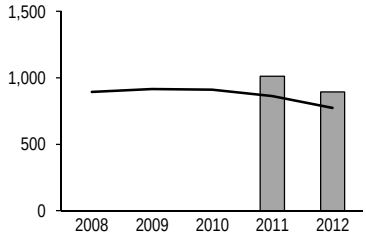
Workload Measures

Residential Refuse Tons per 1,000 Population



	2008	2009	2010	2011	2012
Apex				307	271
Average	294	280	275	265	246

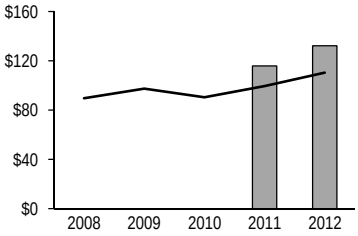
Residential Refuse Tons per 1,000 Collection Points



	2008	2009	2010	2011	2012
Apex				1013	894
Average	893	915	911	862	773

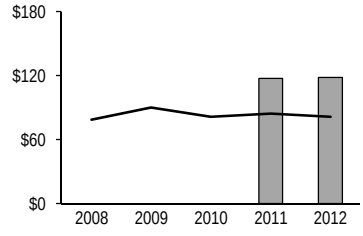
Efficiency Measures

Residential Refuse Collection Cost per Ton Collected



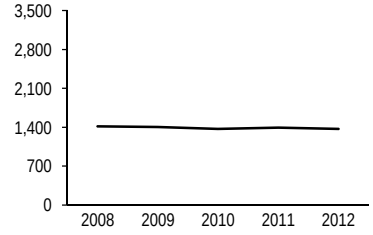
	2008	2009	2010	2011	2012
Apex				$116	$132
Average	$90	$97	$90	$99	$111

Residential Refuse Collection Cost per Collection Point



	2008	2009	2010	2011	2012
Apex				$117	$118
Average	$79	$90	$81	$84	$81

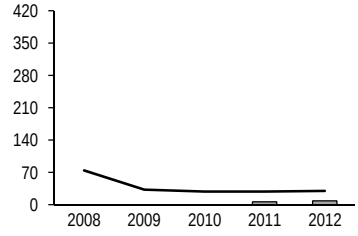
Refuse Tons Collected per Municipal Collection FTE



	2008	2009	2010	2011	2012
Apex					
Average	1,414	1,403	1,368	1,392	1,372

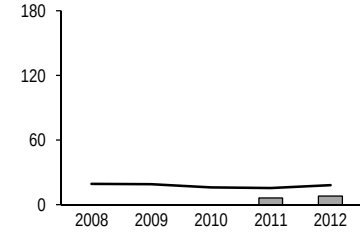
Effectiveness Measures

Complaints per 1,000 Collection Points



	2008	2009	2010	2011	2012
Apex				6.8	8.6
Average	74.1	33.1	28.6	28.4	30.3

Valid Complaints per 1,000 Collection Points



	2008	2009	2010	2011	2012
Apex				6.5	8.1
Average	19.4	19.0	16.2	15.5	18.3

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Asheville collects residential refuse once a week at curbside, although backyard collection is provided for disabled customers at no charge and for other customers for a fee.

The city uses seven automated trucks, each with one driver, from Monday to Thursday working ten-hour days. Two rear packers with two- and three-person crews are used from Monday to Friday for the collection of bulky items, clean-ups, and streets not accessible by automated trucks.

There are thirty-three main collection routes served by the automated trucks, with seven done each day. The average number of trips to the transfer station is two per day per route. Nearly all trash goes to the transfer station before going to the landfill. The average distance to the transfer station is six miles.

The city collected 22,446 tons of residential refuse during FY 2011–12, at a cost of $105 per ton. The cost per ton does not include the disposal cost per ton of $43 at the landfill or $47 at the transfer station. The transfer station is the primary disposal point for Asheville's trucks.

Residents receiving automated service are provided with one container. The majority of the containers are ninety-five-gallon capacity. Some residents use containers of sixty-five-gallon or thirty-five-gallon capacity. Residents may rent more containers if desired. Residents receiving rear-loading service provide their own containers. They are able to use up to six containers or bags.

Conditions Affecting Service, Performance, and Costs
Asheville is highly automated in the area of residential refuse collection.

Municipal Profile

Population (OSBM 2011)	85,646
Land Area (Square Miles)	45.40
Persons per Square Mile	1,886
Median Family Income U.S. Census 2010	$53,350

Service Profile

FTE Positions—Collection	14.0
FTE Positions—Other	3.0
Type of Equipment	7 automated packers 1 packer
Size of Crews (most commonly used)	1 & 3 person
Weekly Routes	33
Average Distance to Disposal Site	6 miles
Average Daily Trips to Disposal Site	2
Percentage of Service Contracted	0%
Collection Frequency	1 x week
General Collection Location	Curbside
Residential Customers (number represents collection points)	30,169
Tons Collected	22,446.0
Monthly Service Fee	No

Full Cost Profile

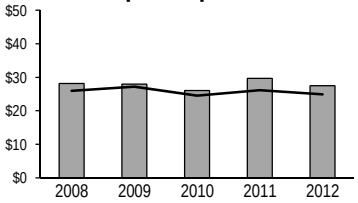
Cost Breakdown by Percentage	
Personal Services	37.3%
Operating Costs	48.7%
Capital Costs	13.9%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$879,159
Operating Costs	$1,146,814
Capital Costs	$328,301
TOTAL	$2,354,274

Asheville Residential Refuse Collection

Key: Asheville ■ Benchmarking Average — Fiscal Years 2008 through 2012

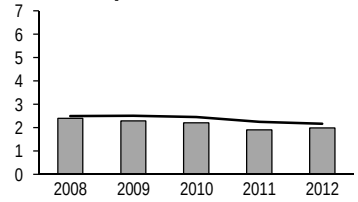
Resource Measures

Residential Refuse Collection Costs per Capita



	2008	2009	2010	2011	2012
Asheville	$28.13	$27.93	$26.08	$29.67	$27.49
Average	$25.94	$27.21	$24.50	$26.19	$24.86

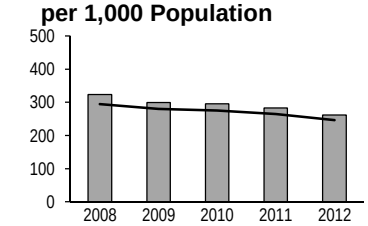
Residential Refuse FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Asheville	2.4	2.28	2.20	1.91	1.98
Average	2.49	2.51	2.45	2.25	2.16

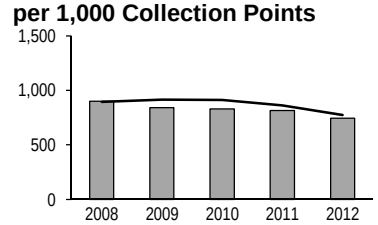
Workload Measures

Residential Refuse Tons per 1,000 Population



	2008	2009	2010	2011	2012
Asheville	323.54	299	296	283	262
Average	294	280	275	265	246

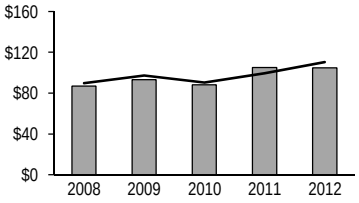
Residential Refuse Tons per 1,000 Collection Points



	2008	2009	2010	2011	2012
Asheville	899	842	831	814	744
Average	893	915	911	862	773

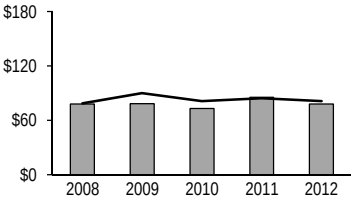
Efficiency Measures

Residential Refuse Collection Cost per Ton Collected



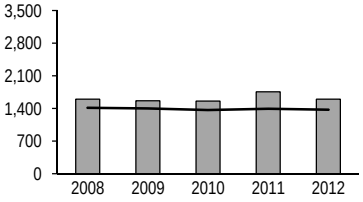
	2008	2009	2010	2011	2012
Asheville	$87	$93	$88	$105	$105
Average	$90	$97	$90	$99	$111

Residential Refuse Collection Cost per Collection Point



	2008	2009	2010	2011	2012
Asheville	$78	$79	$73	$85	$78
Average	$79	$90	$81	$84	$81

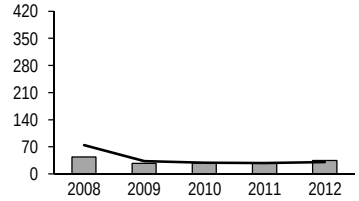
Refuse Tons Collected per Municipal Collection FTE



	2008	2009	2010	2011	2012
Asheville	1,601	1,566	1,562	1,758	1,603
Average	1,414	1,403	1,368	1,392	1,372

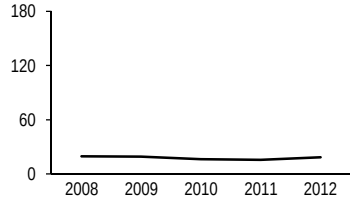
Effectiveness Measures

Complaints per 1,000 Collection Points



	2008	2009	2010	2011	2012
Asheville	43.5	27.3	28.2	29.2	34.4
Average	74.1	33.1	28.6	28.4	30.3

Valid Complaints per 1,000 Collection Points



	2008	2009	2010	2011	2012
Asheville					
Average	19.4	19.0	16.2	15.5	18.3

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Burlington collects residential refuse once a week at curbside, although backyard collection is provided if it is medically necessary.

The city uses four automated trucks, each with one driver, four days a week. One rear packer with a two-person crew works downtown five days per week. The average number of trips to the transfer station is two per day per route. The average distance to the landfill is seventeen miles.

The city collected 15,002 tons of residential refuse during FY 2012–13, at a cost of $82 per ton. The cost per ton does not include the disposal cost per ton of $38 at the landfill.

Residents receiving automated service are provided with one container. Residents pay a monthly fee of $6.00 for refuse collection.

Conditions Affecting Service, Performance, and Costs
Complaints for Burlington include calls for service, inquiries, and regular complaints. Complaints are considered valid if verified by a supervisor in the field.

Municipal Profile

Population (OSBM 2011)	51,263
Land Area (Square Miles)	25.21
Persons per Square Mile	2,034
Median Family Income U.S. Census 2010	$46,461

Service Profile

FTE Positions—Collection	9.0
FTE Positions—Other	1.0
Type of Equipment	4 automated packers 2 packers
Size of Crews (most commonly used)	1 & 3 person
Weekly Routes	21
Average Distance to Disposal Site	17 miles
Average Daily Trips to Disposal Site	2
Percentage of Service Contracted	0%
Collection Frequency	1 x week
General Collection Location	Curbside
Residential Customers (number represents collection points)	16,633
Tons Collected	15,002.0
Monthly Service Fee	$6.00

Full Cost Profile

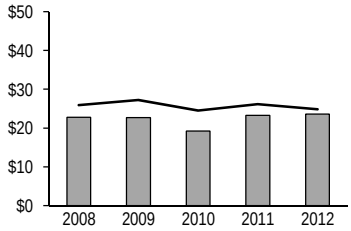
Cost Breakdown by Percentage	
Personal Services	29.0%
Operating Costs	48.7%
Capital Costs	22.3%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$350,589
Operating Costs	$588,836
Capital Costs	$270,291
TOTAL	$1,209,716

Burlington Residential Refuse Collection

Key: Burlington ■ Benchmarking Average — Fiscal Years 2008 through 2012

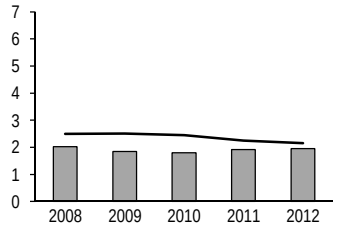
Resource Measures

Residential Refuse Collection Costs per Capita



	2008	2009	2010	2011	2012
Burlington	$22.75	$22.74	$19.28	$23.27	$23.60
Average	$25.94	$27.21	$24.50	$26.19	$24.86

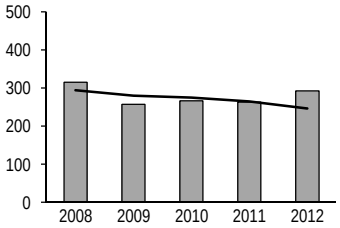
Residential Refuse FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Burlington	2.02	1.85	1.80	1.91	1.95
Average	2.49	2.51	2.45	2.25	2.16

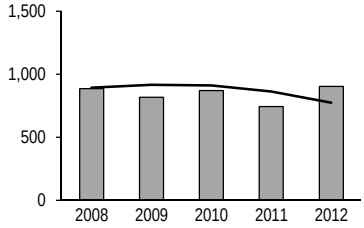
Workload Measures

Residential Refuse Tons per 1,000 Population



	2008	2009	2010	2011	2012
Burlington	315	258	267	263	293
Average	294	280	275	265	246

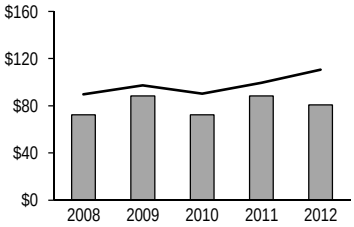
Residential Refuse Tons per 1,000 Collection Points



	2008	2009	2010	2011	2012
Burlington	886	816	869	744	902
Average	893	915	911	862	773

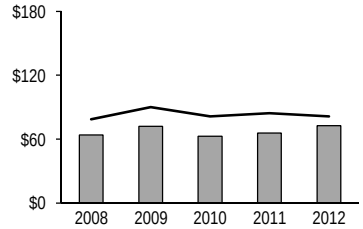
Efficiency Measures

Residential Refuse Collection Cost per Ton Collected



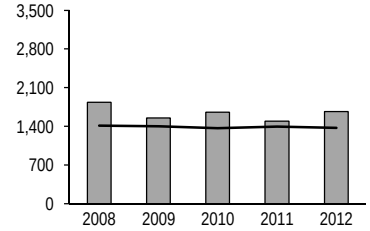
	2008	2009	2010	2011	2012
Burlington	$72	$88	$72	$88	$81
Average	$90	$97	$90	$99	$111

Residential Refuse Collection Cost per Collection Point



	2008	2009	2010	2011	2012
Burlington	$64	$72	$63	$66	$73
Average	$79	$90	$81	$84	$81

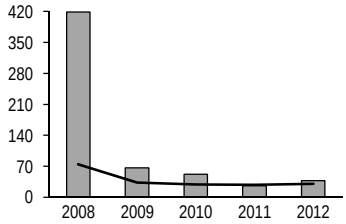
Refuse Tons Collected per Municipal Collection FTE



	2008	2009	2010	2011	2012
Burlington	1,834	1,552	1,658	1,493	1,667
Average	1,414	1,403	1,368	1,392	1,372

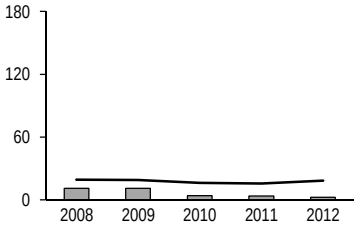
Effectiveness Measures

Complaints per 1,000 Collection Points



	2008	2009	2010	2011	2012
Burlington	418.6	66.3	52.2	26.2	37.3
Average	74.1	33.1	28.6	28.4	30.3

Valid Complaints per 1,000 Collection Points



	2008	2009	2010	2011	2012
Burlington	11.1	10.8	4.1	3.6	2.4
Average	19.4	19.0	16.2	15.5	18.3

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

Cary residential refuse collection began making major changes during FY 2005–06, moving from backyard collection to curbside and transitioning to automation by the start of FY 2006–07. The town charges a fee of $14.00 per month, covering both solid waste and recycling services.

Cary used ten automated trucks, each with one driver, and two rear loaders, each with one driver and three collectors. A total of forty-eight collection routes were used during FY 2010–11. The average distance to the landfill was twenty miles, with each route averaging one trip per day.

The town collected 28,580 tons of residential refuse during FY 2011–12, at a cost of $159 per ton. The cost per ton does not include the disposal cost of $32, representing the transfer station cost and the county landfill tipping fee. Residents use one ninety-five-gallon receptacle.

Conditions Affecting Service, Performance, and Costs

Municipal Profile

Population (OSBM 2011)	139,172
Land Area (Square Miles)	54.56
Persons per Square Mile	2,551
Median Family Income U.S. Census 2010	$108,956

Service Profile

FTE Positions—Collection	25.0
FTE Positions—Other	1.7
Type of Equipment	10 automated packers 2 packers
Size of Crews (most commonly used)	1 & 4 person
Weekly Routes	48
Average Distance to Disposal Site	20 miles
Average Daily Trips to Disposal Site	1
Percentage of Service Contracted	0%
Collection Frequency	1 x week
General Collection Location	Curbside
Residential Customers (number represents collection points)	44,493
Tons Collected	28,580.0
Monthly Service Fee	$14.00

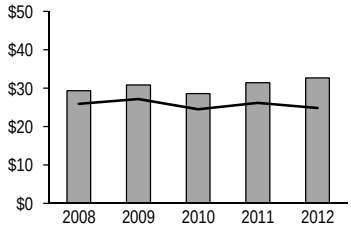
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	46.4%
Operating Costs	37.4%
Capital Costs	16.2%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$2,111,073
Operating Costs	$1,699,559
Capital Costs	$739,009
TOTAL	$4,549,641

Key: Cary ■ Benchmarking Average — Fiscal Years 2008 through 2012

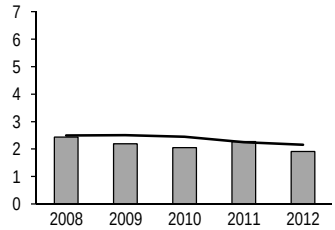
Resource Measures

Residential Refuse Collection Costs per Capita



	2008	2009	2010	2011	2012
Cary	$29.39	$30.88	$28.61	$31.46	$32.69
Average	$25.94	$27.21	$24.50	$26.19	$24.86

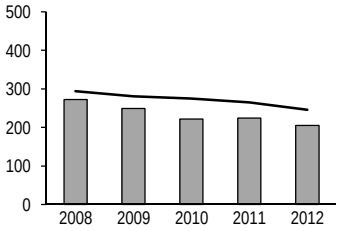
Residential Refuse FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Cary	2.43	2.19	2.05	2.28	1.92
Average	2.49	2.51	2.45	2.25	2.16

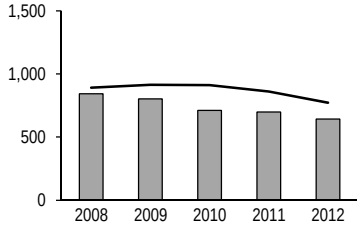
Workload Measures

Residential Refuse Tons per 1,000 Population



	2008	2009	2010	2011	2012
Cary	272	249	222	224	205
Average	294	280	275	265	246

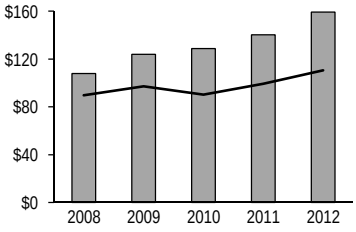
Residential Refuse Tons per 1,000 Collection Points



	2008	2009	2010	2011	2012
Cary	844	803	711	700	642
Average	893	915	911	862	773

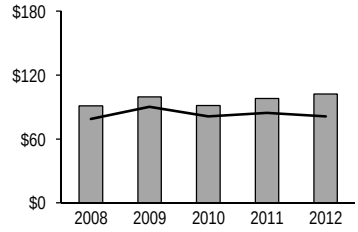
Efficiency Measures

Residential Refuse Collection Cost per Ton Collected



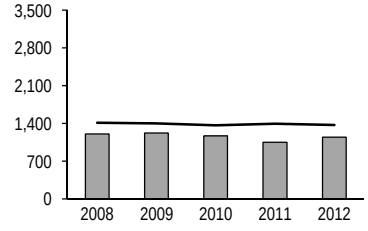
	2008	2009	2010	2011	2012
Cary	$108	$124	$129	$140	$159
Average	$90	$97	$90	$99	$111

Residential Refuse Collection Cost per Collection Point



	2008	2009	2010	2011	2012
Cary	$91	$100	$92	$98	$102
Average	$79	$90	$81	$84	$81

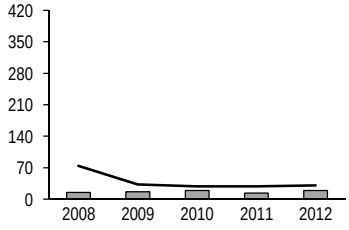
Refuse Tons Collected per Municipal Collection FTE



	2008	2009	2010	2011	2012
Cary	1,203	1,223	1,168	1,054	1,143
Average	1,414	1,403	1,368	1,392	1,372

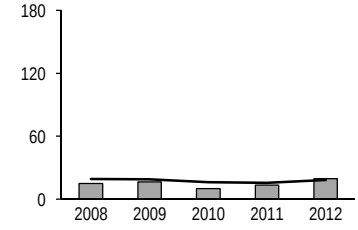
Effectiveness Measures

Complaints per 1,000 Collection Points



	2008	2009	2010	2011	2012
Cary	15.0	16.3	19.3	13.4	19.6
Average	74.1	33.1	28.6	28.4	30.3

Valid Complaints per 1,000 Collection Points



	2008	2009	2010	2011	2012
Cary	15.0	16.3	10.0	13.4	19.6
Average	19.4	19.0	16.2	15.5	18.3

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Charlotte collects residential refuse once a week at curbside. Backyard service is available only to those persons with valid medical reasons and physician certification. The city did not charge a fee for residential refuse collection.

The city's residential refuse collection program was reorganized from its previous system of managed competition, which had some contracted collection and some city collection. Starting in FY 2010–11, all of Charlotte's residential refuse is collected by city workers. The city's collection routes were changed so that in FY 2010–11 approximately 80 percent of the collection points had service day changes at the start of the year.

City crews are composed primarily of one driver each, operating an automated packer. There were fifty-seven of these crews for FY 2011–12. In addition, three crews, each composed of one driver and one laborer, collected refuse using semi-automated packers. These crews are used primarily for backyard service for those citizens with disabilities and some multi-family complexes with less than thirty units. Small business garbage is collected by four crews, each composed of one driver and one laborer, using rear loaders. Costs include reserve crews that were used as needed throughout the year.

The city serviced 320 daily collection routes once each week during FY 2011–12, with an average of 1.5 trips to the landfill per day per route at an average one-way distance of thirteen miles. Each single-family residence is provided one ninety-six-gallon rollout container. An additional receptacle may be purchased for a nominal one-time fee. Charlotte collected 173,203 tons of residential refuse during the fiscal year, at a cost of $81 per ton. The cost per ton does not include the disposal cost of $27.50, representing the landfill tipping fee.

Conditions Affecting Service, Performance, and Costs
Charlotte is highly automated in the area of residential refuse collection. It considers all complaints to be valid complaints.

Municipal Profile

Population (OSBM 2011)	751,999
Land Area (Square Miles)	301.48
Persons per Square Mile	2,494
Median Family Income U.S. Census 2010	$61,405

Service Profile

FTE Positions—Collection	80.0
FTE Positions—Other	4.5
Type of Equipment	57 automated packers 7 packers
Size of Crews (most commonly used)	1 & 2 person
Weekly Routes	320
Average Distance to Disposal Site	13 miles
Average Daily Trips to Disposal Site	1.5
Percentage of Service Contracted	0%
Collection Frequency	1 x week
General Collection Location	Curbside
Residential Customers (number represents collection points)	212,973
Tons Collected	173,203.0
Monthly Service Fee	No

Full Cost Profile

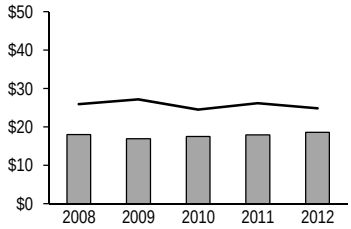
Cost Breakdown by Percentage	
Personal Services	32.6%
Operating Costs	51.1%
Capital Costs	16.3%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$4,557,048
Operating Costs	$7,150,464
Capital Costs	$2,277,599
TOTAL	$13,985,111

Charlotte Residential Refuse Collection

Key: Charlotte ■ Benchmarking Average — Fiscal Years 2008 through 2012

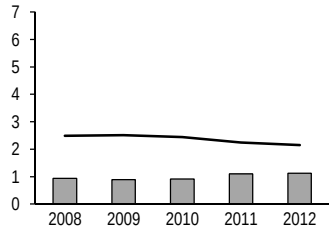
Resource Measures

Residential Refuse Collection Costs per Capita



	2008	2009	2010	2011	2012
Charlotte	$17.98	$16.89	$17.53	$17.96	$18.60
Average	$25.94	$27.21	$24.50	$26.19	$24.86

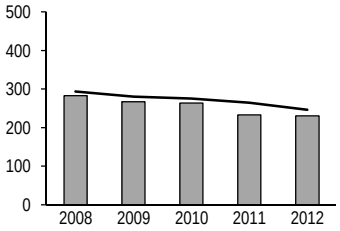
Residential Refuse FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Charlotte	0.94	0.89	0.91	1.10	1.12
Average	2.49	2.51	2.45	2.25	2.16

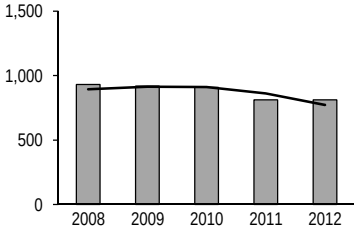
Workload Measures

Residential Refuse Tons per 1,000 Population



	2008	2009	2010	2011	2012
Charlotte	283	267	264	233	230
Average	294	280	275	265	246

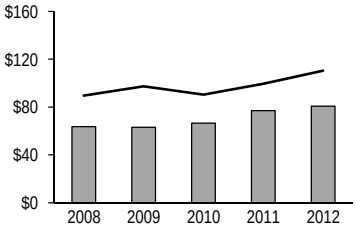
Residential Refuse Tons per 1,000 Collection Points



	2008	2009	2010	2011	2012
Charlotte	933	919	910	813	813
Average	893	915	911	862	773

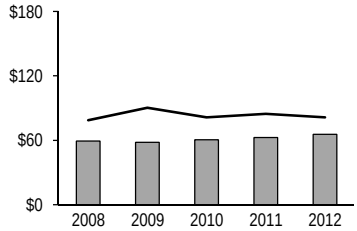
Efficiency Measures

Residential Refuse Collection Cost per Ton Collected



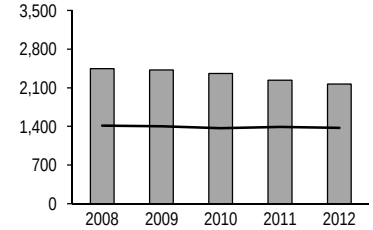
	2008	2009	2010	2011	2012
Charlotte	$64	$63	$66	$77	$81
Average	$90	$97	$90	$99	$111

Residential Refuse Collection Cost per Collection Point



	2008	2009	2010	2011	2012
Charlotte	$59	$58	$60	$63	$66
Average	$79	$90	$81	$84	$81

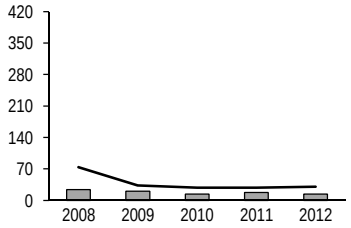
Refuse Tons Collected per Municipal Collection FTE



	2008	2009	2010	2011	2012
Charlotte	2,442	2,423	2,359	2,235	2,165
Average	1,414	1,403	1,368	1,392	1,372

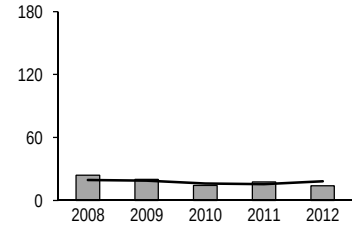
Effectiveness Measures

Complaints per 1,000 Collection Points



	2008	2009	2010	2011	2012
Charlotte	24.0	20.1	14.3	17.7	13.9
Average	74.1	33.1	28.6	28.4	30.3

Valid Complaints per 1,000 Collection Points



	2008	2009	2010	2011	2012
Charlotte	24.0	20.1	14.3	17.7	13.9
Average	19.4	19.0	16.2	15.5	18.3

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Residential refuse collection service is provided once a week at curbside to Concord residents. Backyard service is available for the elderly and disabled. The city has provided residential refuse collection service under contract for many years, but it changed the contractor used in FY 2010–11. The cost of the contract for the year was approximately $1.64 million.

The contractor primarily used five automated packers, each with one person. Residents used one ninety-five-gallon cart, with extra carts available for larger families or unusual circumstances.

The city serviced twenty-five collection routes each week during FY 2011–12, with an average distance per residential refuse collection route per day to the landfill of eight miles. The packers made an average of one trip to the landfill per day per route.

The contractor collected 23,221 tons of residential refuse during the fiscal year, at a cost of $87 per ton.

Conditions Affecting Service, Performance, and Costs
During Fiscal Year 2011–2012, Concord switched contractors. This change in Concord's refuse collection process produced serveral challenges during the startup and transistion periods. Complaints were up in the first three months due to errors by the contractor and because of customer actions. Valid complaints in the startup period were also notably up, as the contractor was not able to close complaints with proper notation. These problems were largely fixed after the intial three months.

Concord is one of only two jurisdiction participating in the benchmarking project that contracts 100 percent of its residential refuse collection service. Therefore, "tons collected per collection FTE" is not used for Concord as a performance measure, as this reflects only municipal workers.

Concord's "total tons collected" includes bulk trash, which is collected along with residential refuse and cannot be separated for reporting purposes.

Concord defines valid complaints to mean any missed collection or request for service as determined by the city to result from contractor negligence or omission.

Municipal Profile

Population (OSBM 2011)	80,386
Land Area (Square Miles)	60.28
Persons per Square Mile	1,333
Median Family Income U.S. Census 2010	$63,643

Service Profile

FTE Positions—Collection	Contractor
FTE Positions—Other	1.6
Type of Equipment	5 automated packers
Size of Crews (most commonly used)	1 & 2 person
Weekly Routes	25
Average Distance to Disposal Site	8 miles
Average Daily Trips to Disposal Site	1
Percentage of Service Contracted	100%
Collection Frequency	1 x week
General Collection Location	Curbside
Residential Customers (number represents collection points)	28,131
Tons Collected	23,221.0
Monthly Service Fee	No

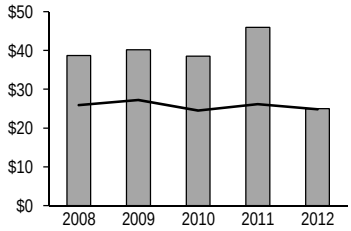
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	5.4%
Operating Costs	94.4%
Capital Costs	0.2%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$108,014
Operating Costs	$1,899,654
Capital Costs	$3,810
TOTAL	$2,011,478

Key: Concord ■ Benchmarking Average — Fiscal Years 2008 through 2012

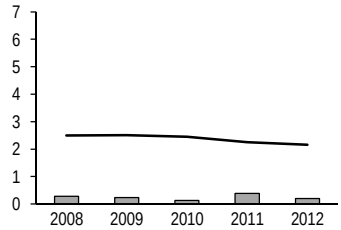
Resource Measures

Residential Refuse Collection Costs per Capita



	2008	2009	2010	2011	2012
Concord	$38.72	$40.17	$38.54	$45.96	$25.02
Average	$25.94	$27.21	$24.50	$26.19	$24.86

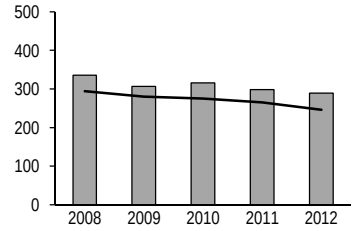
Residential Refuse FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Concord	0.28	0.23	0.13	0.38	0.20
Average	2.49	2.51	2.45	2.25	2.16

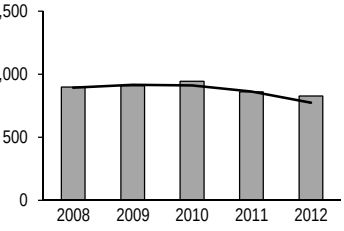
Workload Measures

Residential Refuse Tons per 1,000 Population



	2008	2009	2010	2011	2012
Concord	336	307	316	299	289
Average	294	280	275	265	246

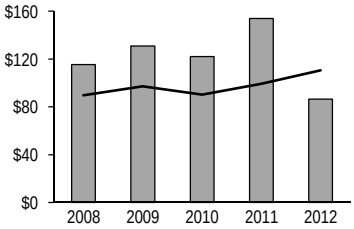
Residential Refuse Tons per 1,000 Collection Points



	2008	2009	2010	2011	2012
Concord	896	908	942	858	825
Average	893	915	911	862	773

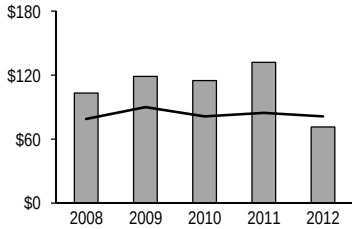
Efficiency Measures

Residential Refuse Collection Cost per Ton Collected



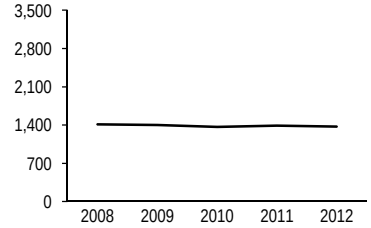
	2008	2009	2010	2011	2012
Concord	$115	$131	$122	$154	$87
Average	$90	$97	$90	$99	$111

Residential Refuse Collection Cost per Collection Point



	2008	2009	2010	2011	2012
Concord	$103	$119	$115	$132	$72
Average	$79	$90	$81	$84	$81

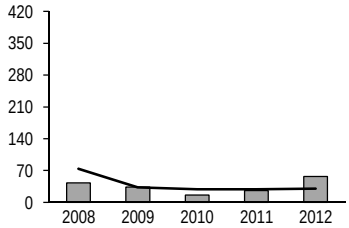
Refuse Tons Collected per Municipal Collection FTE



	2008	2009	2010	2011	2012
Concord					
Average	1,414	1,403	1,368	1,392	1,372

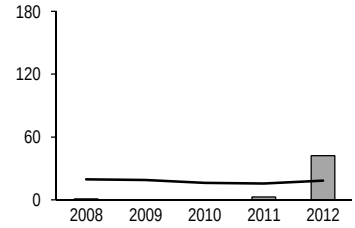
Effectiveness Measures

Complaints per 1,000 Collection Points



	2008	2009	2010	2011	2012
Concord	42.9	33.4	15.9	25.8	56.9
Average	74.1	33.1	28.6	28.4	30.3

Valid Complaints per 1,000 Collection Points



	2008	2009	2010	2011	2012
Concord	0.8			2.5	42.2
Average	19.4	19.0	16.2	15.5	18.3

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Greensboro provides once-a-week collection of residential refuse at curbside. Each resident is provided up to two ninety-gallon carts.

There were twenty-one city crews for FY 2011–12. Eighteen crews each have one driver operating an automated packer. Three crews use rear loaders.

The city used seventy-two collection routes during the fiscal year, with each packer making an average of 1.8 trips per day to a municipal solid waste transfer station and the travel distance averaging eight miles.

The city collected 55,865 tons of residential refuse during FY 2011–12, at a cost of $73 per ton.

Greensboro defines automated packers as one-armed automated-loading packers that are operated by one person. Rear loaders are rear-loading packer trucks.

Conditions Affecting Service, Performance, and Costs
Greensboro is highly automated in the area of residential refuse collection.

Prior to FY 2008–09, Greensboro's total tons collected included bulk trash, which was collected along with residential refuse and could not be separated for reporting purposes. However, these bulk collections have not been included in more recent years.

In FY 2008–09, Greensboro had a notable annexation that created some special one-time costs.

Municipal Profile

Population (OSBM 2011)	272,196
Land Area (Square Miles)	127.14
Persons per Square Mile	2,141
Median Family Income U.S. Census 2010	$52,752

Service Profile

FTE Positions—Collection	27.0
FTE Positions—Other	4.0
Type of Equipment	23 automated packers 3 packers
Size of Crews (most commonly used)	1 & 2 person
Weekly Routes	72
Average Distance to Disposal Site	8 miles
Average Daily Trips to Disposal Site	1.8
Percentage of Service Contracted	0%
Collection Frequency	1 x week
General Collection Location	Curbside
Residential Customers (number represents collection points)	80,640
Tons Collected	55,865.0
Monthly Service Fee	No

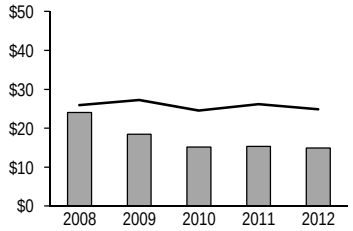
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	31.6%
Operating Costs	68.4%
Capital Costs	0.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,283,353
Operating Costs	$2,778,497
Capital Costs	$0
TOTAL	$4,061,850

Key: Greensboro ■ Benchmarking Average — Fiscal Years 2008 through 2012

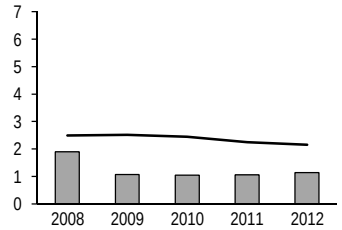
Resource Measures

Residential Refuse Collection Costs per Capita



	2008	2009	2010	2011	2012
Greensboro	$24.00	$18.47	$15.18	$15.32	$14.92
Average	$25.94	$27.21	$24.50	$26.19	$24.86

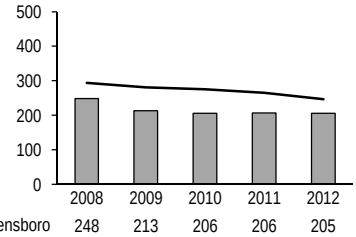
Residential Refuse FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Greensboro	1.90	1.07	1.05	1.06	1.14
Average	2.49	2.51	2.45	2.25	2.16

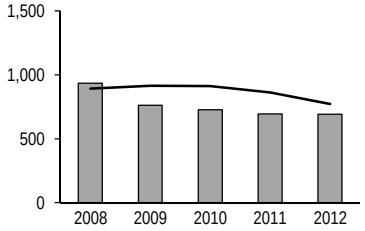
Workload Measures

Residential Refuse Tons per 1,000 Population



	2008	2009	2010	2011	2012
Greensboro	248	213	206	206	205
Average	294	280	275	265	246

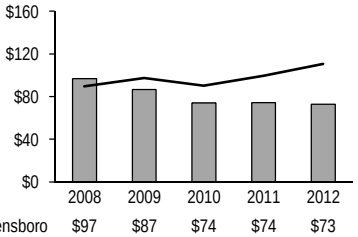
Residential Refuse Tons per 1,000 Collection Points



	2008	2009	2010	2011	2012
Greensboro	936	761	728	694	693
Average	893	915	911	862	773

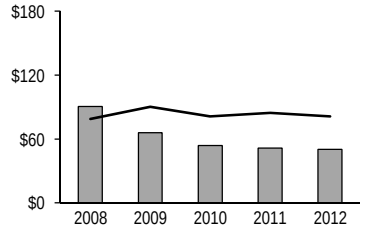
Efficiency Measures

Residential Refuse Collection Cost per Ton Collected



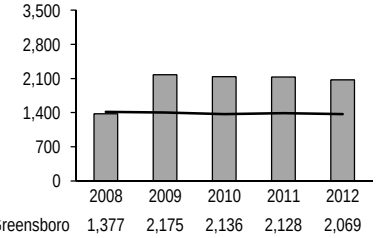
	2008	2009	2010	2011	2012
Greensboro	$97	$87	$74	$74	$73
Average	$90	$97	$90	$99	$111

Residential Refuse Collection Cost per Collection Point



	2008	2009	2010	2011	2012
Greensboro	$91	$66	$54	$52	$50
Average	$79	$90	$81	$84	$81

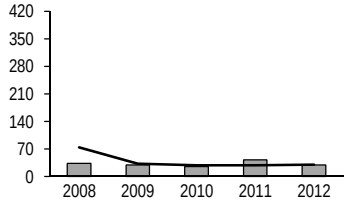
Refuse Tons Collected per Municipal Collection FTE



	2008	2009	2010	2011	2012
Greensboro	1,377	2,175	2,136	2,128	2,069
Average	1,414	1,403	1,368	1,392	1,372

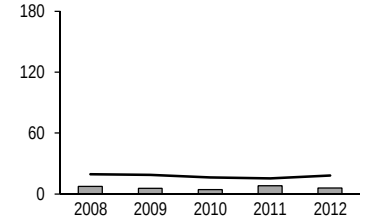
Effectiveness Measures

Complaints per 1,000 Collection Points



	2008	2009	2010	2011	2012
Greensboro	33.9	29.6	25.4	42.2	29.7
Average	74.1	33.1	28.6	28.4	30.3

Valid Complaints per 1,000 Collection Points



	2008	2009	2010	2011	2012
Greensboro	7.6	5.5	4.5	8.2	5.9
Average	19.4	19.0	16.2	15.5	18.3

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Greenville collects refuse from residential premises once a week at both curbside and backyard. Residents can choose which level of service to receive at different costs. Backyard collection is priced at $40.80 per month, while curbside is priced at $11.75 per month. Most residents have chosen curbside. White goods and electronic reclying curbside is included in the residential refuse fee.

The city uses eight crews, each composed of one driver and two collection workers who work four days a week. The crews use rear-loading collection trucks.

Thirty-two collection routes were employed during FY 2011–12, with an average of two trips to the transfer station per day per route. The average distance to the transfer station per route was five-and-a-half miles.

Greenville collected 9,663 tons of residential refuse during FY 2011–12. The cost per ton does not include the disposal cost of $28.50, representing the tipping fee at the transfer station.

Conditions Affecting Service, Performance, and Costs
Greenville joined the project with the first year of reporting for FY 2008–09.

The apparent drop in the data in the graphs which look at tons collected is due to reporting improvements. In earlier years, Greenville could not easily separate out refuse collected from multi-family units. Improvements in what the County landfill is able to track and report back to the city mean that the most recent year includes just single family units.

Greenville was the only municipality participating in this benchmarking project that continues to collect residential refuse from the backyard for many customers. This is a relatively labor-intensive process and represents a high level of service.

Municipal Profile

Population (OSBM 2011)	85,059
Land Area (Square Miles)	34.07
Persons per Square Mile	2,496
Median Family Income U.S. Census 2010	$50,395

Service Profile

FTE Positions—Collection	27.0
FTE Positions—Other	1.5
Type of Equipment	8 packers
Size of Crews (most commonly used)	3 person
Weekly Routes	32
Average Distance to Disposal Site	6 miles
Average Daily Trips to Disposal Site	2
Percentage of Service Contracted	0%
Collection Frequency	1 x week
General Collection Location	Curbside and backyard
Residential Customers (number represents collection points)	17,431
Tons Collected	9,663.0
Monthly Service Fee	$11.75 Curbside $40.80 Backyard

Full Cost Profile

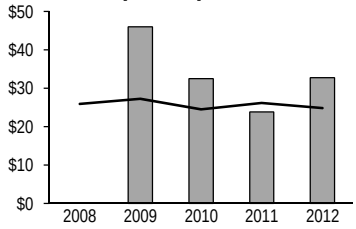
Cost Breakdown by Percentage	
Personal Services	53.2%
Operating Costs	22.4%
Capital Costs	24.3%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,483,276
Operating Costs	$625,615
Capital Costs	$678,116
TOTAL	$2,787,007

Greenville Residential Refuse Collection

Key: Greenville ■ Benchmarking Average — Fiscal Years 2008 through 2012

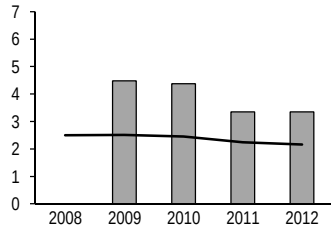
Resource Measures

Residential Refuse Collection Costs per Capita



	2008	2009	2010	2011	2012
Greenville		$46.03	$32.48	$23.86	$32.77
Average	$25.94	$27.21	$24.50	$26.19	$24.86

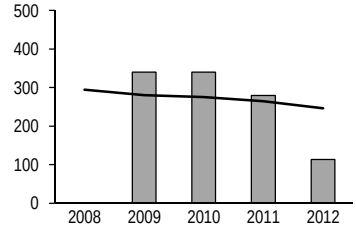
Residential Refuse FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Greenville		4.48	4.37	3.35	3.35
Average	2.49	2.51	2.45	2.25	2.16

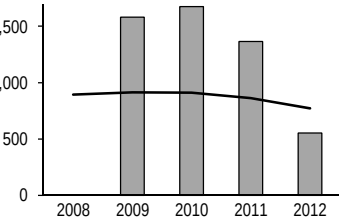
Workload Measures

Residential Refuse Tons per 1,000 Population



	2008	2009	2010	2011	2012
Greenville		340	340	279	114
Average	294	280	275	265	246

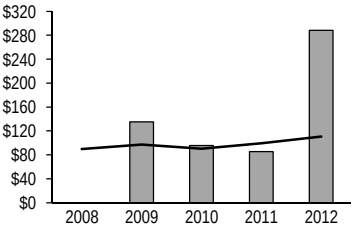
Residential Refuse Tons per 1,000 Collection Points



	2008	2009	2010	2011	2012
Greenville		1580	1673	1364	554
Average	893	915	911	862	773

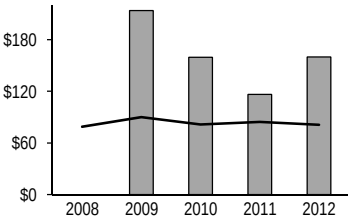
Efficiency Measures

Residential Refuse Collection Cost per Ton Collected



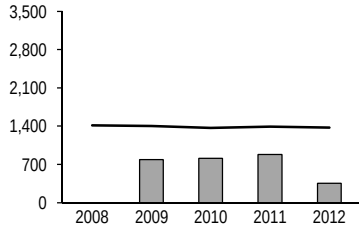
	2008	2009	2010	2011	2012
Greenville		$135	$95	$85	$288
Average	$90	$97	$90	$99	$111

Residential Refuse Collection Cost per Collection Point



	2008	2009	2010	2011	2012
Greenville		$214	$160	$117	$160
Average	$79	$90	$81	$84	$81

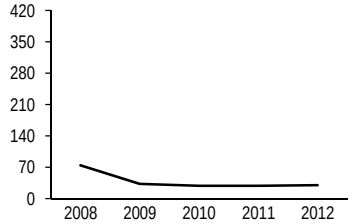
Refuse Tons Collected per Municipal Collection FTE



	2008	2009	2010	2011	2012
Greenville		791	810	881	358
Average	1,414	1,403	1,368	1,392	1,372

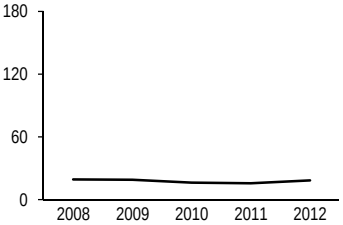
Effectiveness Measures

Complaints per 1,000 Collection Points



	2008	2009	2010	2011	2012
Greenville					
Average	74.1	33.1	28.6	28.4	30.3

Valid Complaints per 1,000 Collection Points



	2008	2009	2010	2011	2012
Greenville					
Average	19.4	19.0	16.2	15.5	18.3

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Hickory collects refuse from residential premises once a week at curbside, although backyard collection is provided for elderly and disabled citizens. A monthly solid waste fee of $13 per cart was charged for residential refuse collection service during FY 2011–12. Each residence uses a cart provided by the city for residential refuse collection. Each cart has a capacity of ninety-six gallons and is provided at no charge. Upon request, a second cart is provided to the customer for an additional solid waste fee.

The city used four one-person crews operating automated packers, with three of these trucks running full-time and one one-fourth of the time. A regular packer truck with one driver and one crew member works about half-time collecting on one-way streets and dead ends.

Fifteen collection routes were employed during FY 2011–12, with an average of two trips to the transfer station per day per route. The average distance to the transfer station per route was five miles.

Hickory collected 8,489 tons of residential refuse during FY 2011–12, at a cost of $72 per ton. The cost per ton does not include the disposal cost of $33, representing the tipping fee at the Catawba County landfill.

Hickory defines automated packers as trucks with mechanical arms.

Conditions Affecting Service, Performance, and Costs
Hickory is highly automated in the area of residential refuse collection.

Municipal Profile

Population (OSBM 2011)	40,086
Land Area (Square Miles)	29.72
Persons per Square Mile	1,349
Median Family Income U.S. Census 2010	$54,093

Service Profile

FTE Positions—Collection	3.8
FTE Positions—Other	0.5
Type of Equipment	4 automated packers 1 packer
Size of Crews (most commonly used)	1 & 2 person
Weekly Routes	15
Average Distance to Disposal Site	5 miles
Average Daily Trips to Disposal Site	2
Percentage of Service Contracted	0%
Collection Frequency	1 x week
General Collection Location	Curbside
Residential Customers (number represents collection points)	12,100
Tons Collected	8,489.0
Monthly Service Fee	$13.00 per cart

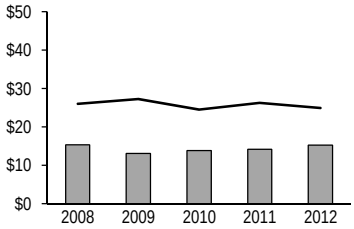
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	32.0%
Operating Costs	39.5%
Capital Costs	28.4%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$195,480
Operating Costs	$241,129
Capital Costs	$173,357
TOTAL	$609,966

Key: Hickory ■ Benchmarking Average — Fiscal Years 2008 through 2012

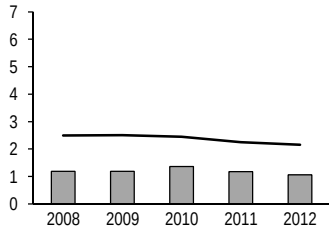
Resource Measures

Residential Refuse Collection Costs per Capita



	2008	2009	2010	2011	2012
Hickory	$15.33	$13.01	$13.82	$14.12	$15.22
Average	$25.94	$27.21	$24.50	$26.19	$24.86

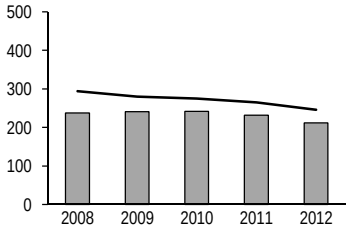
Residential Refuse FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Hickory	1.19	1.19	1.36	1.18	1.06
Average	2.49	2.51	2.45	2.25	2.16

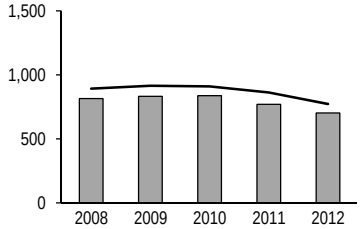
Workload Measures

Residential Refuse Tons per 1,000 Population



	2008	2009	2010	2011	2012
Hickory	238	241	242	232	212
Average	294	280	275	265	246

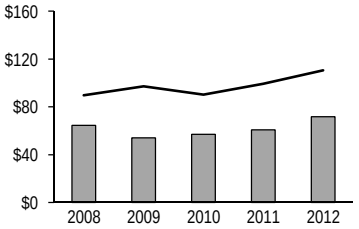
Residential Refuse Tons per 1,000 Collection Points



	2008	2009	2010	2011	2012
Hickory	816	833	839	769	702
Average	893	915	911	862	773

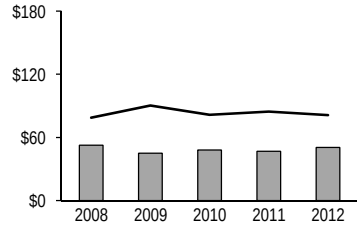
Efficiency Measures

Residential Refuse Collection Cost per Ton Collected



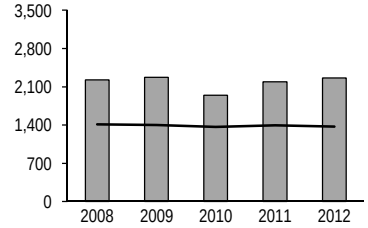
	2008	2009	2010	2011	2012
Hickory	$64	$54	$57	$61	$72
Average	$90	$97	$90	$99	$111

Residential Refuse Collection Cost per Collection Point



	2008	2009	2010	2011	2012
Hickory	$53	$45	$48	$47	$50
Average	$79	$90	$81	$84	$81

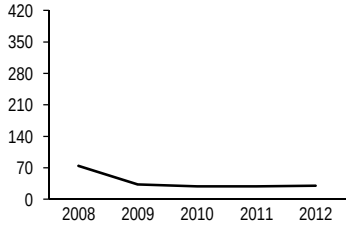
Refuse Tons Collected per Municipal Collection FTE



	2008	2009	2010	2011	2012
Hickory	2,226	2,273	1,946	2,190	2,264
Average	1,414	1,403	1,368	1,392	1,372

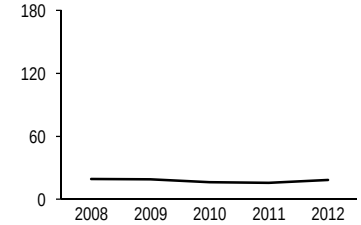
Effectiveness Measures

Complaints per 1,000 Collection Points



	2008	2009	2010	2011	2012
Hickory					
Average	74.1	33.1	28.6	28.4	30.3

Valid Complaints per 1,000 Collection Points



	2008	2009	2010	2011	2012
Hickory					
Average	19.4	19.0	16.2	15.5	18.3

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
High Point collects residential refuse once a week at curbside, although backyard collection is provided for residents with verified medical disabilities. High Point also has a contract for the collection of refuse from dumpsters at multi-family units, but these costs and tons are not included in this reporting.

The city primariliy collects residential refuse with nine automated trucks, each with one person. There are forty collection routes. The average number of trips to the landfill is two per day per route. The average distance to the landfill is eight miles.

The city collected 27,854 tons of residential refuse during FY 2011–12, at a cost of $70 per ton. The cost per ton does not include the disposal cost of $26, representing the landfill tipping fee.

Residents may use up to two roll-out carts constructed so that they can be emptied by the lifting devices mounted on city trucks. The cart size is ninety-six gallons.

Conditions Affecting Service, Performance, and Costs
High Point is now fully automated in its pickups, other than those involving special needs.

Municipal Profile

Population (OSBM 2011)	105,498
Land Area (Square Miles)	53.83
Persons per Square Mile	1,960
Median Family Income U.S. Census 2010	$49,720

Service Profile

FTE Positions—Collection	22.0
FTE Positions—Other	3.0
Type of Equipment	9 automated packers 1 special
Size of Crews (most commonly used)	1 & 3 person
Weekly Routes	40
Average Distance to Disposal Site	8 miles
Average Daily Trips to Disposal Site	2
Percentage of Service Contracted	0%
Collection Frequency	1 x week
General Collection Location	Curbside
Residential Customers (number represents collection points)	35,544
Tons Collected	27,854.0
Monthly Service Fee	No

Full Cost Profile

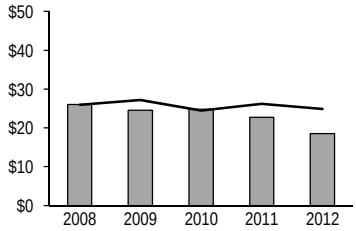
Cost Breakdown by Percentage	
Personal Services	42.1%
Operating Costs	38.3%
Capital Costs	19.6%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$821,145
Operating Costs	$748,107
Capital Costs	$381,794
TOTAL	$1,951,046

High Point — Residential Refuse Collection

Key: High Point ■ Benchmarking Average — Fiscal Years 2008 through 2012

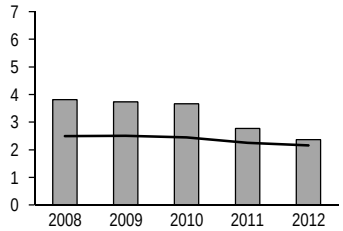
Resource Measures

Residential Refuse Collection Costs per Capita



	2008	2009	2010	2011	2012
High Point	$26.04	$24.55	$24.80	$22.73	$18.49
Average	$25.94	$27.21	$24.50	$26.19	$24.86

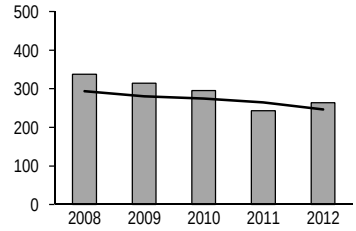
Residential Refuse FTEs per 10,000 Population



	2008	2009	2010	2011	2012
High Point	3.82	3.73	3.67	2.77	2.37
Average	2.49	2.51	2.45	2.25	2.16

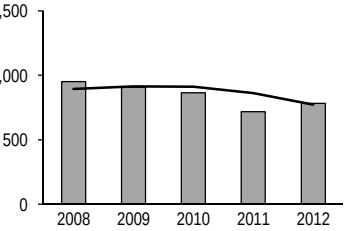
Workload Measures

Residential Refuse Tons per 1,000 Population



	2008	2009	2010	2011	2012
High Point	338	314	295	243	264
Average	294	280	275	265	246

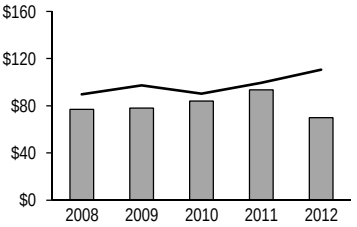
Residential Refuse Tons per 1,000 Collection Points



	2008	2009	2010	2011	2012
High Point	952	907	866	717	784
Average	893	915	911	862	773

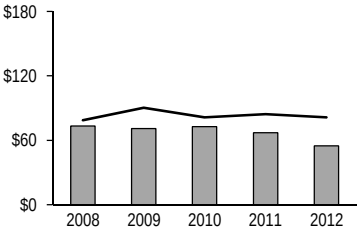
Efficiency Measures

Residential Refuse Collection Cost per Ton Collected



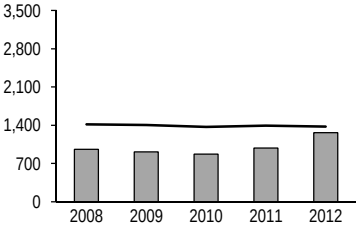
	2008	2009	2010	2011	2012
High Point	$77	$78	$84	$93	$70
Average	$90	$97	$90	$99	$111

Residential Refuse Collection Cost per Collection Point



	2008	2009	2010	2011	2012
High Point	$73	$71	$73	$67	$55
Average	$79	$90	$81	$84	$81

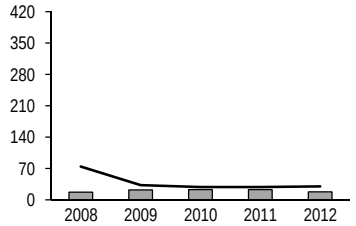
Refuse Tons Collected per Municipal Collection FTE



	2008	2009	2010	2011	2012
High Point	961	915	874	980	1,266
Average	1,414	1,403	1,368	1,392	1,372

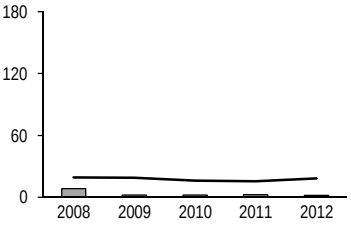
Effectiveness Measures

Complaints per 1,000 Collection Points



	2008	2009	2010	2011	2012
High Point	17.5	22.3	23.1	22.7	18.1
Average	74.1	33.1	28.6	28.4	30.3

Valid Complaints per 1,000 Collection Points



	2008	2009	2010	2011	2012
High Point	8.3	2.1	2.3	2.4	1.8
Average	19.4	19.0	16.2	15.5	18.3

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Salisbury provides residential refuse collection service once per week at curbside. Backyard collection service is provided for disabled customers only. The city charges a monthly fee of $4.09 for residential collection.

The city employed six crews during FY 2011–12, three with two persons each and the other three with a single person each. Fifteen collection routes were used, with an average of one ten-mile trip per route per day to the transfer station.

Each resident has one ninety-five-gallon roll-out cart provided and paid for by the city. A second cart may be obtained. The city collected 9,355 tons of residential refuse during FY 2011–12, at a cost per ton of $91. Not included in the cost per ton was a $32 landfill tipping fee.

Salisbury defines its semi-automated packers as low-entry compactors that can be driven from either side of the truck, with the refuse being dumped in the rear of the truck from roll-out carts.

Conditions Affecting Service, Performance, and Costs
Salisbury's total tons collected includes bulk trash, which is collected along with residential refuse and cannot be separated for reporting purposes.

Municipal Profile

Population (OSBM 2011)	33,704
Land Area (Square Miles)	22.18
Persons per Square Mile	1,519
Median Family Income U.S. Census 2010	$40,192

Service Profile

FTE Positions—Collection	10.0
FTE Positions—Other	1.0
Type of Equipment	6 packers
Size of Crews (most commonly used)	1 & 2 person
Weekly Routes	15
Average Distance to Disposal Site	10 miles
Average Daily Trips to Disposal Site	1
Percentage of Service Contracted	0%
Collection Frequency	1 x week
General Collection Location	Curbside
Residential Customers (number represents collection points)	11,956
Tons Collected	9,355.0
Monthly Service Fee	$4.09

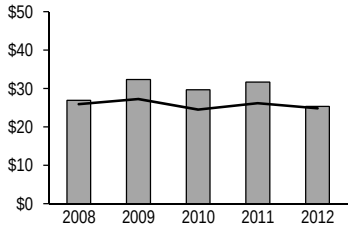
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	46.2%
Operating Costs	34.7%
Capital Costs	19.1%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$394,313
Operating Costs	$296,677
Capital Costs	$162,921
TOTAL	$853,911

Key: Salisbury ■ Benchmarking Average — Fiscal Years 2008 through 2012

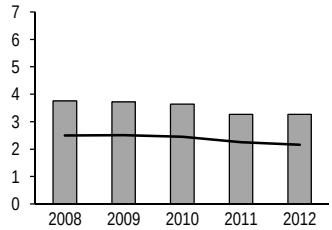
Resource Measures

Residential Refuse Collection Costs per Capita



	2008	2009	2010	2011	2012
Salisbury	$26.87	$32.35	$29.66	$31.69	$25.34
Average	$25.94	$27.21	$24.50	$26.19	$24.86

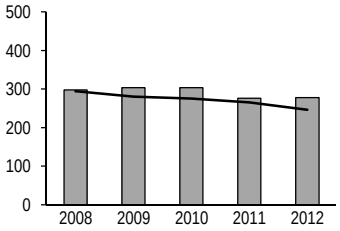
Residential Refuse FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Salisbury	3.76	3.72	3.64	3.26	3.26
Average	2.49	2.51	2.45	2.25	2.16

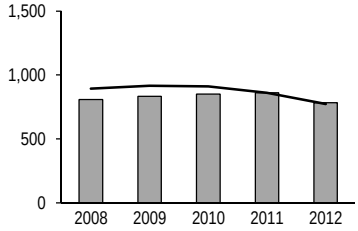
Workload Measures

Residential Refuse Tons per 1,000 Population



	2008	2009	2010	2011	2012
Salisbury	298	304	304	276	278
Average	294	280	275	265	246

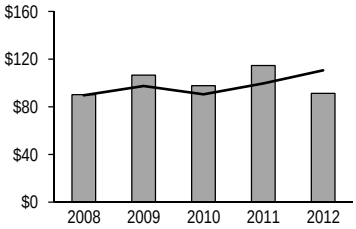
Residential Refuse Tons per 1,000 Collection Points



	2008	2009	2010	2011	2012
Salisbury	808	833	850	862	782
Average	893	915	911	862	773

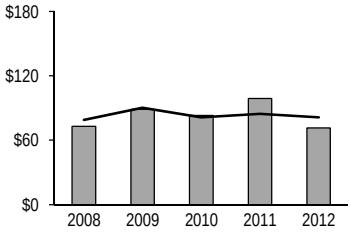
Efficiency Measures

Residential Refuse Collection Cost per Ton Collected



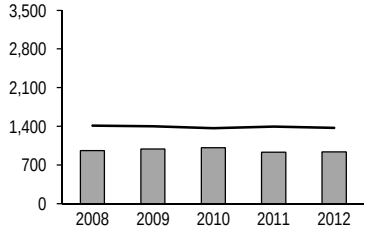
	2008	2009	2010	2011	2012
Salisbury	$90	$107	$98	$115	$91
Average	$90	$97	$90	$99	$111

Residential Refuse Collection Cost per Collection Point



	2008	2009	2010	2011	2012
Salisbury	$73	$89	$83	$99	$71
Average	$79	$90	$81	$84	$81

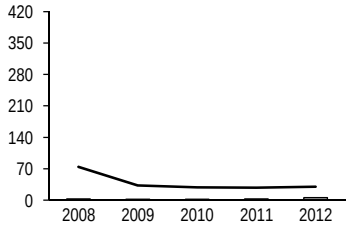
Refuse Tons Collected per Municipal Collection FTE



	2008	2009	2010	2011	2012
Salisbury	958	987	1,011	932	935
Average	1,414	1,403	1,368	1,392	1,372

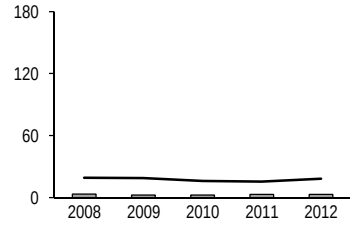
Effectiveness Measures

Complaints per 1,000 Collection Points



	2008	2009	2010	2011	2012
Salisbury	3.5	2.6	2.7	3.2	6.3
Average	74.1	33.1	28.6	28.4	30.3

Valid Complaints per 1,000 Collection Points



	2008	2009	2010	2011	2012
Salisbury	3.4	2.6	2.7	3.2	3.3
Average	19.4	19.0	16.2	15.5	18.3

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Wilmington provides basic refuse collection service for residences once a week at curbside. Customers may elect twice-a-week collection for a premium charge. Wilmington provides all collection containers and carts to its customers. Customers may use either a ninety-gallon or forty-gallon cart.

A volume-based fee system is used to finance residential refuse collection. This is designed to encourage residents to reduce the amount of refuse they generate. The city charged a monthly fee of $24.80 for ninety-gallon carts and $20.15 for forty-gallon carts during FY 2011–12.

During FY 2011–12, Wilmington used nine crews of one driver and two collectors each and four crews with one driver and one collector each. All crews use semi-automated packer trucks.

Thirty-six collection routes were used during FY 2011–12, with an average of two trips per route per day to the landfill. The average distance to the landfill was nine-and-one-half miles. The city collected 3,808 tons of residential refuse during FY 2011–12, at a cost of $125 per ton. The cost per ton does not include the disposal cost of $59.00 for the landfill tipping fee.

Wilmington defines semi-automated packers as packer trucks that have tippers on them to lift the carts.

Conditions Affecting Service, Performance, and Costs
Wilmington defines a valid complaint as any complaint registered if there is no evidence to dispute it.

Municipal Profile

Population (OSBM 2011)	108,337
Land Area (Square Miles)	51.49
Persons per Square Mile	2,104
Median Family Income U.S. Census 2010	$57,892

Service Profile

FTE Positions—Collection	32.0
FTE Positions—Other	1.0
Type of Equipment	15 packers
Size of Crews (most commonly used)	2 & 3 person
Weekly Routes	36
Average Distance to Disposal Site	10 miles
Average Daily Trips to Disposal Site	2
Percentage of Service Contracted	0%
Collection Frequency	1 x week
General Collection Location	Curbside
Residential Customers (number represents collection points)	31,247
Tons Collected	23,808.0
Monthly Service Fee	$24.80 for Maxi $20.15 for Mini

Full Cost Profile

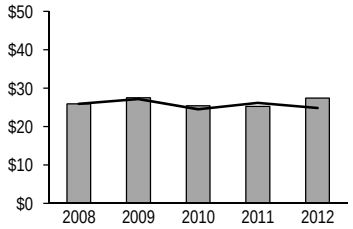
Cost Breakdown by Percentage	
Personal Services	50.7%
Operating Costs	38.6%
Capital Costs	10.7%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,504,859
Operating Costs	$1,145,789
Capital Costs	$319,081
TOTAL	$2,969,729

Wilmington — Residential Refuse Collection

Key: Wilmington ■ Benchmarking Average — Fiscal Years 2008 through 2012

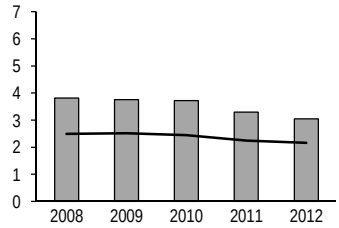
Resource Measures

Residential Refuse Collection Costs per Capita



	2008	2009	2010	2011	2012
Wilmington	$25.95	$27.55	$25.49	$25.29	$27.41
Average	$25.94	$27.21	$24.50	$26.19	$24.86

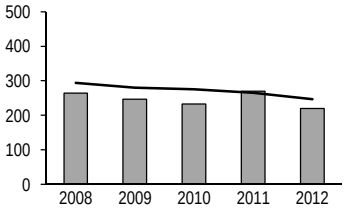
Residential Refuse FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Wilmington	3.82	3.75	3.72	3.30	3.05
Average	2.49	2.51	2.45	2.25	2.16

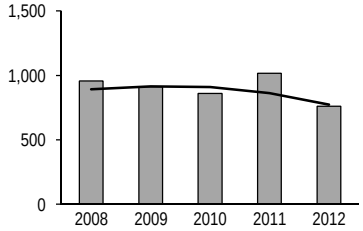
Workload Measures

Residential Refuse Tons per 1,000 Population



	2008	2009	2010	2011	2012
Wilmington	264	247	232	270	220
Average	294	280	275	265	246

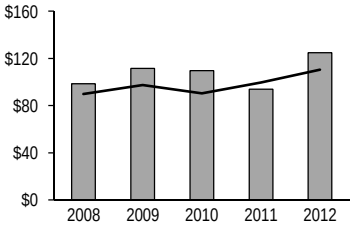
Residential Refuse Tons per 1,000 Collection Points



	2008	2009	2010	2011	2012
Wilmington	958	911	861	1016	762
Average	893	915	911	862	773

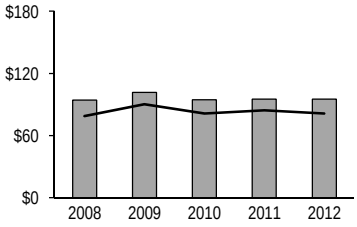
Efficiency Measures

Residential Refuse Collection Cost per Ton Collected



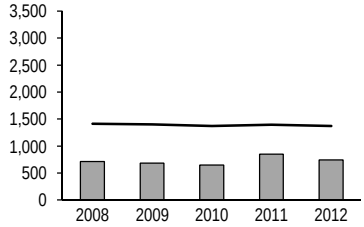
	2008	2009	2010	2011	2012
Wilmington	$98	$112	$110	$94	$125
Average	$90	$97	$90	$99	$111

Residential Refuse Collection Cost per Collection Point



	2008	2009	2010	2011	2012
Wilmington	$94	$102	$94	$95	$95
Average	$79	$90	$81	$84	$81

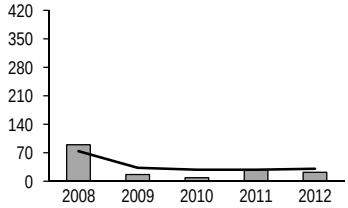
Refuse Tons Collected per Municipal Collection FTE



	2008	2009	2010	2011	2012
Wilmington	714	680	645	848	744
Average	1,414	1,403	1,368	1,392	1,372

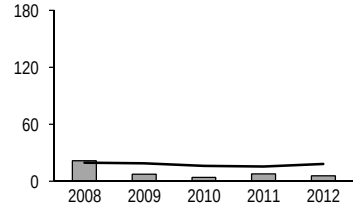
Effectiveness Measures

Complaints per 1,000 Collection Points



	2008	2009	2010	2011	2012
Wilmington	89.6	16.6	8.6	28.4	21.6
Average	74.1	33.1	28.6	28.4	30.3

Valid Complaints per 1,000 Collection Points



	2008	2009	2010	2011	2012
Wilmington	21.7	7.5	4.1	7.8	5.8
Average	19.4	19.0	16.2	15.5	18.3

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Residential refuse collection service is provided once a week at curbside to Wilson residents. Senior citizens and disabled persons may apply for and receive backyard pickup. There is currently a monthly $16.50 fee per household for residential refuse collection service.

During FY 2011–12, the city used five one-person crews working from automated packers. The city also used two three-person crews, each composed of one driver and two collectors working from semi-automated rear loaders. Residents are required to use ninety-six-gallon roll-out containers.

The city serviced seventeen collection routes each week during FY 2011–12. The packers made an average of two trips to the disposal facility per day per route, with the distance to the transfer station being ten miles.

Wilson collected 187,255 tons of residential refuse during the fiscal year, at a cost of $60 per ton. The cost per ton does not include the disposal cost of $39.04, representing the tipping fee at the transfer station.

Wilson defines automated packers as fully automated trucks requiring one driver. Packers are rear-loading, semi-automated trucks requiring one driver and two collectors.

Conditions Affecting Service, Performance, and Costs
The city of Wilson considers all complaints to be valid complaints.

Municipal Profile

Population (OSBM 2011)	49,122
Land Area (Square Miles)	28.78
Persons per Square Mile	1,707
Median Family Income U.S. Census 2010	$43,442

Service Profile

FTE Positions—Collection	11.0
FTE Positions—Other	1.0
Type of Equipment	5 automated packers 2 packers
Size of Crews (most commonly used)	1 & 3 person
Weekly Routes	17
Average Distance to Disposal Site	10 miles
Average Daily Trips to Disposal Site	2
Percentage of Service Contracted	0%
Collection Frequency	1 x week
General Collection Location	Curbside
Residential Customers (number represents collection points)	17,950
Tons Collected	18,725.0
Monthly Service Fee	$16.50

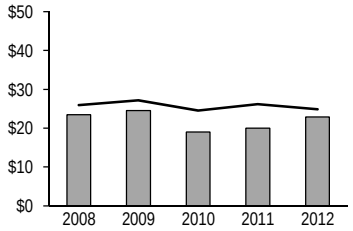
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	44.8%
Operating Costs	34.4%
Capital Costs	20.8%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$504,231
Operating Costs	$387,659
Capital Costs	$233,998
TOTAL	$1,125,888

Key: Wilson ■ Benchmarking Average — Fiscal Years 2008 through 2012

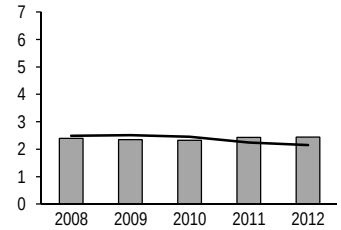
Resource Measures

Residential Refuse Collection Costs per Capita



	2008	2009	2010	2011	2012
Wilson	$23.44	$24.51	$19.01	$20.00	$22.92
Average	$25.94	$27.21	$24.50	$26.19	$24.86

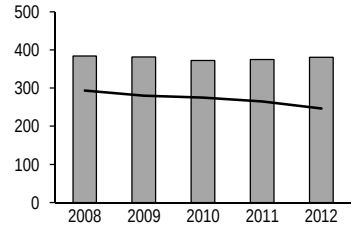
Residential Refuse FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Wilson	2.39	2.35	2.32	2.43	2.44
Average	2.49	2.51	2.45	2.25	2.16

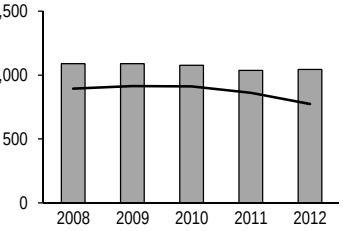
Workload Measures

Residential Refuse Tons per 1,000 Population



	2008	2009	2010	2011	2012
Wilson	385	382	372	375	381
Average	294	280	275	265	246

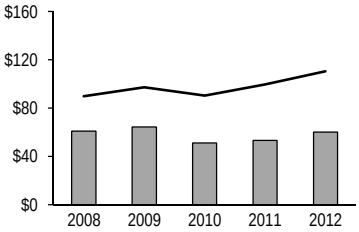
Residential Refuse Tons per 1,000 Collection Points



	2008	2009	2010	2011	2012
Wilson	1091	1089	1076	1036	1043
Average	893	915	911	862	773

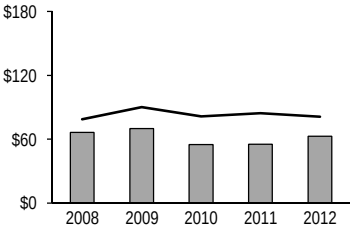
Efficiency Measures

Residential Refuse Collection Cost per Ton Collected



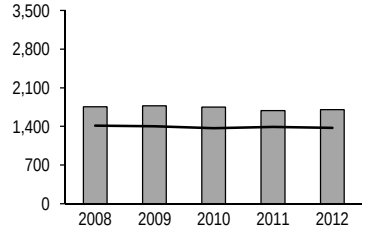
	2008	2009	2010	2011	2012
Wilson	$61	$64	$51	$53	$60
Average	$90	$97	$90	$99	$111

Residential Refuse Collection Cost per Collection Point



	2008	2009	2010	2011	2012
Wilson	$66	$70	$55	$55	$63
Average	$79	$90	$81	$84	$81

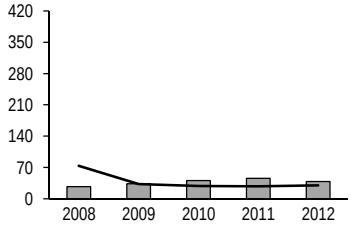
Refuse Tons Collected per Municipal Collection FTE



	2008	2009	2010	2011	2012
Wilson	1,755	1,773	1,750	1,686	1,702
Average	1,414	1,403	1,368	1,392	1,372

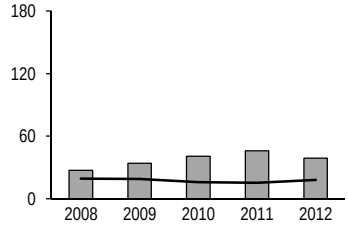
Effectiveness Measures

Complaints per 1,000 Collection Points



	2008	2009	2010	2011	2012
Wilson	27.5	34.0	40.9	45.9	39.0
Average	74.1	33.1	28.6	28.4	30.3

Valid Complaints per 1,000 Collection Points



	2008	2009	2010	2011	2012
Wilson	27.5	34.0	40.9	45.9	39.0
Average	19.4	19.0	16.2	15.5	18.3

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

Winston-Salem collects residential refuse once a week from backyards and at curbside. The city implemented a voluntary curbside collection program in March 2005. In October 2010, the city began the transition to mandatory curbside collection. The transition to a curbside only collection system was complete during Fiscal Year 2010–2012.

The city uses sixteen three-person crews, each composed of a driver and two collectors equipped with rear-loading packers, to collect most of the residential refuse. In addition, there are nine automated trucks with one person each, one special collections truck with one person, and one central business district crew with one driver and one collector.

Residents may use three thirty-two-gallon containers or one ninety-six-gallon roll-out cart. There was no fee for the residential refuse service during FY 2011–12.

The city collected 52,035 tons of residential refuse during FY 2011–12 from 76,240 collection points. The cost per ton was $124, which does not include the tipping fee of $36 per ton. The city used 100 collection routes during the fiscal year, with an average of one trip per route per day to the landfill. The average distance to the landfill was ten miles.

Winston-Salem primarily uses rear-loading packers, which are trucks that load from the back. Two lifters are on the back of each truck. The crews hook their carts onto these lifters and dump the refuse into the back of the truck. The compactor blade is also located in the back of the truck.

Conditions Affecting Service, Performance, and Costs

Municipal Profile

Population (OSBM 2011)	232,143
Land Area (Square Miles)	132.45
Persons per Square Mile	1,753
Median Family Income U.S. Census 2010	$51,491

Service Profile

FTE Positions—Collection	94.2
FTE Positions—Other	3.0
Type of Equipment	9 automated packers 16 packers
Size of Crews (most commonly used)	1 & 3 person
Weekly Routes	100
Average Distance to Disposal Site	10 miles
Average Daily Trips to Disposal Site	1
Percentage of Service Contracted	0%
Collection Frequency	1 x week
General Collection Location	Curbside
Residential Customers (number represents collection points)	76,240
Tons Collected	52,035.0
Monthly Service Fee	No

Full Cost Profile

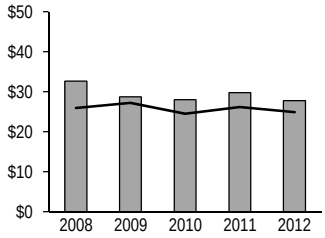
Cost Breakdown by Percentage	
Personal Services	52.2%
Operating Costs	34.3%
Capital Costs	13.4%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$3,361,874
Operating Costs	$2,208,725
Capital Costs	$864,156
TOTAL	$6,434,755

Winston-Salem Residential Refuse Collection

Key: Winston-Salem ■ Benchmarking Average — Fiscal Years 2008 through 2012

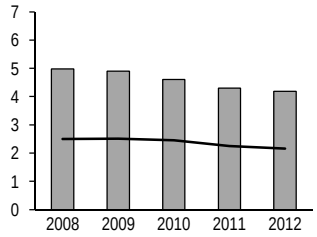
Resource Measures

Residential Refuse Collection Costs per Capita



	2008	2009	2010	2011	2012
Winston-Salem	$32.65	$28.69	$28.01	$29.71	$27.72
Average	$25.94	$27.21	$24.50	$26.19	$24.86

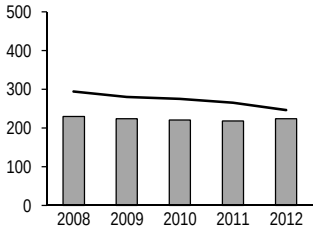
Residential Refuse FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Winston-Salem	4.98	4.90	4.60	4.30	4.18
Average	2.49	2.51	2.45	2.25	2.16

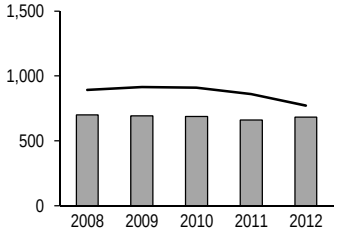
Workload Measures

Residential Refuse Tons per 1,000 Population



	2008	2009	2010	2011	2012
Winston-Salem	230	223	220	218	224
Average	294	280	275	265	246

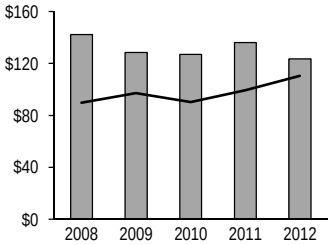
Residential Refuse Tons per 1,000 Collection Points



	2008	2009	2010	2011	2012
Winston-Salem	699	693	689	661	683
Average	893	915	911	862	773

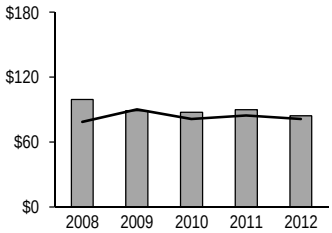
Efficiency Measures

Residential Refuse Collection Cost per Ton Collected



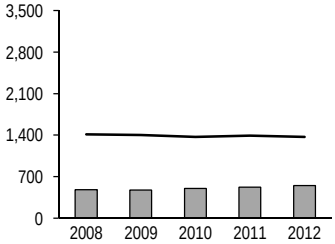
	2008	2009	2010	2011	2012
Winston-Salem	$142	$128	$127	$136	$124
Average	$90	$97	$90	$99	$111

Residential Refuse Collection Cost per Collection Point



	2008	2009	2010	2011	2012
Winston-Salem	$99	$89	$88	$90	$84
Average	$79	$90	$81	$84	$81

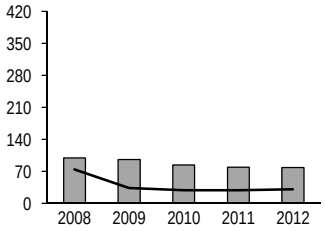
Refuse Tons Collected per Municipal Collection FTE



	2008	2009	2010	2011	2012
Winston-Salem	481	477	502	524	553
Average	1,414	1,403	1,368	1,392	1,372

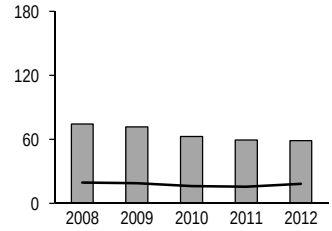
Effectiveness Measures

Complaints per 1,000 Collection Points



	2008	2009	2010	2011	2012
Winston-Salem	99.1	95.7	83.6	79.1	78.4
Average	74.1	33.1	28.6	28.4	30.3

Valid Complaints per 1,000 Collection Points



	2008	2009	2010	2011	2012
Winston-Salem	74.4	71.8	62.7	59.3	58.8
Average	19.4	19.0	16.2	15.5	18.3

UNC
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Performance and Cost Data

HOUSEHOLD RECYCLING

PERFORMANCE MEASURES FOR HOUSEHOLD RECYCLING

SERVICE DEFINITION

This includes both curbside collection and processing of household recyclable materials from residences and certain other locations and the drop-off of such materials by citizens at recycling stations or centers. The recyclable materials collected are mainly aluminum and steel cans, plastics, glass bottles, newspapers, magazines, and cardboard. The curbside portion of this service involves regularly scheduled collection that utilizes containers small enough that residents and/or workers can move or lift them. Excluded are collection of yard waste, leaves, and commercial recycling.

NOTES ON PERFORMANCE MEASURES

1. Workload and Efficiency Measures

The same sorts of workload and efficiency measures are used for household recycling as for residential refuse collection. The project's workload measures for household recycling are tons of recyclable materials collected per 1,000 population and per 1,000 collection points, and the efficiency measures for this service are cost per ton of recyclable materials collected, cost per collection point, and tons of household recyclable materials collected per full-time equivalent (FTE) position directly involved in household recycling. FTEs for recycling are calculated in the same way as they are for residential refuse collection. Only those FTE positions that actually collect recyclables are used for the measure "tons collected per FTE."

2. Tons Solid Waste Landfilled per 1,000 Population

"Tons solid waste landfilled per 1,000 population" is used as a workload measure. Although not all residential refuse is recyclable, much more of it is likely to be recycled in the future as recycling technology improves and markets for recyclable materials grow. Thus, tons of solid waste landfilled per 1,000 population serves as a useful indicator of the need for household recycling.

3. Community Set-Out Rate in Household Recycling

The project uses this as a measure of household recycling effectiveness. Residents in municipalities with curbside recycling choose whether to participate in the program and decide the extent of their participation. As the portion of households participating in household recycling grows, the more effective recycling is likely to be in reducing the volume of residential refuse. This measure combines the set-out rate for those participating and the participation rate to estimate the percentage of potential households that are actually recycling.

4. Tons of Household Recyclable Materials Collected as a Percentage of the Sum of Tons of Residential Refuse Collected Plus Tons of Household Recyclable Materials Collected

This measure assesses the magnitude of household recycling in relation to residential refuse collected for disposal. A household recycling program is effective to the extent it diverts residential refuse from the disposal stream.

Household Recycling

Summary of Key Dimensions of Service

City or Town	Drop-Off Sites		Collection Frequency	Recyclables Sorted at Curb?	Collection Points	Community Set-Out Rate	Tons Collected	Percentage of Waste Stream Diverted from Landfill	Percentage Service Contracted	Municipal FTE Collection Positions
	City Owned	Other								
Apex	0	0	1 x week	No	12,369	70%	2,726	21%	100%	0
Asheville	0	2	1 x 2 weeks	Yes	27,597	80%	6,951	24%	99%	0
Burlington	0	0	1 x 2 weeks	Yes	16,633	66%	1,919	11%	99%	0
Cary	1	0	1 x 2 weeks	Yes	45,738	85%	11,332	28%	0%	13
Charlotte	0	13	1 x 2 weeks	Yes	209,834	50%	43,043	20%	100%	0
Concord	0	1	1 x 2 weeks	No	28,131	76%	5,599	19%	100%	0.5
Greensboro	20	0	1 x 2 weeks	No	80,640	62%	18,123	24%	0%	15
Greenville	3	150	1 x week	No	12,411	NA	5,538	19%	0%	15
Hickory	2	0	1 x week	Yes	12,100	76%	1,491	15%	80%	0.5
High Point	14	52	1 x 2 weeks	No	35,544	75%	8,198	23%	0%	4
Salisbury	0	0	1 x week	Yes	10,500	NA	1,014	10%	100%	0
Wilmington	0	0	1 x week	No	14,700	24%	5,643	19%	0%	10.25
Wilson	0	0	1 x week	No	19,900	40%	1,559	8%	0%	6
Winston-Salem	11	0	1 x week	Yes	76,064	45%	11,686	18%	100%	0

NOTES

Community Set-out Rate is a combination of the participation rate and the participant's set-out rate.

EXPLANATORY FACTORS

These are factors that the project found affected household recycling collection performance and cost in one or more of the municipalities:

Types of items eligible for recycling
Landfill tipping fees for solid waste
Commitment of city officials to recycling
Number of drop-off centers
Community education
Market prices for recyclable materials
Demographic makeup of community

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Apex contracts with Waste Industries for refuse collection, disposal, and recycling. Only the recycling collection is reflected on this page. The town offers curbside recycling to al residents. Residents pay a $2.32 fee per container per month.

The following materials are collected:

- plastics
- paperboard
- chipboard
- paper tubes
- corrugated cardboard
- aluminum
- tin and steel cans
- glass
- newspaper
- magazines and catelogs
- phone books.

Residents living within Apex are encouraged to participate in the curbside recycling program. The program serves 12,369 residences.

Conditions Affecting Service, Performance, and Costs
Apex began participation in the benchmarking project in July 2011, with FY 2010–11 being the first reporting year.

Municipal Profile

Population (OSBM 2011)	38,696
Land Area (Square Miles)	15.63
Persons per Square Mile	2,477
Median Family Income	$97,201
U.S. Census 2010	

Service Profile

FTE Positions—Collection	Contractor
FTE Positions—Other	Contractor
Number of City Drop-Off Centers	0
Other Drop-Off Centers	0
Percentage of Service Contracted	100%
Collection Frequency	1 x week
General Collection Location	Curbside
Recyclables Sorted at Curb	No
Collection Points	12,369
Tons of Recyclables Collected	
Curbside	2,726
City Drop-Off Centers	0
Total Tons Collected	2,726
Monthly Service Fee	$2.32
Revenue from Sale of Recyclables	$0
Revenue as Percentage of Cost	NA

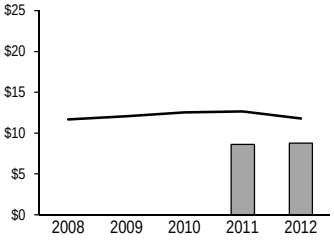
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	0.0%
Operating Costs	100.0%
Capital Costs	0.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$0
Operating Costs	$338,982
Capital Costs	$0
TOTAL	$338,982

Key: Apex ■ Benchmarking Average — Fiscal Years 2008 through 2012

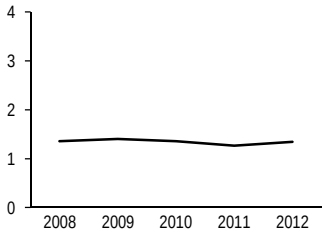
Resource Measures

Recycling Services Cost per Capita



	2008	2009	2010	2011	2012
Apex				$8.64	$8.76
Average	$11.67	$12.06	$12.56	$12.67	$11.78

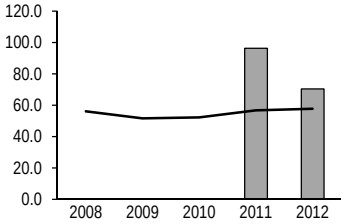
Recycling Services FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Apex					
Average	1.36	1.40	1.36	1.26	1.34

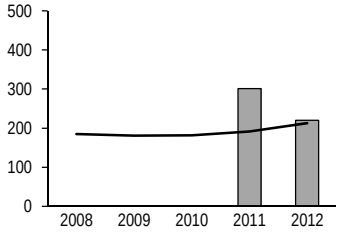
Workload Measures

Tons Recyclables Collected per 1,000 Population



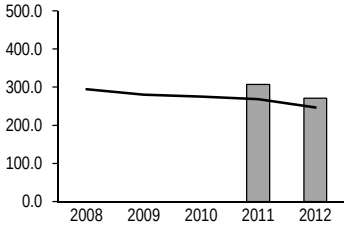
	2008	2009	2010	2011	2012
Apex				96.3	70.4
Average	56.0	51.7	52.3	56.6	57.7

Tons Recyclables Collected per 1,000 Collection Points



	2008	2009	2010	2011	2012
Apex				301	220
Average	185	180	182	192	213

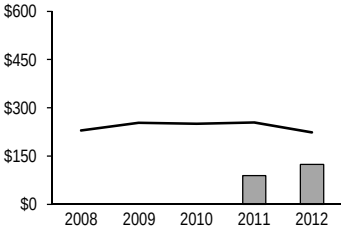
Tons Solid Waste Landfilled per 1,000 Population



	2008	2009	2010	2011	2012
Apex				306.8	270.8
Average	294.1	280.3	275.1	268.7	246.2

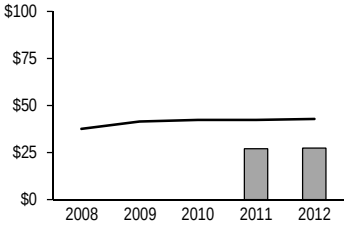
Efficiency Measures

Recycling Services Cost per Ton Collected



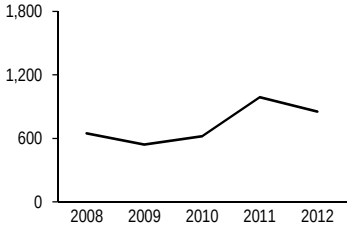
	2008	2009	2010	2011	2012
Apex				$90	$124
Average	$230	$254	$250	$255	$223

Recycling Services Cost per Collection Point



	2008	2009	2010	2011	2012
Apex				$26.98	$27.41
Average	$37.46	$41.45	$42.34	$42.23	$42.87

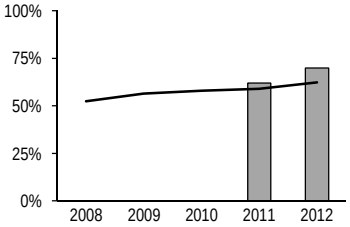
Tons Collected Curbside per Municipal FTE



	2008	2009	2010	2011	2012
Apex					
Average	647	541	619	991	854

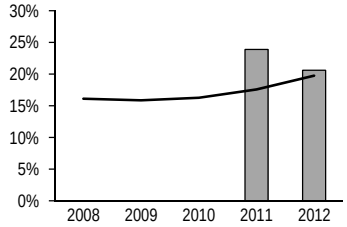
Effectiveness Measures

Community Set-Out Rate



	2008	2009	2010	2011	2012
Apex				62.0%	70.0%
Average	52.3%	56.5%	58.0%	58.9%	62.4%

Tons Recycled as Percentage of Tons Refuse and Recyclables Collected



	2008	2009	2010	2011	2012
Apex				23.9%	20.6%
Average	16.1%	15.9%	16.3%	17.6%	19.8%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

The city offers curbside recycling service to all residential customers. The service was provided by contract during FY 2011–12 by Curbside Management Incorporated.

Asheville charged a $2.95 monthly fee for its recycling service for the first half of the year and increased the monthly fee to $3.50 in January 2012. Recyclables are collected using a two-bin system, with curbside sorting from the collection vehicle. The following materials are collected:

- mixed paper
- newspaper
- corrugated cardboard
- clear, green, and brown glass bottles
- all platstic bottles
- aluminum and steel cans
- telephone books (seasonal)
- aerosol cans.

Residents living within the city of Asheville are encouraged to participate in the curbside recycling program. The program serves 27,597 residences, with each residence receiving two recycling bins at no charge. One green bin is used for mixed paper (e.g., office paper, cereal boxes, magazines, and junk mail). The other bin is used for newspaper, metal cans, plastic bottles, and glass bottles and jars. Cardboard needs to be flattened and placed under the green bin. Recycling is collected every other week on the regular trash day. A curbside recycling truck comes to each neighborhood on a predetermined schedule and separates the recyclables at the curb.

There are two drop-off centers within Asheville. One is serviced by the curbside contractor, and the second is operated by Buncombe County. These centers are set up for people who do not have curbside recycling pickup at their homes or businesses. Anyone can use these centers to drop off their recycling twenty-four hours a day, seven days a week.

Conditions Affecting Service, Performance, and Costs

Municipal Profile

Population (OSBM 2011)	85,646
Land Area (Square Miles)	45.40
Persons per Square Mile	1,886
Median Family Income U.S. Census 2010	$53,350

Service Profile

FTE Positions—Collection	Contractor
FTE Positions—Other	Contractor
Number of City Drop-Off Centers	0
Other Drop-Off Centers	2
Percentage of Service Contracted	99%
Collection Frequency	Every 2 weeks
General Collection Location	Curbside
Recyclables Sorted at Curb	Yes
Collection Points	27,597
Tons of Recyclables Collected	
Curbside	5,593
City Drop-Off Centers	1,358
Total Tons Collected	6,951
Monthly Service Fee	$2.95 for first half of year, then $3.50 in January 2012
Revenue from Sale of Recyclables	$0
Revenue as Percentage of Cost	NA

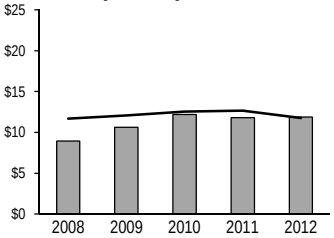
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	0.0%
Operating Costs	100.0%
Capital Costs	0.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$0
Operating Costs	$1,018,790
Capital Costs	$0
TOTAL	$1,018,790

Key: Asheville ■ Benchmarking Average — Fiscal Years 2008 through 2012

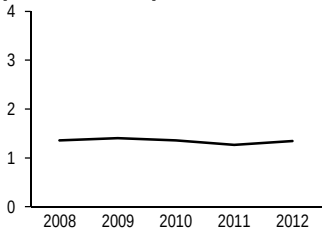
Resource Measures

Recycling Services Cost per Capita



	2008	2009	2010	2011	2012
Asheville	$8.94	$10.61	$12.19	$11.81	$11.90
Average	$11.67	$12.06	$12.56	$12.67	$11.78

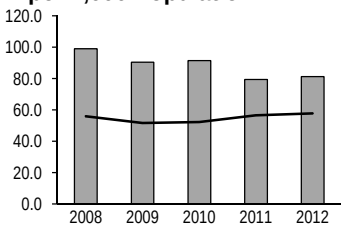
Recycling Services FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Asheville					
Average	1.36	1.40	1.36	1.26	1.34

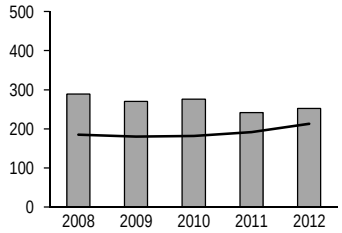
Workload Measures

Tons Recyclables Collected per 1,000 Population



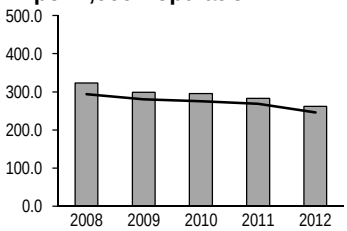
	2008	2009	2010	2011	2012
Asheville	99.0	90.5	91.4	79.3	81.2
Average	56.0	51.7	52.3	56.6	57.7

Tons Recyclables Collected per 1,000 Collection Points



	2008	2009	2010	2011	2012
Asheville	289	270	276	241	252
Average	185	180	182	192	213

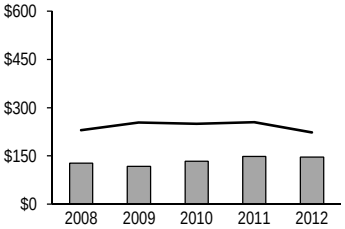
Tons Solid Waste Landfilled per 1,000 Population



	2008	2009	2010	2011	2012
Asheville	323.5	299.2	295.8	282.6	262.1
Average	294.1	280.3	275.1	268.7	246.2

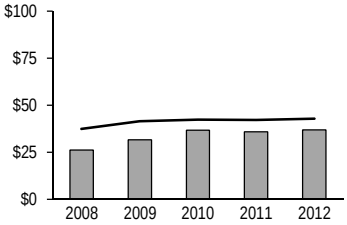
Efficiency Measures

Recycling Services Cost per Ton Collected



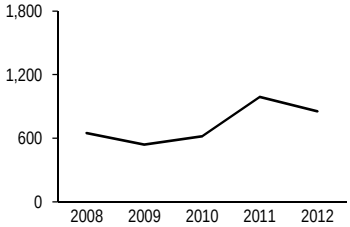
	2008	2009	2010	2011	2012
Asheville	$128	$117	$133	$149	$147
Average	$230	$254	$250	$255	$223

Recycling Services Cost per Collection Point



	2008	2009	2010	2011	2012
Asheville	$26.12	$31.70	$36.76	$35.94	$36.92
Average	$37.46	$41.45	$42.34	$42.23	$42.87

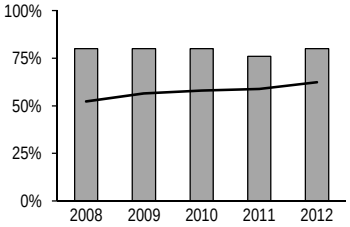
Tons Collected Curbside per Municipal FTE



	2008	2009	2010	2011	2012
Asheville					
Average	647	541	619	991	854

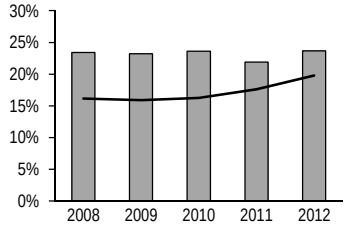
Effectiveness Measures

Community Set-Out Rate



	2008	2009	2010	2011	2012
Asheville	80.0%	80.0%	80.0%	76.0%	80.0%
Average	52.3%	56.5%	58.0%	58.9%	62.4%

Tons Recycled as Percentage of Tons Refuse and Recyclables Collected



	2008	2009	2010	2011	2012
Asheville	23.4%	23.2%	23.6%	21.9%	23.6%
Average	16.1%	15.9%	16.3%	17.6%	19.8%

Burlington Household Recycling

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

Burlington offers curbside recycling to all city residents. The service was contracted through Tidewater Fibre Corporation in FY 2011–12.

The city charges a monthly fee of $2.29 for recycling, which is included in the solid waste fee. Collection of recyclables is done every two weeks. Residents are provided with twenty-two-gallon size bins. Items collected include:

- plastic jugs and bottles, No. 1 and No. 2
- aluminum cans
- steel cans
- corrugated cardboard
- chipboard
- newspaper and inserts
- phone books
- mixed paper
- magazines
- clear, green, amber, and brown glass bottles and jars.

Alamance County provides three drop-off recycling sites.

Conditions Affecting Service, Performance, and Costs

The set-out rate is provided annually by the contractor.

Municipal Profile

Population (OSBM 2011)	51,263
Land Area (Square Miles)	25.21
Persons per Square Mile	2,034
Median Family Income U.S. Census 2010	$46,461

Service Profile

FTE Positions—Collection	Contractor
FTE Positions—Other	Contractor
Number of City Drop-Off Centers	0
Other Drop-Off Centers	3
Percentage of Service Contracted	99%
Collection Frequency	Every 2 weeks
General Collection Location	Curbside
Recyclables Sorted at Curb	Yes
Collection Points	16,633
Tons of Recyclables Collected	
Curbside	1,919
City Drop-Off Centers	0
Total Tons Collected	1,919
Monthly Service Fee	$2.29
Revenue from Sale of Recyclables	$0
Revenue as Percentage of Cost	NA

Full Cost Profile

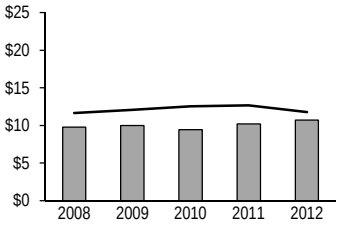
Cost Breakdown by Percentage	
Personal Services	0.0%
Operating Costs	100.0%
Capital Costs	0.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$0
Operating Costs	$549,912
Capital Costs	$0
TOTAL	$549,912

Burlington Household Recycling

Key: Burlington ■ Benchmarking Average — Fiscal Years 2008 through 2012

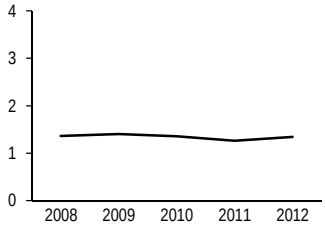
Resource Measures

Recycling Services Cost per Capita



	2008	2009	2010	2011	2012
Burlington	$9.78	$10.01	$9.45	$10.20	$10.73
Average	$11.67	$12.06	$12.56	$12.67	$11.78

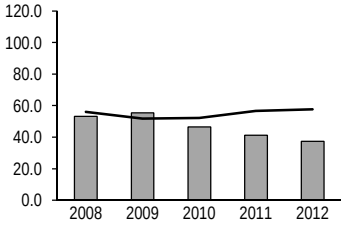
Recycling Services FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Burlington					
Average	1.36	1.40	1.36	1.26	1.34

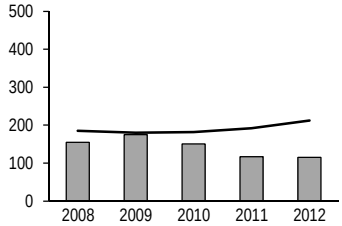
Workload Measures

Tons Recyclables Collected per 1,000 Population



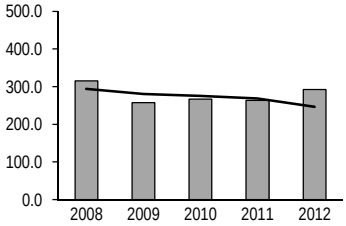
	2008	2009	2010	2011	2012
Burlington	53.3	55.4	46.4	41.3	37.4
Average	56.0	51.7	52.3	56.6	57.7

Tons Recyclables Collected per 1,000 Collection Points



	2008	2009	2010	2011	2012
Burlington	155	175	151	117	115
Average	185	180	182	192	213

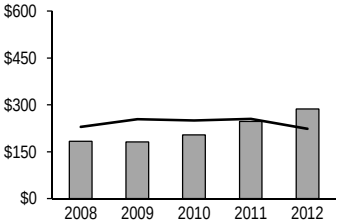
Tons Solid Waste Landfilled per 1,000 Population



	2008	2009	2010	2011	2012
Burlington	315.1	257.6	267.0	263.2	292.6
Average	294.1	280.3	275.1	268.7	246.2

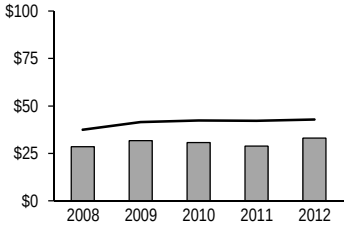
Efficiency Measures

Recycling Services Cost per Ton Collected



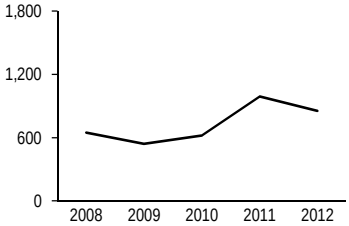
	2008	2009	2010	2011	2012
Burlington	$184	$181	$204	$247	$287
Average	$230	$254	$250	$255	$223

Recycling Services Cost per Collection Point



	2008	2009	2010	2011	2012
Burlington	$28.51	$31.73	$30.77	$28.83	$33.06
Average	$37.46	$41.45	$42.34	$42.23	$42.87

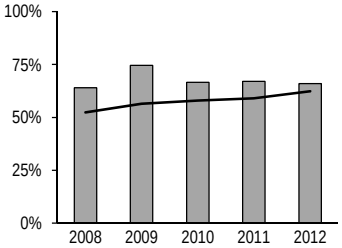
Tons Collected Curbside per Municipal FTE



	2008	2009	2010	2011	2012
Burlington					
Average	647	541	619	991	854

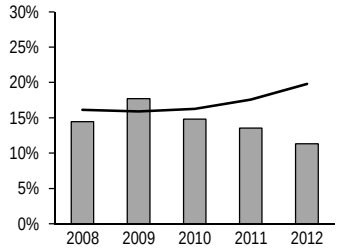
Effectiveness Measures

Community Set-Out Rate



	2008	2009	2010	2011	2012
Burlington	64.0%	74.6%	66.6%	67.0%	66.0%
Average	52.3%	56.5%	58.0%	58.9%	62.4%

Tons Recycled as Percentage of Tons Refuse and Recyclables Collected



	2008	2009	2010	2011	2012
Burlington	14.5%	17.7%	14.8%	13.6%	11.3%
Average	16.1%	15.9%	16.3%	17.6%	19.8%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Cary provides biweekly curbside collection of recyclable materials and maintains one drop-off recycling center. The town changed from weekly to biweekly collection in July 2010. There is a monthly $14 fee which covers recycling but also solid waste pickup.

Materials collected in the curbside program and at the drop-off recycling center include the following:

- newspaper
- chipboard
- phone books
- junk mail
- glossy white paper
- glossy magazines and catalogs
- corrugated cardboard
- milk/juice gable-top cartons
- aluminum cans and foil
- steel and tin food cans
- clear, green, and brown glass bottles and jars
- plastic materials, such as No. 1, 2, 5, and 7 bottles
- used motor oil, electronics, and appliances on request.

The town collected 10,811 tons from the curbside collection and gathered 521 tons at its drop-off site. The town changed to comingled recycling at the curb during FY 2006–07, eliminating curbside sorting. Cary received $331,874 in revenue from the sale of recyclables during FY 2011–12.

Cary defines a valid complaint as a complaint that has been verified in the field by a supervisor.

Conditions Affecting Service, Performance, and Costs
The set-out rate is calculated annually.

Municipal Profile

Population (OSBM 2011)	139,172
Land Area (Square Miles)	54.56
Persons per Square Mile	2,551
Median Family Income U.S. Census 2010	$108,956

Service Profile

FTE Positions—Collection	13.0
FTE Positions—Other	1.7
Number of City Drop-Off Centers	1
Other Drop-Off Centers	0
Percentage of Service Contracted	0%
Collection Frequency	Every 2 weeks
General Collection Location	Curbside
Recyclables Sorted at Curb	No
Collection Points	45,738
Tons of Recyclables Collected	
Curbside	10,811
City Drop-Off Centers	521
Total Tons Collected	11,332
Monthly Service Fee	$14
Revenue from Sale of Recyclables	$331,874
Revenue as Percentage of Cost	17.5%

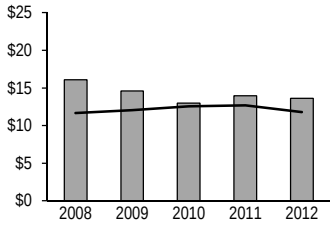
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	44.0%
Operating Costs	40.6%
Capital Costs	15.4%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$835,285
Operating Costs	$770,409
Capital Costs	$292,614
TOTAL	$1,898,308

Key: Cary ■ Benchmarking Average — Fiscal Years 2008 through 2012

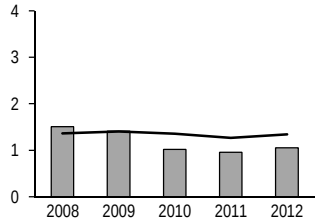
Resource Measures

Recycling Services Cost per Capita



	2008	2009	2010	2011	2012
Cary	$16.08	$14.61	$13.00	$13.95	$13.64
Average	$11.67	$12.06	$12.56	$12.67	$11.78

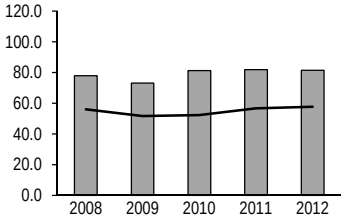
Recycling Services FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Cary	1.51	1.41	1.02	0.95	1.05
Average	1.36	1.40	1.36	1.26	1.34

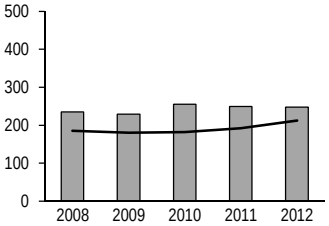
Workload Measures

Tons Recyclables Collected per 1,000 Population



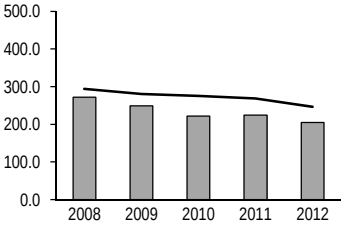
	2008	2009	2010	2011	2012
Cary	77.9	73.1	81.2	81.9	81.4
Average	56.0	51.7	52.3	56.6	57.7

Tons Recyclables Collected per 1,000 Collection Points



	2008	2009	2010	2011	2012
Cary	235	230	255	249	248
Average	185	180	182	192	213

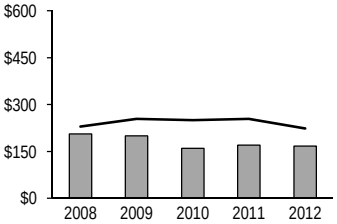
Tons Solid Waste Landfilled per 1,000 Population



	2008	2009	2010	2011	2012
Cary	272.2	249.3	222.2	224.4	205.4
Average	294.1	280.3	275.1	268.7	246.2

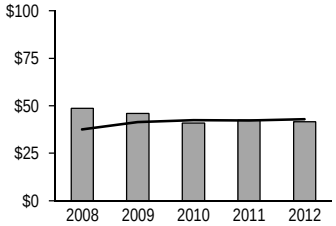
Efficiency Measures

Recycling Services Cost per Ton Collected



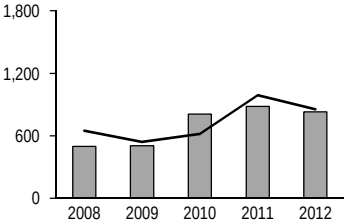
	2008	2009	2010	2011	2012
Cary	$206	$200	$160	$170	$168
Average	$230	$254	$250	$255	$223

Recycling Services Cost per Collection Point



	2008	2009	2010	2011	2012
Cary	$48.57	$45.91	$40.83	$42.45	$41.50
Average	$37.46	$41.45	$42.34	$42.23	$42.87

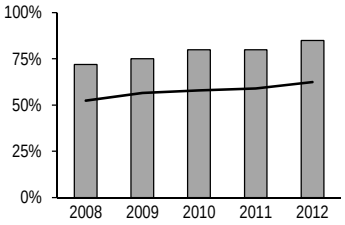
Tons Collected Curbside per Municipal FTE



	2008	2009	2010	2011	2012
Cary	498	504	810	882	832
Average	647	541	619	991	854

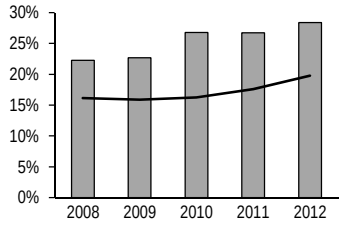
Effectiveness Measures

Community Set-Out Rate



	2008	2009	2010	2011	2012
Cary	72.0%	75.0%	80.0%	80.0%	85.0%
Average	52.3%	56.5%	58.0%	58.9%	62.4%

Tons Recycled as Percentage of Tons Refuse and Recyclables Collected



	2008	2009	2010	2011	2012
Cary	22.3%	22.7%	26.8%	26.7%	28.4%
Average	16.1%	15.9%	16.3%	17.6%	19.8%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Charlotte provides curbside recycling collection to single-family residential customers once every two weeks. In FY 2010–11, the service went from being provided by both city staff and contractors under a managed competition system to now being completely contracted out. Materials collected in the recycling program include the following:

- glass
- plastic
- aluminum
- newspaper
- magazines
- catalogs
- phone books
- cardboard
- milk cartons
- aerosol cans
- juice boxes

Recycling was changed to a single stream in FY 2010–11. The majority of users were switched to ninety-five or ninety-six-gallon roll-out containers rather than the previous sixteen-gallon bins. The city receives a modest amount from sale of recyclables, which totaled $209,409 for the year.

The county operates several recycling drop-off centers that are available for use by citizens of Charlotte and Mecklenburg County. Tonnage from the drop-off centers is not included in this report.

Conditions Affecting Service, Performance, and Costs
The set-out rate is calculated daily, as the trucks are outfitted with Radio Frequency Identification (RFID) readers and the recycling carts have RFID chips installed.

The change to a completely contracted out service in Fiscal Year 2011 was a major change for recylcing collection in Charlotte. Comparisons over time should take this switch into account.

Municipal Profile

Population (OSBM 2011)	751,999
Land Area (Square Miles)	301.48
Persons per Square Mile	2,494
Median Family Income U.S. Census 2010	$61,405

Service Profile

FTE Positions—Collection	Contractor
FTE Positions—Other	4.0
Number of City Drop-Off Centers	0
Other Drop-Off Centers	13
Percentage of Service Contracted	100%
Collection Frequency	Every 2 weeks
General Collection Location	Curbside
Recyclables Sorted at Curb	No
Collection Points	209,834
Tons of Recyclables Collected	
Curbside	43,043
City Drop-Off Centers	0
Total Tons Collected	43,043
Monthly Service Fee	No
Revenue from Sale of Recyclables	$209,409
Revenue as Percentage of Cost	4.7%

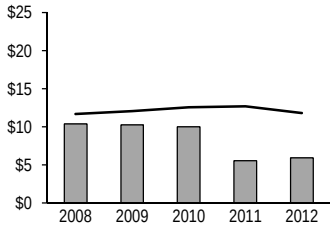
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	0.0%
Operating Costs	99.5%
Capital Costs	0.5%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$0
Operating Costs	$4,432,052
Capital Costs	$22,310
TOTAL	$4,454,362

Key: Charlotte ■ Benchmarking Average — Fiscal Years 2008 through 2012

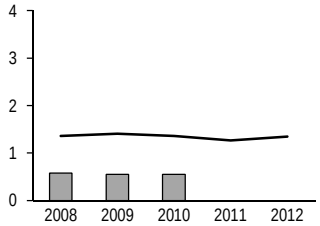
Resource Measures

Recycling Services Cost per Capita



	2008	2009	2010	2011	2012
Charlotte	$10.37	$10.23	$9.99	$5.55	$5.92
Average	$11.67	$12.06	$12.56	$12.67	$11.78

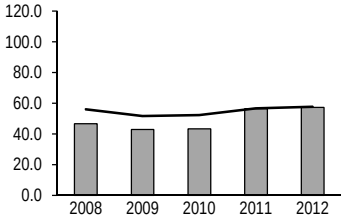
Recycling Services FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Charlotte	0.58	0.55	0.55		
Average	1.36	1.40	1.36	1.26	1.34

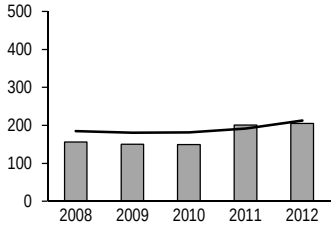
Workload Measures

Tons Recyclables Collected per 1,000 Population



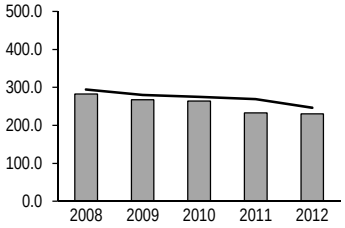
	2008	2009	2010	2011	2012
Charlotte	46.6	42.9	43.4	56.5	57.2
Average	56.0	51.7	52.3	56.6	57.7

Tons Recyclables Collected per 1,000 Collection Points



	2008	2009	2010	2011	2012
Charlotte	156	150	150	201	205
Average	185	180	182	192	213

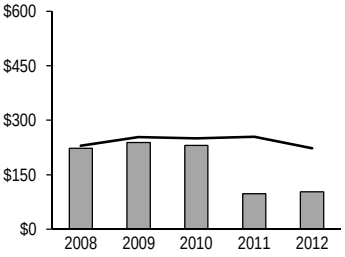
Tons Solid Waste Landfilled per 1,000 Population



	2008	2009	2010	2011	2012
Charlotte	282.8	267.4	263.7	232.9	230.3
Average	294.1	280.3	275.1	268.7	246.2

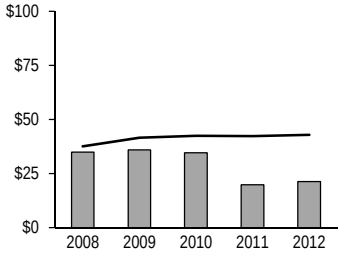
Efficiency Measures

Recycling Services Cost per Ton Collected



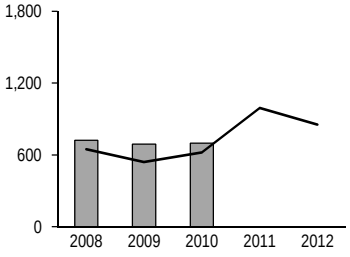
	2008	2009	2010	2011	2012
Charlotte	$222	$239	$230	$98	$103
Average	$230	$254	$250	$255	$223

Recycling Services Cost per Collection Point



	2008	2009	2010	2011	2012
Charlotte	$34.80	$35.81	$34.48	$19.73	$21.23
Average	$37.46	$41.45	$42.34	$42.23	$42.87

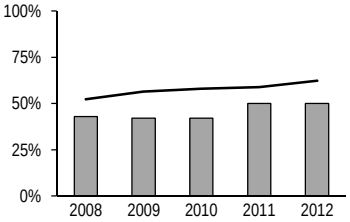
Tons Collected Curbside per Municipal FTE



	2008	2009	2010	2011	2012
Charlotte	722	689	699		
Average	647	541	619	991	854

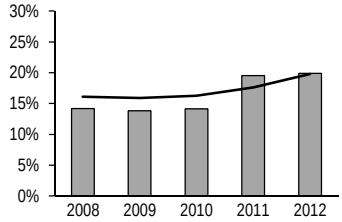
Effectiveness Measures

Community Set-Out Rate



	2008	2009	2010	2011	2012
Charlotte	43.0%	42.0%	42.0%	50.0%	50.0%
Average	52.3%	56.5%	58.0%	58.9%	62.4%

Tons Recycled as Percentage of Tons Refuse and Recyclables Collected



	2008	2009	2010	2011	2012
Charlotte	14.2%	13.8%	14.1%	19.5%	19.9%
Average	16.1%	15.9%	16.3%	17.6%	19.8%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Concord provides once-a-week curbside collection of recyclable materials from households. The city uses a contractor to provide recycling collection. Residents place materials into bins. The recyclable materials collected include:

- glass
- newspaper
- magazines
- mixed paper and mail
- No. 1 and No. 2 plastics
- metal and aluminum food and beverage containers.

Concord uses a contract collector for regular residential curbside recycling. The materials are collected on a commingled basis weekly from each participating resident and delivered to a materials recovery facility (MRF) in Charlotte for separation and marketing.

Conditions Affecting Service, Performance, and Costs
During Fiscal Year 2012, Concord switched contractors. This change in Concord's recycling collection produced serveral challenges during the startup and transition periods. Complaints were up in the first three months due to errors by the contractor and because of customer actions. Valid complaints in the startup period were also notably up, as the contractor was not able to close complaints with proper notation. These problems were largely fixed after the intial three months.

In FY 2010–11, Concord purchased new recycling carts. The cost of these carts is a special one-time expense that is not treated as capital because each cart is below a dollar threshold. The large jump in the various cost measures for recycling is therefore a special one-time jump that will not be repeated.

The set-out rate is caculated twice a year.

Municipal Profile

Population (OSBM 2011)	80,386
Land Area (Square Miles)	60.28
Persons per Square Mile	1,333
Median Family Income U.S. Census 2010	$63,643

Service Profile

FTE Positions—Collection	Contractor
FTE Positions—Other	1.5
Number of City Drop-Off Centers	0
Other Drop-Off Centers	1
Percentage of Service Contracted	100%
Collection Frequency	Every 2 weeks
General Collection Location	Curbside
Recyclables Sorted at Curb	No
Collection Points	28,131
Tons of Recyclables Collected	
Curbside	5,599
City Drop-Off Centers	0
Total Tons Collected	5,599
Monthly Service Fee	No
Revenue from Sale of Recyclables	$125,364
Revenue as Percentage of Cost	14.1%

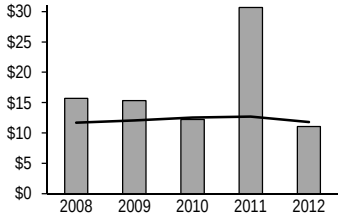
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	11.0%
Operating Costs	86.9%
Capital Costs	2.2%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$97,610
Operating Costs	$774,019
Capital Costs	$19,232
TOTAL	$890,861

Key: Concord ■ Benchmarking Average — Fiscal Years 2008 through 2012

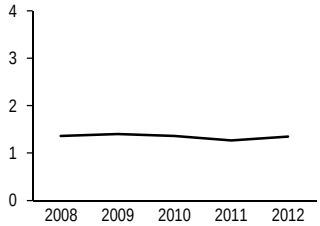
Resource Measures

Recycling Services Cost per Capita



	2008	2009	2010	2011	2012
Concord	$15.69	$15.35	$12.23	$30.65	$11.08
Average	$11.67	$12.06	$12.56	$12.67	$11.78

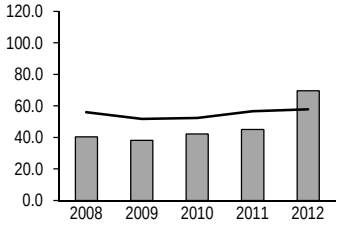
Recycling Services FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Concord					
Average	1.36	1.40	1.36	1.26	1.34

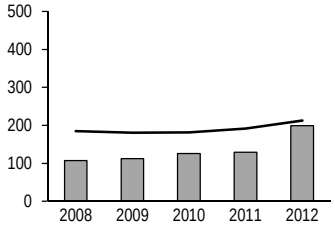
Workload Measures

Tons Recyclables Collected per 1,000 Population



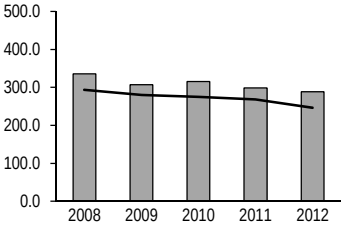
	2008	2009	2010	2011	2012
Concord	40.2	38.1	42.2	45.0	69.7
Average	56.0	51.7	52.3	56.6	57.7

Tons Recyclables Collected per 1,000 Collection Points



	2008	2009	2010	2011	2012
Concord	107	113	126	129	199
Average	185	180	182	192	213

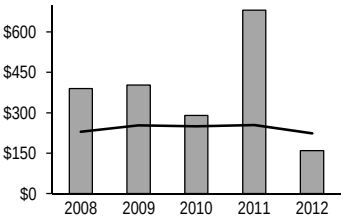
Tons Solid Waste Landfilled per 1,000 Population



	2008	2009	2010	2011	2012
Concord	335.8	307.0	315.7	298.8	288.9
Average	294.1	280.3	275.1	268.7	246.2

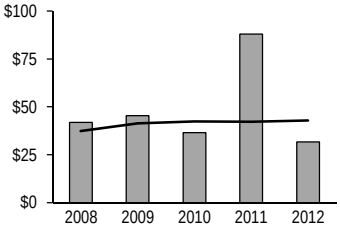
Efficiency Measures

Recycling Services Cost per Ton Collected



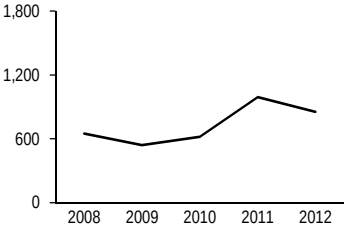
	2008	2009	2010	2011	2012
Concord	$390	$403	$290	$681	$159
Average	$230	$254	$250	$255	$223

Recycling Services Cost per Collection Point



	2008	2009	2010	2011	2012
Concord	$41.90	$45.43	$36.50	$88.07	$31.67
Average	$37.46	$41.45	$42.34	$42.23	$42.87

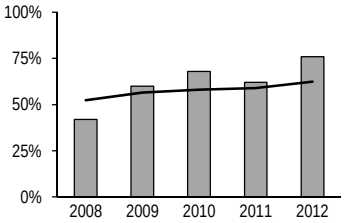
Tons Collected Curbside per Municipal FTE



	2008	2009	2010	2011	2012
Concord					
Average	647	541	619	991	854

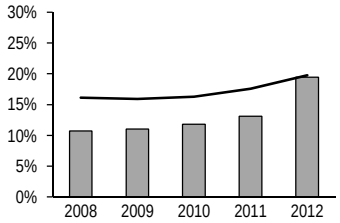
Effectiveness Measures

Community Set-Out Rate



	2008	2009	2010	2011	2012
Concord	42.0%	60.0%	68.0%	62.0%	76.0%
Average	52.3%	56.5%	58.0%	58.9%	62.4%

Tons Recycled as Percentage of Tons Refuse and Recyclables Collected



	2008	2009	2010	2011	2012
Concord	10.7%	11.0%	11.8%	13.1%	19.4%
Average	16.1%	15.9%	16.3%	17.6%	19.8%

Greensboro Household Recycling

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

Greensboro operates a voluntary commingled collection process for its recycling customers. Recycling services are provided to the community by means of single ninety-gallon automated containers and by green translucent bags. Partnerships also are maintained with fire departments, the county school system, the extension office, and the parks department for providing drop-off sites. There are twenty city-owned drop-off sites, but these collected tons are not reported in Greensboro's data.

Greensboro changed its recycling pickup from once per week to every other week in FY 2007–08. Recycling materials are not sorted curbside. Instead they are set out in one container, picked up by an automated-collection crew, and taken to an off-site contractor that sorts and recycles the materials. Greensboro provides the collection pickup and delivery to the contractor's location, while the contractor provides for recovery of materials and disposal of the residuals it is unable to recycle.

Materials collected by Greensboro's household recycling program include:

- No. 1 and No. 2 plastics
- newspaper
- magazines
- telephone books
- cardboard
- aluminum and steel cans
- chipboard (cereal boxes)
- glass jars and bottles
- plastic soda bottles and milk jugs
- office paper
- empty aerosol cans.

Greensboro contracts with a private firm for separation, packaging, and sale of recyclable materials. City payments to the contractor for FY 2011–12 are included in total cost. The contractor pays the city 50 percent of the net proceeds it receives from the sale of recyclable items. The estimated revenues for sale of recyclables for residential recycling for FY 2011–12 was $357,031. In addition, Greensboro gets additional revenues from the sale of recyclables from non-residential sources, but these are not counted here.

Conditions Affecting Service, Performance, and Costs

Greensboro is highly automated in gathering materials from its recycling program.

The set-out rate was based on a manual count done on a weekly basis.

Municipal Profile

Population (OSBM 2011)	272,196
Land Area (Square Miles)	127.14
Persons per Square Mile	2,141
Median Family Income U.S. Census 2010	$52,752

Service Profile

FTE Positions—Collection	15.0
FTE Positions—Other	4.0
Number of City Drop-Off Centers	20
Other Drop-Off Centers	0
Percentage of Service Contracted	0%
Collection Frequency	Every 2 weeks
General Collection Location	Curbside
Recyclables Sorted at Curb	No
Collection Points	80,640
Tons of Recyclables Collected	
Curbside	18,123
City Drop-Off Centers	0
Total Tons Collected	18,123
Monthly Service Fee	No
Revenue from Sale of Recyclables	$357,031
Revenue as Percentage of Cost	12.7%

Full Cost Profile

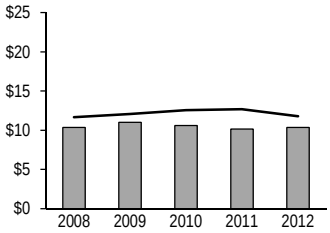
Cost Breakdown by Percentage	
Personal Services	29.0%
Operating Costs	71.0%
Capital Costs	0.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$816,281
Operating Costs	$2,001,768
Capital Costs	$0
TOTAL	$2,818,049

Greensboro Household Recycling

Key: Greensboro ■ Benchmarking Average — Fiscal Years 2008 through 2012

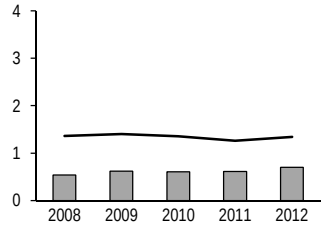
Resource Measures

Recycling Services Cost per Capita



	2008	2009	2010	2011	2012
Greensboro	$10.37	$11.03	$10.62	$10.15	$10.35
Average	$11.67	$12.06	$12.56	$12.67	$11.78

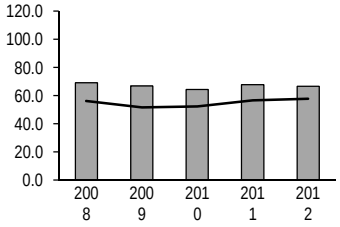
Recycling Services FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Greensboro	0.54	0.62	0.61	0.61	0.70
Average	1.36	1.40	1.36	1.26	1.34

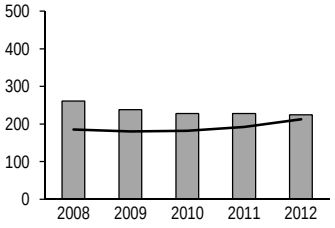
Workload Measures

Tons Recyclables Collected per 1,000 Population



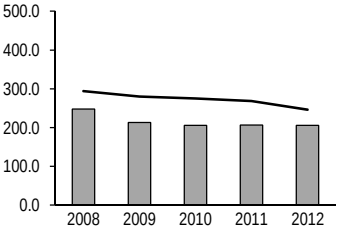
	2008	2009	2010	2011	2012
Greensboro	69.0	66.7	64.3	67.6	66.6
Average	56.0	51.7	52.3	56.6	57.7

Tons Recyclables Collected per 1,000 Collection Points



	2008	2009	2010	2011	2012
Greensboro	261	238	228	228	225
Average	185	180	182	192	213

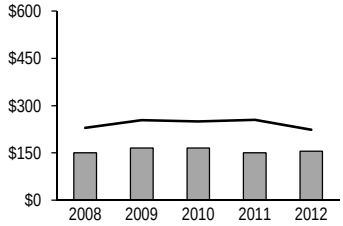
Tons Solid Waste Landfilled per 1,000 Population



	2008	2009	2010	2011	2012
Greensboro	247.8	212.9	205.6	206.2	205.2
Average	294.1	280.3	275.1	268.7	246.2

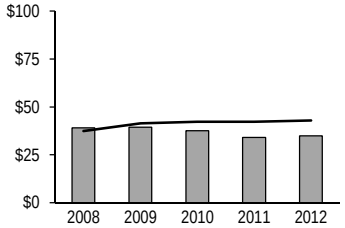
Efficiency Measures

Recycling Services Cost per Ton Collected



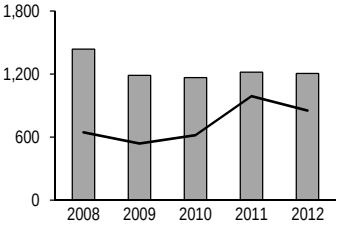
	2008	2009	2010	2011	2012
Greensboro	$150	$165	$165	$150	$155
Average	$230	$254	$250	$255	$223

Recycling Services Cost per Collection Point



	2008	2009	2010	2011	2012
Greensboro	$39.15	$39.43	$37.62	$34.17	$34.95
Average	$37.46	$41.45	$42.34	$42.23	$42.87

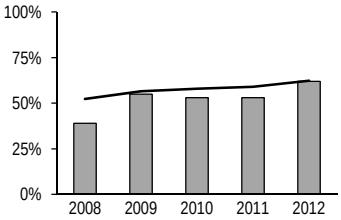
Tons Collected Curbside per Municipal FTE



	2008	2009	2010	2011	2012
Greensboro	1439	1189	1166	1218	1208
Average	647	541	619	991	854

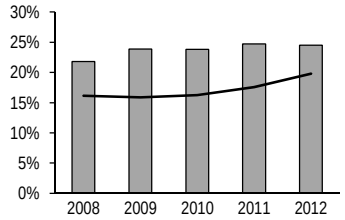
Effectiveness Measures

Community Set-Out Rate



	2008	2009	2010	2011	2012
Greensboro	39.0%	55.0%	53.0%	53.0%	62.0%
Average	52.3%	56.5%	58.0%	58.9%	62.4%

Tons Recycled as Percentage of Tons Refuse and Recyclables Collected



	2008	2009	2010	2011	2012
Greensboro	21.8%	23.9%	23.8%	24.7%	24.5%
Average	16.1%	15.9%	16.3%	17.6%	19.8%

Greenville Household Recycling

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

Greenville offers once-a-week curbside or backyard collection of recyclable materials to its residents through a city-run program. Residents can choose to have backyard collection for a higher fee. The recycling fee is included in the solid waste fee for residential refuse collection. The recycling materials include:

- newspaper and magazines
- cardboard
- aluminum and steel cans
- No. 1 and No. 2 plastics
- glass of all colors
- white goods.

Greenville's household recycling program also uses three city-owned drop-off recycling centers and 150 other sites connected to multi-family complexes. Tonnage and cost for these other drop-off sites are not included in the performance and cost data.

Conditions Affecting Service, Performance, and Costs

Greenville joined the project in July 2009, with the first year of reporting being for FY 2008–09.

Greenville does not track the number of households which set out recyclables on a weekly basis.

Municipal Profile

Population (OSBM 2011)	85,059
Land Area (Square Miles)	34.70
Persons per Square Mile	2,451
Median Family Income U.S. Census 2010	$50,395

Service Profile

FTE Positions—Collection	15.0
FTE Positions—Other	1.0
Number of City Drop-Off Centers	3
Other Drop-Off Centers	150
Percentage of Service Contracted	0%
Collection Frequency	1 x week
General Collection Location	Curbside
Recyclables Sorted at Curb	Yes
Collection Points	12,411
Tons of Recyclables Collected	
Curbside	5,538
City Drop-Off Centers	0
Total Tons Collected	5,538
Monthly Service Fee	No
Revenue from Sale of Recyclables	$6,242
Revenue as Percentage of Cost	0.5%

Full Cost Profile

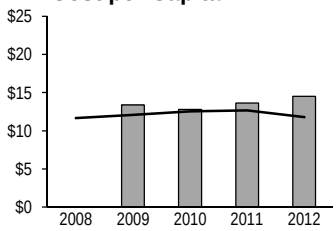
Cost Breakdown by Percentage	
Personal Services	67.5%
Operating Costs	20.5%
Capital Costs	12.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$832,436
Operating Costs	$253,320
Capital Costs	$147,411
TOTAL	$1,233,167

Greenville Household Recycling

Key: Greenville ■ Benchmarking Average — Fiscal Years 2008 through 2012

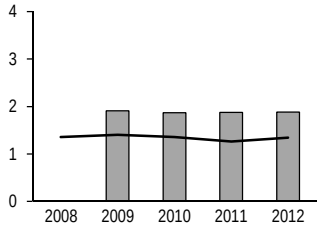
Resource Measures

Recycling Services Cost per Capita



	2008	2009	2010	2011	2012
Greenville		$13.39	$12.80	$13.65	$14.50
Average	$11.67	$12.06	$12.56	$12.67	$11.78

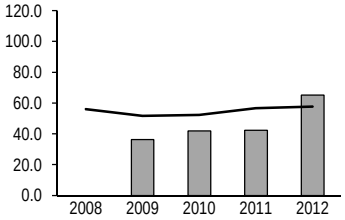
Recycling Services FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Greenville		1.91	1.87	1.88	1.88
Average	1.36	1.40	1.36	1.26	1.34

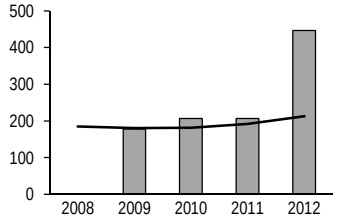
Workload Measures

Tons Recyclables Collected per 1,000 Population



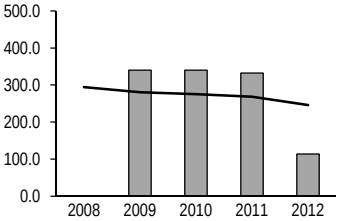
	2008	2009	2010	2011	2012
Greenville		36.2	42.0	42.3	65.1
Average	56.0	51.7	52.3	56.6	57.7

Tons Recyclables Collected per 1,000 Collection Points



	2008	2009	2010	2011	2012
Greenville		178	206	206	446
Average	185	180	182	192	213

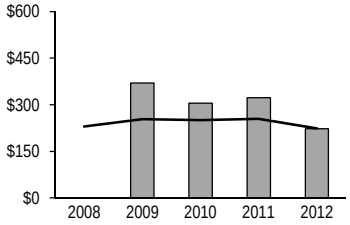
Tons Solid Waste Landfilled per 1,000 Population



	2008	2009	2010	2011	2012
Greenville		339.8	340.2	332.2	113.6
Average	294.1	280.3	275.1	268.7	246.2

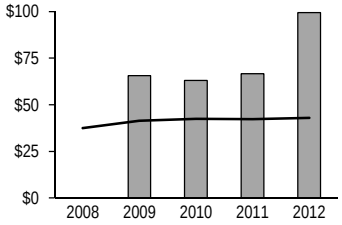
Efficiency Measures

Recycling Services Cost per Ton Collected



	2008	2009	2010	2011	2012
Greenville		$370	$305	$323	$223
Average	$230	$254	$250	$255	$223

Recycling Services Cost per Collection Point



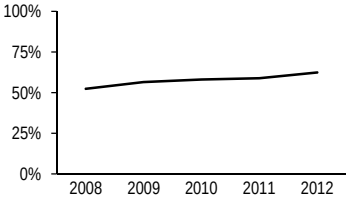
	2008	2009	2010	2011	2012
Greenville		$65.66	$62.94	$66.69	$99.36
Average	$37.46	$41.45	$42.34	$42.23	$42.87

Tons Collected Curbside per Municipal FTE

	2008	2009	2010	2011	2012
Greenville		202	240	240	369
Average	647	541	619	991	854

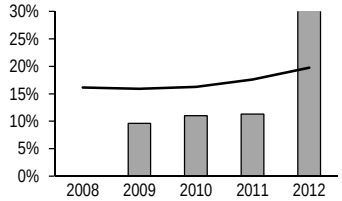
Effectiveness Measures

Community Set-Out Rate



	2008	2009	2010	2011	2012
Greenville					
Average	52.3%	56.5%	58.0%	58.9%	62.4%

Tons Recycled as Percentage of Tons Refuse and Recyclables Collected



	2008	2009	2010	2011	2012
Greenville		9.6%	11.0%	11.3%	36.4%
Average	16.1%	15.9%	16.3%	17.6%	19.8%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Hickory offers once-a-week curbside collection of recyclable materials to its residents through a contractual agreement. The recycling materials collected include:

- newspaper and magazines
- aluminum and steel cans
- No. 1 and No. 2 plastics
- glass—all colors
- phone books and junk mail.

Hickory's household recycling program also uses two drop-off recycling centers. One is staffed, and the other is not. These centers collect antifreeze and oil in addition to the same household materials that are collected at the curb. Tonnage and costs for this service are included in the performance and cost data.

A separate commercial recycling program that services businesses and multi-family units is operated by the city. The program utilizes city workers and equipment to collect cardboard and paper in addition to the curbside materials. The performance and cost data do not include the commercial program.

The city charges residents a monthly fee for recycling, which is included in the monthly solid waste fee. In FY 2011–12, the city collected $75,829 in revenue from the sale of recyclables.

Conditions Affecting Service, Performance, and Costs
The set-out rate is calculated on a monthly basis by the contractor. While not tracked, missed recycling pickups are minimal and average less than one per month. The market for recyclables improved during Fiscal Year 2011–12, producing more revenue.

Municipal Profile

Population (OSBM 2011)	40,086
Land Area (Square Miles)	29.72
Persons per Square Mile	1,349
Median Family Income U.S. Census 2010	$54,093

Service Profile

FTE Positions—Collection	Contractor and 0.5 City
FTE Positions—Other	0.1
Number of City Drop-Off Centers	2
Other Drop-Off Centers	0
Percentage of Service Contracted	80%
Collection Frequency	1 x week
General Collection Location	Curbside
Recyclables Sorted at Curb	Yes
Collection Points	12,100
Tons of Recyclables Collected	
Curbside	1,195
City Drop-Off Centers	295
Total Tons Collected	1,490
Monthly Service Fee	No
Revenue from Sale of Recyclables	$75,829
Revenue as Percentage of Cost	19.8%

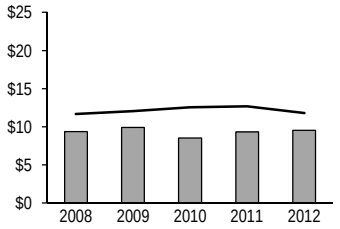
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	6.1%
Operating Costs	93.9%
Capital Costs	0.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$23,306
Operating Costs	$358,851
Capital Costs	$0
TOTAL	$382,157

Key: Hickory ■ Benchmarking Average — Fiscal Years 2008 through 2012

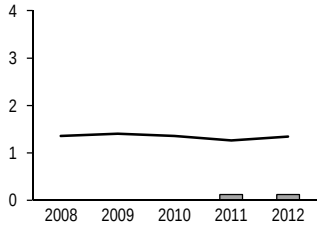
Resource Measures

Recycling Services Cost per Capita



	2008	2009	2010	2011	2012
Hickory	$9.34	$9.90	$8.52	$9.33	$9.53
Average	$11.67	$12.06	$12.56	$12.67	$11.78

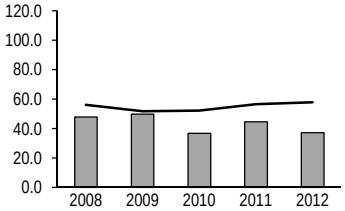
Recycling Services FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Hickory				0.13	0.13
Average	1.36	1.40	1.36	1.26	1.34

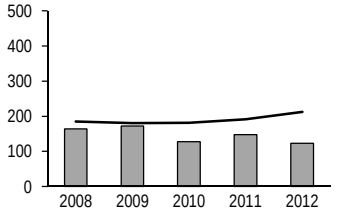
Workload Measures

Tons Recyclables Collected per 1,000 Population



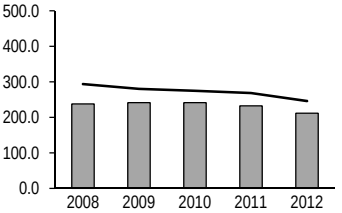
	2008	2009	2010	2011	2012
Hickory	47.9	49.8	36.7	44.6	37.2
Average	56.0	51.7	52.3	56.6	57.7

Tons Recyclables Collected per 1,000 Collection Points



	2008	2009	2010	2011	2012
Hickory	164	172	127	148	123
Average	185	180	182	192	213

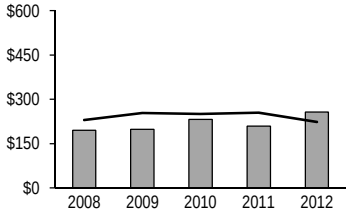
Tons Solid Waste Landfilled per 1,000 Population



	2008	2009	2010	2011	2012
Hickory	237.8	241.0	241.9	232.2	211.8
Average	294.1	280.3	275.1	268.7	246.2

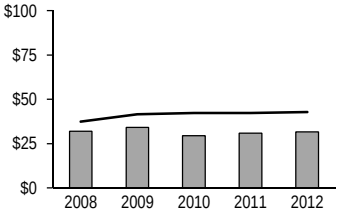
Efficiency Measures

Recycling Services Cost per Ton Collected



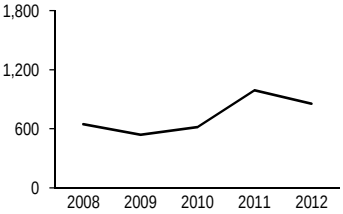
	2008	2009	2010	2011	2012
Hickory	$195	$199	$232	$209	$256
Average	$230	$254	$250	$255	$223

Recycling Services Cost per Collection Point



	2008	2009	2010	2011	2012
Hickory	$32.03	$34.22	$29.53	$30.90	$31.58
Average	$37.46	$41.45	$42.34	$42.23	$42.87

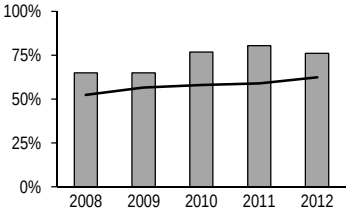
Tons Collected Curbside per Municipal FTE



	2008	2009	2010	2011	2012
Hickory					
Average	647	541	619	991	854

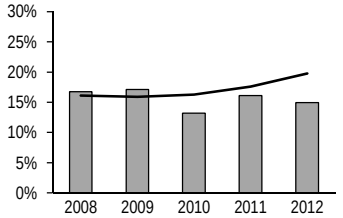
Effectiveness Measures

Community Set-Out Rate



	2008	2009	2010	2011	2012
Hickory	65.0%	65.0%	76.9%	80.4%	76.2%
Average	52.3%	56.5%	58.0%	58.9%	62.4%

Tons Recycled as Percentage of Tons Refuse and Recyclables Collected



	2008	2009	2010	2011	2012
Hickory	16.8%	17.1%	13.2%	16.1%	14.9%
Average	16.1%	15.9%	16.3%	17.6%	19.8%

High Point — Household Recycling

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

The city offers curbside collection every other week. Large ninety-six-gallon containers are provided to customers. Additional carts may be purchased. The recycling program is a city function.

Recyclables are collected using four recycling crews that work in the Environmental Services Division. The pickup trucks are automated with one driver. A truck for special circumstances such as downtown uses a crew with a driver and one laborer. There are fourteen drop-off sites throughout the city and a number of multi-family sites at which the city collects. Materials collected include:

- plastic
- glass
- metal and aluminum cans
- magazines
- newspaper
- phone books
- cardboard
- mixed paper.

The city also operates and owns a material recovery facility (MRF). There is a buy-back center at the MRF to service individuals selling recyclables. This report includes the cost and FTE positions for the MRF.

Conditions Affecting Service, Performance, and Costs

The city used a random sample to determine the set-out rate.

High Point has been working on improving efficiency and processing of recyclables for resale. Combined with better markets for recyclable materials, revenue from sales of recyclable materials were $909,046 for the year.

High Point made a transition in FY 2009–10 to less frequent automated collection. This changeover brought with it a large amount of one-time costs associated with recycling containers and new collection equipment. High Point is now fully automated in its pickups, other than those involving special needs.

Municipal Profile

Population (OSBM 2011)	105,498
Land Area (Square Miles)	53.83
Persons per Square Mile	1,960
Median Family Income U.S. Census 2010	$49,720

Service Profile

FTE Positions—Collection	4.0
FTE Positions—Other	31.0
Number of City Drop-Off Centers	14
Other Drop-Off Centers	52
Percentage of Service Contracted	0%
Collection Frequency	Every 2 weeks
General Collection Location	Curbside
Recyclables Sorted at Curb	No
Collection Points	35,544
Tons of Recyclables Collected	
Curbside	7,616
City Drop-Off Centers	582
Total Tons Collected	8,198
Monthly Service Fee	$1.00
Revenue from Sale of Recyclables	$909,046
Revenue as Percentage of Cost	37.0%

Full Cost Profile

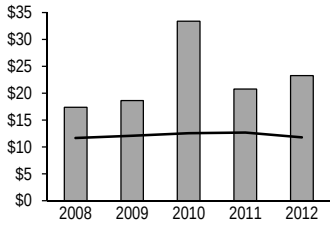
Cost Breakdown by Percentage	
Personal Services	17.2%
Operating Costs	78.6%
Capital Costs	4.2%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$422,302
Operating Costs	$1,931,594
Capital Costs	$102,240
TOTAL	$2,456,136

High Point — Household Recycling

Key: High Point ■ Benchmarking Average — Fiscal Years 2008 through 2012

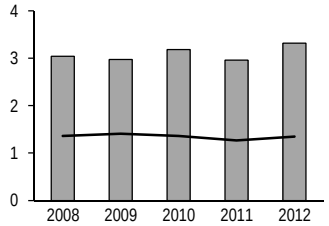
Resource Measures

Recycling Services Cost per Capita



	2008	2009	2010	2011	2012
High Point	$17.34	$18.59	$33.36	$20.78	$23.28
Average	$11.67	$12.06	$12.56	$12.67	$11.78

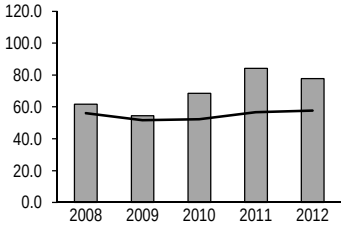
Recycling Services FTEs per 10,000 Population



	2008	2009	2010	2011	2012
High Point	3.04	2.97	3.18	2.96	3.32
Average	1.36	1.40	1.36	1.26	1.34

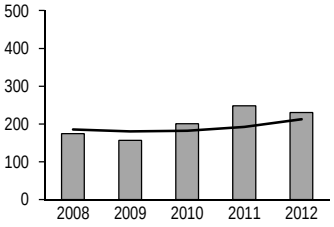
Workload Measures

Tons Recyclables Collected per 1,000 Population



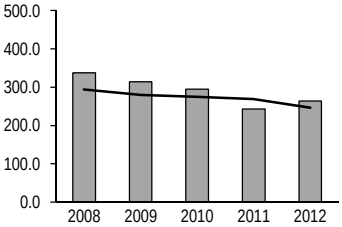
	2008	2009	2010	2011	2012
High Point	61.8	54.4	68.5	84.1	77.7
Average	56.0	51.7	52.3	56.6	57.7

Tons Recyclables Collected per 1,000 Collection Points



	2008	2009	2010	2011	2012
High Point	174	157	201	248	231
Average	185	180	182	192	213

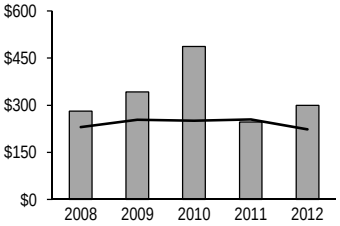
Tons Solid Waste Landfilled per 1,000 Population



	2008	2009	2010	2011	2012
High Point	337.8	314.3	295.2	243.3	264.0
Average	294.1	280.3	275.1	268.7	246.2

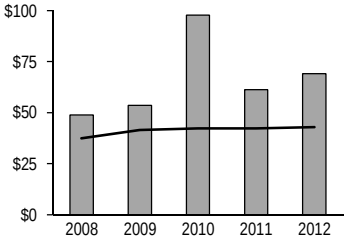
Efficiency Measures

Recycling Services Cost per Ton Collected



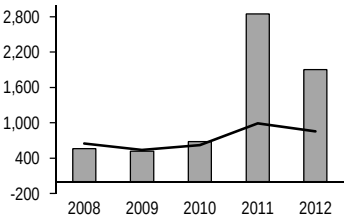
	2008	2009	2010	2011	2012
High Point	$281	$342	$487	$247	$300
Average	$230	$254	$250	$255	$223

Recycling Services Cost per Collection Point



	2008	2009	2010	2011	2012
High Point	$48.87	$53.62	$97.83	$61.25	$69.10
Average	$37.46	$41.45	$42.34	$42.23	$42.87

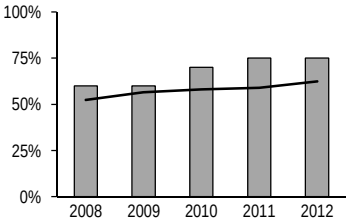
Tons Collected Curbside per Municipal FTE



	2008	2009	2010	2011	2012
High Point	563	517	683	2848	1904
Average	647	541	619	991	854

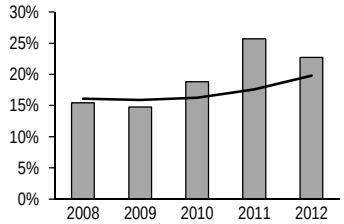
Effectiveness Measures

Community Set-Out Rate



	2008	2009	2010	2011	2012
High Point	60.0%	60.0%	70.0%	75.0%	75.0%
Average	52.3%	56.5%	58.0%	58.9%	62.4%

Tons Recycled as Percentage of Tons Refuse and Recyclables Collected



	2008	2009	2010	2011	2012
High Point	15.5%	14.7%	18.8%	25.7%	22.7%
Average	16.1%	15.9%	16.3%	17.6%	19.8%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Salisbury provides once-a-week curbside collection of recyclable materials from households. The city charged a monthly recycling fee of $4.03 in FY 2011–12. The city provides and pays for the fourteen-gallon recycling bins that residents use. The city contracts 100 percent of its recycling program. Recyclables are sorted at the curb by the contractor and taken to the county recycling site.
The recyclable materials collected include:

- glass (all colors)
- newspaper
- magazines and catalogs
- mixed paper and mail
- telephone books
- cardboard—broken down and cereal boxes
- plastics—No. 1 and No. 2
- aluminum cans
- steel cans.

Conditions Affecting Service, Performance, and Costs
The set-out rate was reported monthly by the contractor. The city reserves the right to conduct unannounced follow-up inspections of the collection process.

Municipal Profile

Population (OSBM 2011)	33,704
Land Area (Square Miles)	22.18
Persons per Square Mile	1,519
Median Family Income U.S. Census 2010	$40,192

Service Profile

FTE Positions—Collection	Contractor
FTE Positions—Other	Contractor
Number of City Drop-Off Centers	0
Other Drop-Off Centers	0
Percentage of Service Contracted	100%
Collection Frequency	1 x week
General Collection Location	Curbside
Recyclables Sorted at Curb	Yes
Collection Points	10,500
Tons of Recyclables Collected	
Curbside	1,014
City Drop-Off Centers	0
Total Tons Collected	1,014
Monthly Service Fee	$4.03
Revenue from Sale of Recyclables	$0
Revenue as Percentage of Cost	NA

Full Cost Profile

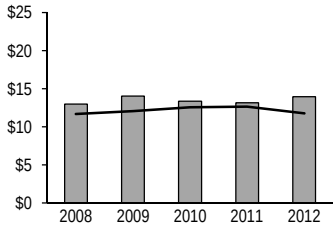
Cost Breakdown by Percentage	
Personal Services	0.0%
Operating Costs	100.0%
Capital Costs	0.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$0
Operating Costs	$469,804
Capital Costs	$0
TOTAL	$469,804

Salisbury Household Recycling

Key: Salisbury ■ Benchmarking Average — Fiscal Years 2008 through 2012

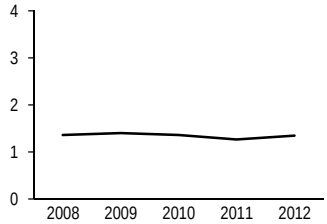
Resource Measures

Recycling Services Cost per Capita



	2008	2009	2010	2011	2012
Salisbury	$12.99	$14.05	$13.35	$13.16	$13.94
Average	$11.67	$12.06	$12.56	$12.67	$11.78

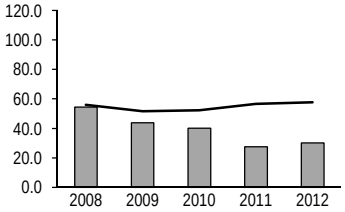
Recycling Services FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Salisbury					
Average	1.36	1.40	1.36	1.26	1.34

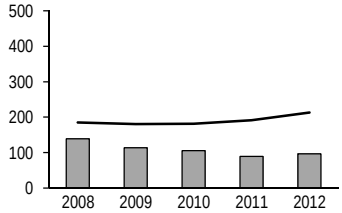
Workload Measures

Tons Recyclables Collected per 1,000 Population



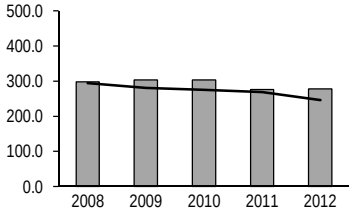
	2008	2009	2010	2011	2012
Salisbury	54.5	43.9	40.1	27.5	30.1
Average	56.0	51.7	52.3	56.6	57.7

Tons Recyclables Collected per 1,000 Collection Points



	2008	2009	2010	2011	2012
Salisbury	139	113	106	89	97
Average	185	180	182	192	213

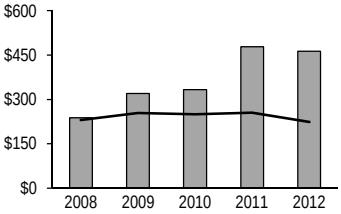
Tons Solid Waste Landfilled per 1,000 Population



	2008	2009	2010	2011	2012
Salisbury	298.0	303.7	303.8	276.4	277.6
Average	294.1	280.3	275.1	268.7	246.2

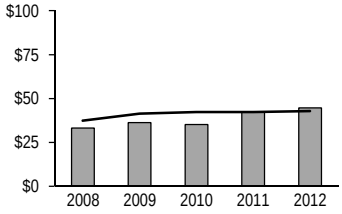
Efficiency Measures

Recycling Services Cost per Ton Collected



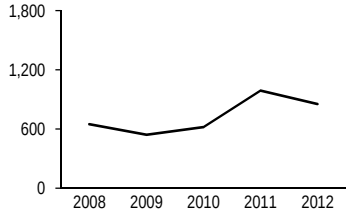
	2008	2009	2010	2011	2012
Salisbury	$238	$320	$333	$478	$463
Average	$230	$254	$250	$255	$223

Recycling Services Cost per Collection Point



	2008	2009	2010	2011	2012
Salisbury	$33.17	$36.25	$35.28	$42.58	$44.74
Average	$37.46	$41.45	$42.34	$42.23	$42.87

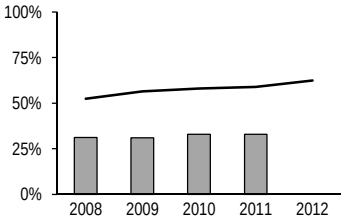
Tons Collected Curbside per Municipal FTE



	2008	2009	2010	2011	2012
Salisbury					
Average	647	541	619	991	854

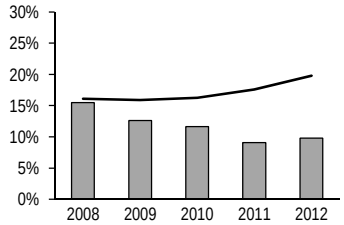
Effectiveness Measures

Community Set-Out Rate



	2008	2009	2010	2011	2012
Salisbury	31.1%	31.0%	33.0%	33.0%	
Average	52.3%	56.5%	58.0%	58.9%	62.4%

Tons Recycled as Percentage of Tons Refuse and Recyclables Collected



	2008	2009	2010	2011	2012
Salisbury	15.5%	12.6%	11.7%	9.1%	9.8%
Average	16.1%	15.9%	16.3%	17.6%	19.8%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Wilmington's household recycling program provides curbside pickup of materials once each week to residences, small businesses, and small apartment complexes that choose to participate. The city performs all the curbside collection.

Materials collected by Wilmington's recycling program include:

- green, brown, and clear glass
- aluminum beverage cans and steel cans
- newspaper
- certain plastics (No. 1 and No. 2)
- all paper products
- cardboard (downtown only).

A separate recycling fee is not charged, but the cost of the program is included in the solid waste fee paid by city residents. Recycling containers are provided to residents at no cost. Recyclables are not separated at curbside but go into a single stream which is handled at the regional recycling facility.

Conditions Affecting Service, Performance, and Costs
Of the potential eligible households that could join in the voluntary program, 47 percent, or 14,700 households, chose to participate. Of these participating households, 50 percent set out their recycling on average. Thus, approximately 23 percent of the households that could join were actually setting out recyclables during a regular collection week.

Municipal Profile

Population (OSBM 2011)	108,337
Land Area (Square Miles)	51.49
Persons per Square Mile	2,104
Median Family Income U.S. Census 2010	$57,892

Service Profile

FTE Positions—Collection	10.3
FTE Positions—Other	0.7
Number of City Drop-Off Centers	0
Other Drop-Off Centers	0
Percentage of Service Contracted	0%
Collection Frequency	1 x week
General Collection Location	Curbside
Recyclables Sorted at Curb	No
Collection Points	14,700
Tons of Recyclables Collected	
Curbside	5,643
City Drop-Off Centers	0
Total Tons Collected	5,643
Monthly Service Fee	No
Revenue from Sale of Recyclables	$0
Revenue as Percentage of Cost	NA

Full Cost Profile

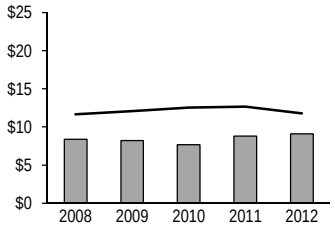
Cost Breakdown by Percentage	
Personal Services	50.8%
Operating Costs	34.9%
Capital Costs	14.3%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$500,802
Operating Costs	$343,830
Capital Costs	$141,073
TOTAL	$985,705

Wilmington — Household Recycling

Key: Wilmington ■ Benchmarking Average — Fiscal Years 2008 through 2012

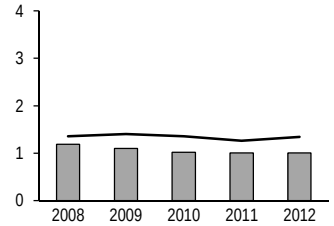
Resource Measures

Recycling Services Cost per Capita



	2008	2009	2010	2011	2012
Wilmington	$8.37	$8.21	$7.67	$8.79	$9.10
Average	$11.67	$12.06	$12.56	$12.67	$11.78

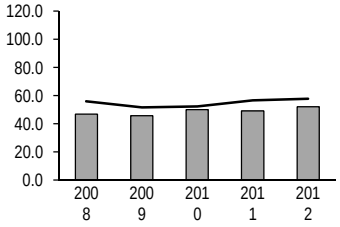
Recycling Services FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Wilmington	1.19	1.10	1.02	1.01	1.01
Average	1.36	1.40	1.36	1.26	1.34

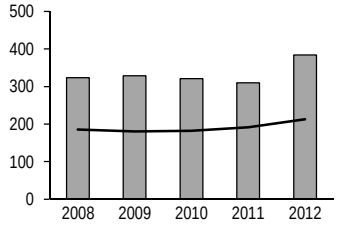
Workload Measures

Tons Recyclables Collected per 1,000 Population



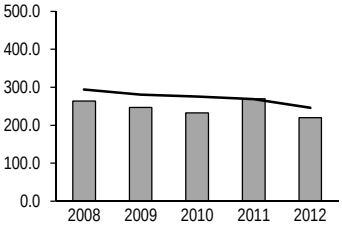
	2008	2009	2010	2011	2012
Wilmington	46.8	45.7	50.0	49.1	52.1
Average	56.0	51.7	52.3	56.6	57.7

Tons Recyclables Collected per 1,000 Collection Points



	2008	2009	2010	2011	2012
Wilmington	324	329	321	309	384
Average	185	180	182	192	213

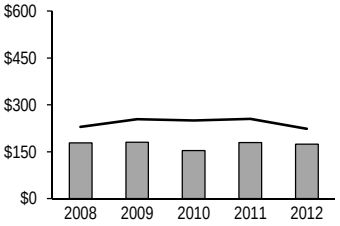
Tons Solid Waste Landfilled per 1,000 Population



	2008	2009	2010	2011	2012
Wilmington	263.7	246.9	232.3	269.8	219.8
Average	294.1	280.3	275.1	268.7	246.2

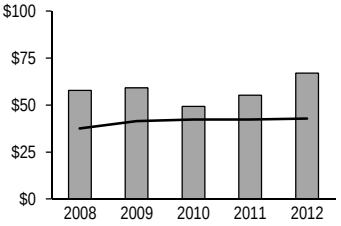
Efficiency Measures

Recycling Services Cost per Ton Collected



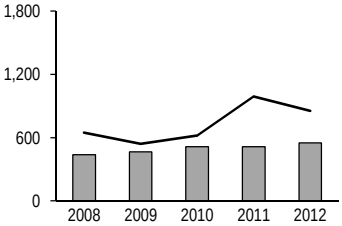
	2008	2009	2010	2011	2012
Wilmington	$179	$180	$153	$179	$175
Average	$230	$254	$250	$255	$223

Recycling Services Cost per Collection Point



	2008	2009	2010	2011	2012
Wilmington	$57.83	$59.14	$49.27	$55.33	$67.05
Average	$37.46	$41.45	$42.34	$42.23	$42.87

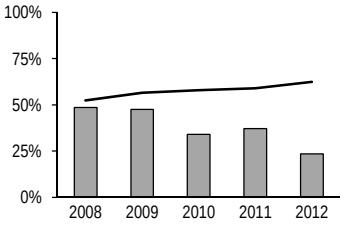
Tons Collected Curbside per Municipal FTE



	2008	2009	2010	2011	2012
Wilmington	438	467	515	512	551
Average	647	541	619	991	854

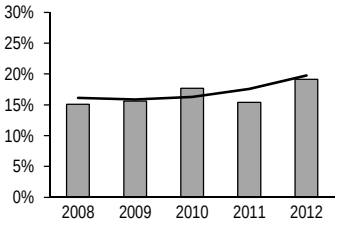
Effectiveness Measures

Community Set-Out Rate



	2008	2009	2010	2011	2012
Wilmington	48.6%	47.5%	34.1%	37.1%	23.5%
Average	52.3%	56.5%	58.0%	58.9%	62.4%

Tons Recycled as Percentage of Tons Refuse and Recyclables Collected



	2008	2009	2010	2011	2012
Wilmington	15.1%	15.6%	17.7%	15.4%	19.2%
Average	16.1%	15.9%	16.3%	17.6%	19.8%

Wilson Household Recycling

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

Wilson's household recycling program provides curbside pickup of materials once each week to residents on the same day as residential refuse collection but by different crews. The recycling program is part of the Division of Environmental Services.

The following materials are collected:

- aluminum and steel cans
- No. 1 and No. 2 plastic containers
- newsprint
- clear, green, and brown glass
- waste oil on a call-in basis.

Wilson used two three-person crews during the year, consisting of one driver and two collectors each.

Conditions Affecting Service, Performance, and Costs

The set-out rate was calculated on a monthly basis by drivers on the recycling trucks using counters.

Municipal Profile

Population (OSBM 2011)	49,122
Land Area (Square Miles)	28.78
Persons per Square Mile	1,707
Median Family Income U.S. Census 2010	$43,442

Service Profile

FTE Positions—Collection	6.0
FTE Positions—Other	0.5
Number of City Drop-Off Centers	0
Other Drop-Off Centers	0
Percentage of Service Contracted	0%
Collection Frequency	1 x week
General Collection Location	Curbside
Recyclables Sorted at Curb	Yes
Collection Points	19,900
Tons of Recyclables Collected	
Curbside	1,559
City Drop-Off Centers	0
Total Tons Collected	1,559
Monthly Service Fee	$16.50
Revenue from Sale of Recyclables	$0
Revenue as Percentage of Cost	NA

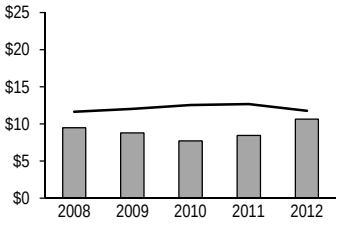
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	46.5%
Operating Costs	38.7%
Capital Costs	14.8%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$243,327
Operating Costs	$202,258
Capital Costs	$77,576
TOTAL	$523,161

Key: Wilson ■ Benchmarking Average — Fiscal Years 2008 through 2012

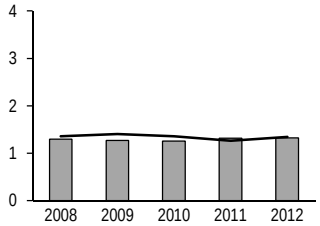
Resource Measures

Recycling Services Cost per Capita



	2008	2009	2010	2011	2012
Wilson	$9.49	$8.80	$7.74	$8.49	$10.65
Average	$11.67	$12.06	$12.56	$12.67	$11.78

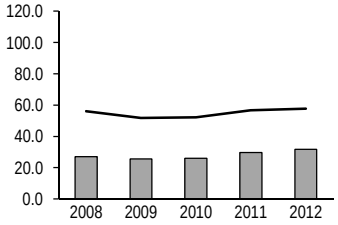
Recycling Services FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Wilson	1.30	1.27	1.26	1.32	1.32
Average	1.36	1.40	1.36	1.26	1.34

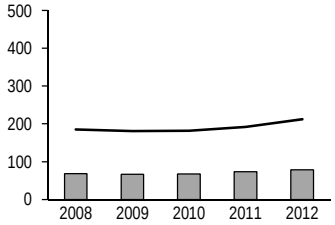
Workload Measures

Tons Recyclables Collected per 1,000 Population



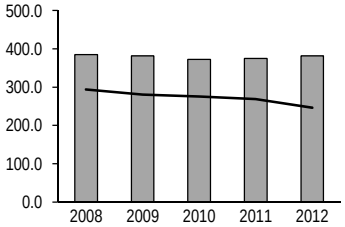
	2008	2009	2010	2011	2012
Wilson	26.9	25.7	25.9	29.7	31.7
Average	56.0	51.7	52.3	56.6	57.7

Tons Recyclables Collected per 1,000 Collection Points



	2008	2009	2010	2011	2012
Wilson	69	66	67	74	78
Average	185	180	182	192	213

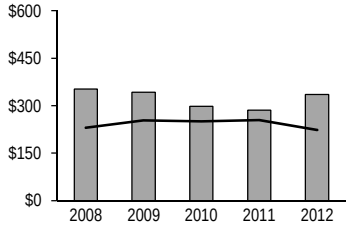
Tons Solid Waste Landfilled per 1,000 Population



	2008	2009	2010	2011	2012
Wilson	384.6	381.6	372.4	375.2	381.2
Average	294.1	280.3	275.1	268.7	246.2

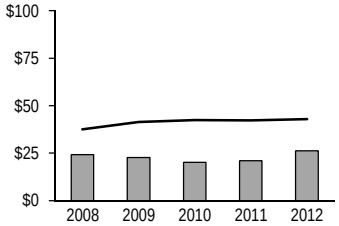
Efficiency Measures

Recycling Services Cost per Ton Collected



	2008	2009	2010	2011	2012
Wilson	$353	$343	$298	$286	$336
Average	$230	$254	$250	$255	$223

Recycling Services Cost per Collection Point



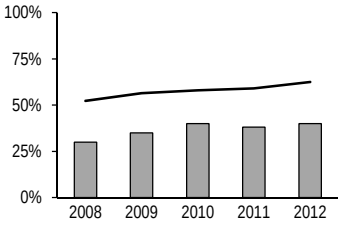
	2008	2009	2010	2011	2012
Wilson	$24.17	$22.71	$20.10	$21.08	$26.29
Average	$37.46	$41.45	$42.34	$42.23	$42.87

Tons Collected Curbside per Municipal FTE

	2008	2009	2010	2011	2012
Wilson	225	219	224	245	260
Average	647	541	619	991	854

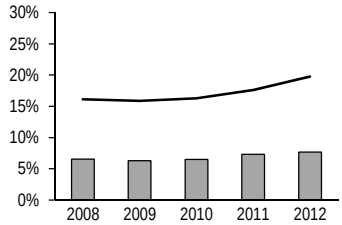
Effectiveness Measures

Community Set-Out Rate



	2008	2009	2010	2011	2012
Wilson	30.0%	35.0%	40.0%	38.0%	40.0%
Average	52.3%	56.5%	58.0%	58.9%	62.4%

Tons Recycled as Percentage of Tons Refuse and Recyclables Collected



	2008	2009	2010	2011	2012
Wilson	6.5%	6.3%	6.5%	7.3%	7.7%
Average	16.1%	15.9%	16.3%	17.6%	19.8%

Winston-Salem Household Recycling

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

Winston-Salem provides weekly curbside household recycling service to its single-family residences using bins and collects recyclables placed in ninety-six-gallon carts weekly from multi-family dwellings and small businesses. The city provides nine drop-off sites for cardboard at its fire stations plus two full-service drop-off sites. Items collected in the city's curbside household recycling program include:

- aluminum and steel cans
- all plastic bottles
- green, amber, and clear glass
- newspaper
- magazines, telephone books, and junk mail
- chipboard
- corrugated cardboard (no bundling requirement)
- office paper
- aerosol cans.

The city contracts for 100 percent of its curbside household recycling program. The contractor separates recyclables at the curb, placing paper products in one compartment on the truck and non-paper products in another. The contractor takes the recyclables to a processing facility where commodities are further separated. The city does not charge a recycling fee. Revenue to the city for the sale of recyclables was $378,941 during the year.

Conditions Affecting Service, Performance, and Costs

In FY2011–12, sixty percent of of the cost of Winston-Salem's recycling program was funded by landfill tipping fees. The remaining forty percent was funded by the general fund.

In April 2012, the city implemented a single stream recycling program in which residents place all recyclables into a city issued 96-gallon cart that is rolled to the curb for collection. The service was also changed to a bi-weekly collection. The city anticipates signficant cost savings and increased participation from a single stream program.

Municipal Profile

Population (OSBM 2011)	232,143
Land Area (Square Miles)	132.45
Persons per Square Mile	1,753
Median Family Income U.S. Census 2010	$51,491

Service Profile

FTE Positions—Collection	Contractor
FTE Positions—Other	1.0
Number of City Drop-Off Centers	11
Other Drop-Off Centers	0
Percentage of Service Contracted	100%
Collection Frequency	1 x week
General Collection Location	Curbside
Recyclables Sorted at Curb	Yes
Collection Points	76,064
Tons of Recyclables Collected	
Curbside	10,665
City Drop-Off Centers	1,022
Total Tons Collected	11,686
Monthly Service Fee	No
Revenue from Sale of Recyclables	$378,941
Revenue as Percentage of Cost	14.1%

Full Cost Profile

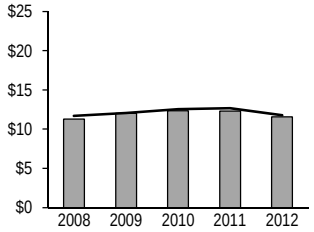
Cost Breakdown by Percentage	
Personal Services	2.5%
Operating Costs	97.5%
Capital Costs	0.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$67,302
Operating Costs	$2,619,990
Capital Costs	$896
TOTAL	$2,688,188

Winston-Salem Household Recycling

Key: Winston-Salem ■ Benchmarking Average — Fiscal Years 2008 through 2012

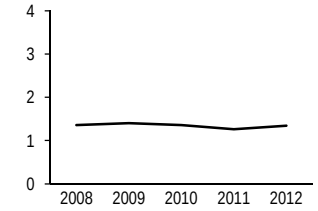
Resource Measures

Recycling Services Cost per Capita



	2008	2009	2010	2011	2012
Winston-Salem	$11.29	$12.02	$12.34	$12.30	$11.58
Average	$11.67	$12.06	$12.56	$12.67	$11.78

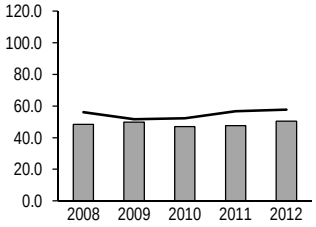
Recycling Services FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Winston-Salem					
Average	1.36	1.40	1.36	1.26	1.34

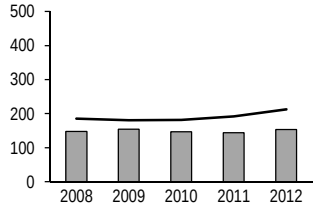
Workload Measures

Tons Recyclables Collected per 1,000 Population



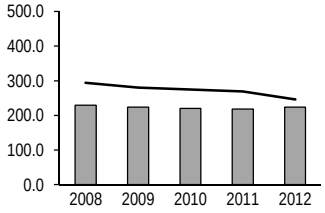
	2008	2009	2010	2011	2012
Winston-Salem	48.3	49.9	47.1	47.5	50.3
Average	56.0	51.7	52.3	56.6	57.7

Tons Recyclables Collected per 1,000 Collection Points



	2008	2009	2010	2011	2012
Winston-Salem	147	155	147	144	154
Average	185	180	182	192	213

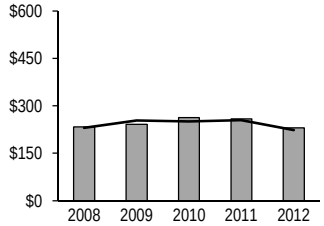
Tons Solid Waste Landfilled per 1,000 Population



	2008	2009	2010	2011	2012
Winston-Salem	229.6	223.4	220.4	218.2	224.2
Average	294.1	280.3	275.1	268.7	246.2

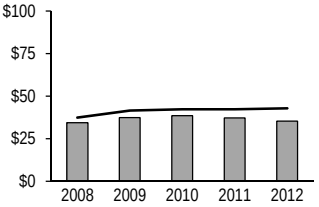
Efficiency Measures

Recycling Services Cost per Ton Collected



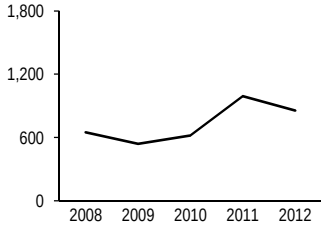
	2008	2009	2010	2011	2012
Winston-Salem	$234	$241	$262	$259	$230
Average	$230	$254	$250	$255	$223

Recycling Services Cost per Collection Point



	2008	2009	2010	2011	2012
Winston-Salem	$34.44	$37.29	$38.56	$37.25	$35.34
Average	$37.46	$41.45	$42.34	$42.23	$42.87

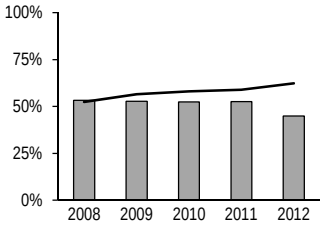
Tons Collected Curbside per Municipal FTE



	2008	2009	2010	2011	2012
Winston-Salem					
Average	647	541	619	991	854

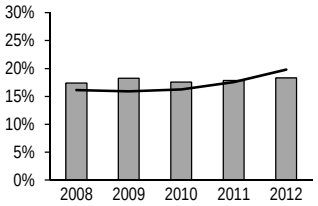
Effectiveness Measures

Community Set-Out Rate



	2008	2009	2010	2011	2012
Winston-Salem	53.3%	52.8%	52.5%	52.6%	44.9%
Average	52.3%	56.5%	58.0%	58.9%	62.4%

Tons Recycled as Percentage of Tons Refuse and Recyclables Collected



	2008	2009	2010	2011	2012
Winston-Salem	17.4%	18.2%	17.6%	17.9%	18.3%
Average	16.1%	15.9%	16.3%	17.6%	19.8%

UNC
SCHOOL OF
GOVERNMENT

Performance and Cost Data

YARD WASTE / LEAF COLLECTION

PERFORMANCE MEASURES FOR YARD WASTE/LEAF COLLECTION

SERVICE DEFINITION

Yard waste and leaf collection includes regularly scheduled or special collection of these items. Such collection may occur from the curb, backyard, or another locale. Yard waste and leaves may be bagged, placed in containers, or loose. The service definition excludes the collection of white goods and other bulky items. Although some municipalities collect yard waste and leaves with household refuse or other trash, they do separate the items at some point in the collection process because yard waste and leaves cannot be placed in landfills.

NOTES ON PERFORMANCE MEASURES

1. Tons Collected per 1,000 Population and per 1,000 Collection Points

These are the same performance measures that are used for residential refuse collection, except that tonnage is for yard waste, leaves, and miscellaneous trash rather than residential refuse. “Collection points” refers to the number of residential premises served by regularly scheduled collection of yard waste, leaves, and miscellaneous trash.

2. Cost per Ton Collected

Cost is measured using the project’s full cost accounting model, calculating direct, indirect, and capital costs. Tons are as defined above.

3. Tons Collected per Collection FTE

The number of full-time equivalent (FTE) positions refers to the number of employees or laborers who were directly involved in collection of yard waste, leaves, and miscellaneous trash during the fiscal year. This number includes temporary, permanent, full-time, and part-time workers. Such workers can be sanitation, street, or other municipal employees. One FTE equals 2,080 hours of work per year. Any combination of employees providing 2,080 hours of work per year is one FTE.

4. Complaints (and Valid Complaints) per 10,000 Collection Points

Complaints are those tracked by each jurisdiction, using its own criteria and procedures. Collection points are as defined above. The municipalities follow very different procedures in processing and recording these calls and in determining which ones are complaints and which are not. For these reasons, the project is able to present limited comparative data about complaints or valid complaints. Nonetheless, the project recommends that the participating municipalities devise common criteria for identifying complaints and procedures for processing and recording calls.

Yard Waste/Leaf Collection

Summary of Key Dimensions of Service

City or Town	Yard Waste Collection		Seasonal Loose Leaf Collection	Collection Points	Tons Collected		FTE Positions
	Location	Frequency			Yard Waste	Loose Leaves	
Apex	Curbside	1 x week	NA	11,616	5,533	NA	10.35
Asheville	Curbside	2 x month	NA	30,169	6,366	2,500	14.9
Burlington	Curbside	1 x week	4 sweeps	16,633	2,390	3,354	13.3
Cary	Curbside	1 x week	3 sweeps	42,662	13,148	5,517	23.57
Charlotte	Curbside	1 x week	NA	209,834	51,945	NA	76
Concord	Curbside	1 x week	3 sweeps	28,131	5,850	1,842	24.59
Greensboro	Curbside	1 x week	2 sweeps	80,640	14,851	13,089	45.98
Greenville	Curbside	1 x week	1 x week	20,000	18,000		22
Hickory	Curbside	1 x week	2 sweeps	12,100	3,195	3,388	9.75
High Point	Curbside	1 x week	2 sweeps	35,544	4,020	2,359	14.5
Salisbury	Curbside	1 x week	1 x 3 weeks	12,000	5,433	2,613	9
Wilmington	Curbside	1 x week	NA	30,310	12,451	NA	21.66
Wilson	Curbside	1 x week	1 x 3 weeks	19,900	8,810	2,038	15.5
Winston-Salem	Curbside	Yard Waste Cart 1 x week Brush every 10 days	2 to 3 sweeps	13,863 for yard waste cart and 76,064 for brush	22,839	15,965	86.1

NOTES

Municipalities with no reported seasonal leaf collection collect leaves as part of their yard waste collection programs.

EXPLANATORY FACTORS

These are factors that the project found affected yard waste and leaf collection performance and cost in one or more of the municipalities:

Whether or not a fee is charged for collection
Residential/commercial/industrial nature of the community
Policies regarding sizes and types of items collected
Extent of seasonal leaf collection service
Landfill policies and tipping fees

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The Town of Apex collects yard waste curbside once per week for all city residents. The town collects vegetative matter from residential landscaping. The town does not operate a seasonal leaf collection, but leaves are collected year round as part of the weekly service. Land clearing debris is not collected. The town charges $4 per month for collection of yard waste.

There are three grass/vacuum trucks, two two-person limb-chipping crews, and one grapple truck operator for larger items. These crews cover the town every week using a five-day-a-week schedule.

Conditions Affecting Service, Performance, and Costs
Apex began participation in the benchmarking project in July 2011, with FY 2010–11 being the first reporting year.

Municipal Profile

Population (OSBM 2011)	38,696
Land Area (Square Miles)	15.63
Persons per Square Mile	2,477
Median Family Income U.S. Census 2010	$97,201

Service Profile

FTE Positions—Collection	10.0
FTE Positions—Other	0.4
Collection Frequency	
Yard Waste	1 x week
Collection Points	11,616
Tons Collected	
Yard Waste	5,533
Seasonal Leaves	with yard waste
Total Tons Collected	5,533
Monthly Service Fee	$4.00

Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	45.8%
Operating Costs	43.0%
Capital Costs	11.2%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$516,350
Operating Costs	$484,693
Capital Costs	$126,344
TOTAL	$1,127,387

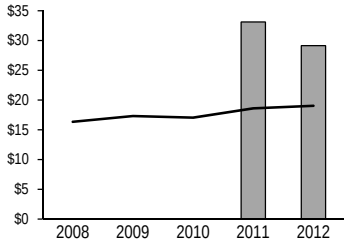
Apex

Yard Waste/Leaf Collection

Key: Apex ■ Benchmarking Average — Fiscal Years 2008 through 2012

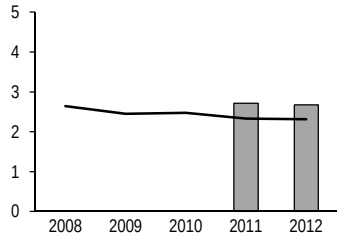
Resource Measures

Yard Waste and Leaf Collection Costs per Capita



	2008	2009	2010	2011	2012
Apex				$33.12	$29.13
Average	$16.34	$17.28	$17.03	$18.59	$19.04

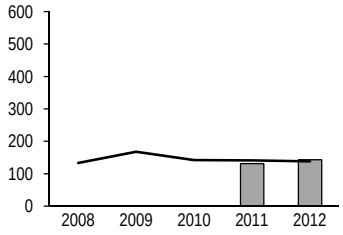
Yard Waste and Leaf Collection FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Apex				2.7	2.7
Average	2.6	2.5	2.5	2.3	2.3

Workload Measures

Yard Waste and Leaf Tons Collected per 1,000 Population



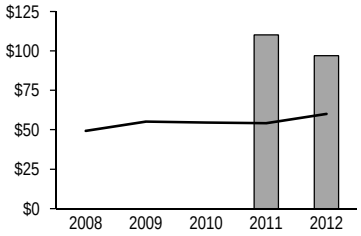
	2008	2009	2010	2011	2012
Apex				131	143
Average	133	168	142	142	138

Yard Waste and Leaf Tons Collected per 1,000 Collection Points

	2008	2009	2010	2011	2012
Apex				436	476
Average	399	531	462	453	440

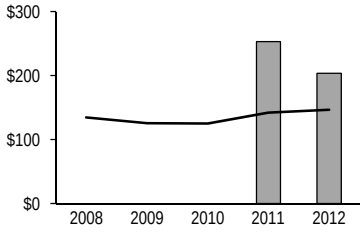
Efficiency Measures

Yard Waste and Leaf Collection Cost per Collection Point



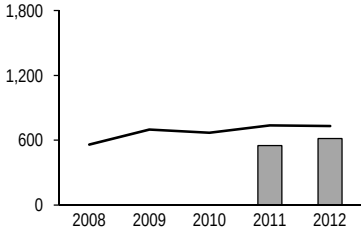
	2008	2009	2010	2011	2012
Apex				$110	$97
Average	$49	$55	$55	$54	$60

Yard Waste and Leaf Collection Cost per Ton Collected



	2008	2009	2010	2011	2012
Apex				$253	$204
Average	$135	$126	$125	$142	$146

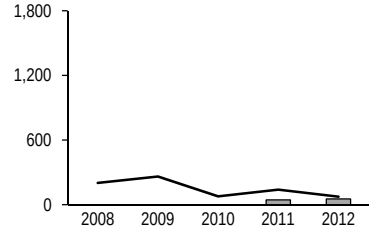
Yard Waste and Leaf Tons Collected per Collection FTE



	2008	2009	2010	2011	2012
Apex				549	615
Average	559	698	670	739	732

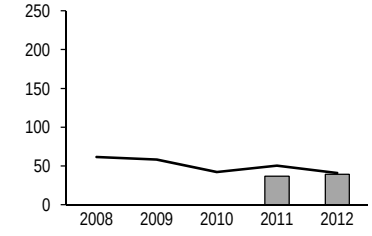
Effectiveness Measures

Collection Complaints per 10,000 Collection Points



	2008	2009	2010	2011	2012
Apex				46	56
Average	202	261	77	139	74

Valid Complaints per 10,000 Collection Points



	2008	2009	2010	2011	2012
Apex				37	39
Average	61	58	42	50	41

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Asheville collects yard waste curbside twice per month for all city residents. The city collects yard trimmings no longer than four feet and no wider than six inches. Grass clippings and materials cut by contractors are not collected.

There are three one-person crews on knucklebooms, scheduled for approximately four-and-one-half days per week. One two-person crew on a tractor and sway car and three three-person crews operating rear packers collect yard waste five days per week.

The city does not charge a fee for yard waste collection. A $5 fee is charged for white goods, and a $10 fee is charged for dead animals.

Starting in FY 2011–2012, Asheville no longer has a separate leaf collection program. Instead, leaves are collected as part of the normal twice a month yard waste collection.

Conditions Affecting Service, Performance, and Costs
Asheville had several major winter storms during the year which damaged trees and led to an increase in the tons of yard waste collected.

Municipal Profile

Population (OSBM 2011)	85,646
Land Area (Square Miles)	45.40
Persons per Square Mile	1,886
Median Family Income U.S. Census 2010	$53,350

Service Profile

FTE Positions—Collection	14.0
FTE Positions—Other	0.9
Collection Frequency	
Yard Waste	2 x month
Collection Points	30,169
Tons Collected	
Yard Waste	8,866
Seasonal Leaves	with yard waste
Total Tons Collected	8,866
Monthly Service Fee	No

Full Cost Profile

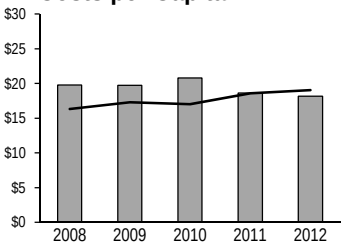
Cost Breakdown by Percentage	
Personal Services	37.7%
Operating Costs	52.0%
Capital Costs	10.3%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$586,105
Operating Costs	$809,059
Capital Costs	$160,959
TOTAL	$1,556,123

Asheville Yard Waste/Leaf Collection

Key: Asheville ■ Benchmarking Average — Fiscal Years 2008 through 2012

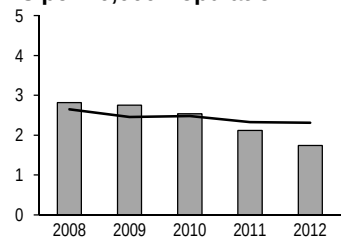
Resource Measures

Yard Waste and Leaf Collection Costs per Capita



	2008	2009	2010	2011	2012
Asheville	$19.78	$19.75	$20.81	$18.63	$18.17
Average	$16.34	$17.28	$17.03	$18.59	$19.04

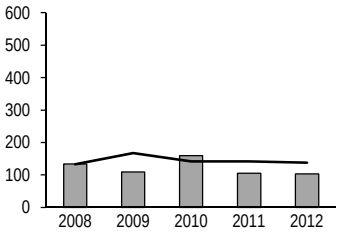
Yard Waste and Leaf Collection FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Asheville	2.8	2.8	2.5	2.1	1.7
Average	2.6	2.5	2.5	2.3	2.3

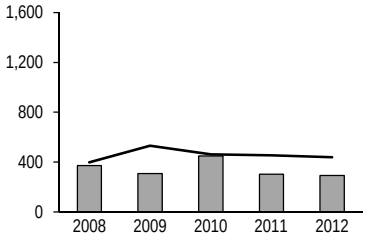
Workload Measures

Yard Waste and Leaf Tons Collected per 1,000 Population



	2008	2009	2010	2011	2012
Asheville	134	109	160	106	104
Average	133	168	142	142	138

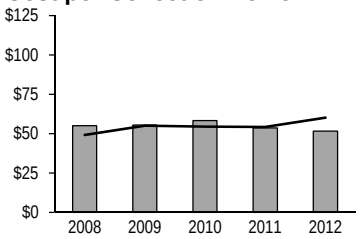
Yard Waste and Leaf Tons Collected per 1,000 Collection Points



	2008	2009	2010	2011	2012
Asheville	373	307	448	304	294
Average	399	531	462	453	440

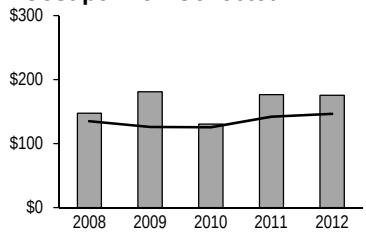
Efficiency Measures

Yard Waste and Leaf Collection Cost per Collection Point



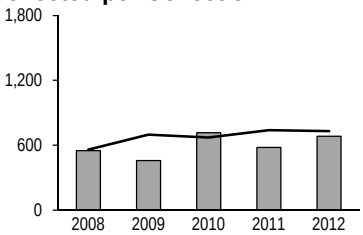
	2008	2009	2010	2011	2012
Asheville	$55	$56	$58	$54	$52
Average	$49	$55	$55	$54	$60

Yard Waste and Leaf Collection Cost per Ton Collected



	2008	2009	2010	2011	2012
Asheville	$147	$181	$130	$176	$176
Average	$135	$126	$125	$142	$146

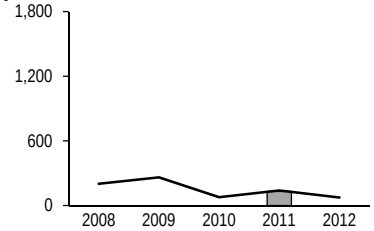
Yard Waste and Leaf Tons Collected per Collection FTE



	2008	2009	2010	2011	2012
Asheville	551	458	714	579	682
Average	559	698	670	739	732

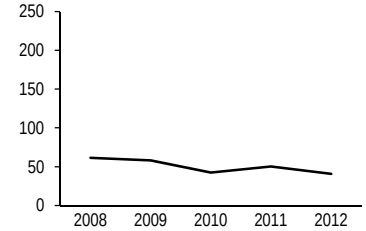
Effectiveness Measures

Collection Complaints per 10,000 Collection Points



	2008	2009	2010	2011	2012
Asheville				130	
Average	202	261	77	139	74

Valid Complaints per 10,000 Collection Points



	2008	2009	2010	2011	2012
Asheville					
Average	61	58	42	50	41

Burlington — Yard Waste/Leaf Collection

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

Yard waste is collected by the Burlington Sanitation Division once per week. Residents may put yard waste in cans, bags, or simply stack it curbside. The amount per household cannot exceed fifty pounds each week. There is a $4.50 charge for each three cubic yards of yard waste removed; the first three cubic yards are free.

The city uses two three-person crews four days per week. Each crew has one driver and two collectors and uses a rear loader.

Burlington's Grounds and Cemetary Division conducts seasonal loose leaf collection from mid-October through January. Leaves are placed curbside and collected by vacuum. Four sweeps are made through each section of the city. Additionally, call-in collections are available in February. When not performing loose leaf collection, permanent employees provide mowing and lawn and grounds care at other times of the year. The ability to separate out costs is somewhat difficult.

Loose leaf collection is done with five crews, each consisting of one driver and two collectors using a box dump and vacuum machine. One of the collectors on each crew is a part-time employee. The city also uses one self-contained one-armed leaf truck with one permanent employee. Leaves are also accepted in the regular weekly yard waste collection if they are bagged or placed in a container.

Conditions Affecting Service, Performance, and Costs

The city does not track complaints or valid complaints.

Municipal Profile

Population (OSBM 2011)	51,263
Land Area (Square Miles)	25.21
Persons per Square Mile	2,034
Median Family Income U.S. Census 2010	$46,461

Service Profile

FTE Positions—Collection	12.8
FTE Positions—Other	0.5
Collection Frequency	
Yard Waste	1 x week
Seasonal Leaf Collection	4 sweeps
Collection Points	16,633
Tons Collected	
Yard Waste	2,390
Seasonal Leaves	3,354
Total Tons Collected	5,744
Monthly Service Fee	$4.50 for special bulk pickup, 3 cubic yards

Full Cost Profile

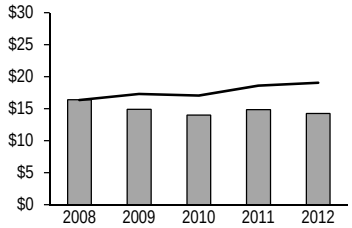
Cost Breakdown by Percentage	
Personal Services	52.2%
Operating Costs	17.4%
Capital Costs	30.4%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$381,053
Operating Costs	$127,218
Capital Costs	$221,745
TOTAL	$730,016

Burlington Yard Waste/Leaf Collection

Key: Burlington ■ Benchmarking Average — Fiscal Years 2008 through 2012

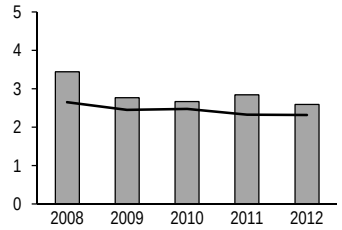
Resource Measures

Yard Waste and Leaf Collection Costs per Capita



	2008	2009	2010	2011	2012
Burlington	$16.41	$14.90	$14.00	$14.83	$14.24
Average	$16.34	$17.28	$17.03	$18.59	$19.04

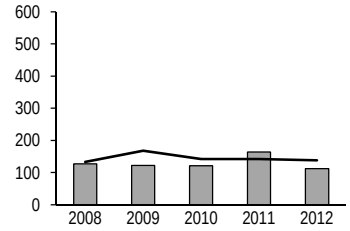
Yard Waste and Leaf Collection FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Burlington	3.4	2.8	2.7	2.8	2.6
Average	2.6	2.5	2.5	2.3	2.3

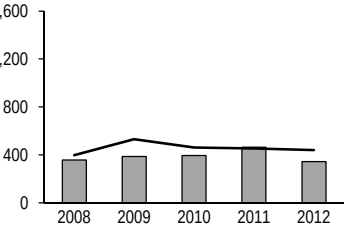
Workload Measures

Yard Waste and Leaf Tons Collected per 1,000 Population



	2008	2009	2010	2011	2012
Burlington	127	122	122	164	112
Average	133	168	142	142	138

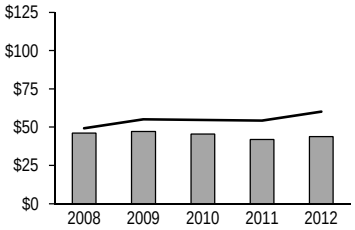
Yard Waste and Leaf Tons Collected per 1,000 Collection Points



	2008	2009	2010	2011	2012
Burlington	357	386	396	464	345
Average	399	531	462	453	440

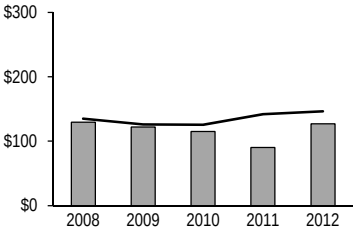
Efficiency Measures

Yard Waste and Leaf Collection Cost per Collection Point



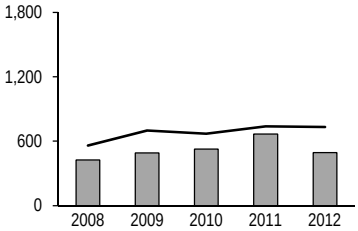
	2008	2009	2010	2011	2012
Burlington	$46	$47	$46	$42	$44
Average	$49	$55	$55	$54	$60

Yard Waste and Leaf Collection Cost per Ton Collected



	2008	2009	2010	2011	2012
Burlington	$129	$122	$115	$90	$127
Average	$135	$126	$125	$142	$146

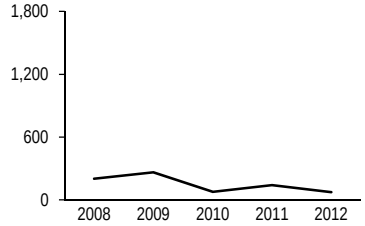
Yard Waste and Leaf Tons Collected per Collection FTE



	2008	2009	2010	2011	2012
Burlington	424	492	527	667	495
Average	559	698	670	739	732

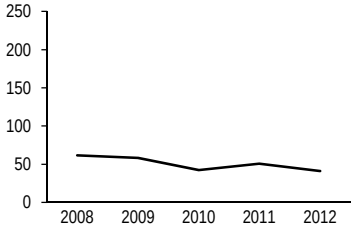
Effectiveness Measures

Collection Complaints per 10,000 Collection Points



	2008	2009	2010	2011	2012
Burlington					
Average	202	261	77	139	74

Valid Complaints per 10,000 Collection Points



	2008	2009	2010	2011	2012
Burlington					
Average	61	58	42	50	41

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

Cary's yard waste is collected curbside weekly on the same day the customer's regular trash is collected. The yard waste program includes the collection of grass clippings, pine straw, fallen leaves, shrubbery, twigs, small tree limbs, and Christmas trees. Branches must be shorter than four feet in length and less than four inches in diameter. The total volume to be picked up at a household cannot exceed 240 cubic feet. There is no separate fee charged for yard waste collection.

Town crews collect all yard waste at the curb. Collections are done Tuesday through Friday using four crews with four people in each crew—a driver and three collectors. Additionally, a special annual Christmas tree collection is made at the curb in January.

Cary has a seasonal leaf collection program that collects two times in the fall and one time in the spring. Leaves are collected curbside by vacuum by nine crews, each consisting of one driver and two collectors. The driver is a regular full-time employee, while the collectors are seasonal temporary workers.

Cary defines valid complaints as those that have been verified in the field by a supervisor.

Conditions Affecting Service, Performance, and Costs

Municipal Profile

Population (OSBM 2011)	139,172
Land Area (Square Miles)	54.56
Persons per Square Mile	2,551
Median Family Income U.S. Census 2010	$108,956

Service Profile

FTE Positions—Collection	21.9
FTE Positions—Other	1.7
Collection Frequency	
Yard Waste	1 x week
Seasonal Leaf Collection	3 sweeps
Collection Points	44,493
Tons Collected	
Yard Waste	13,148
Seasonal Leaves	5,517
Total Tons Collected	18,665
Monthly Service Fee	No

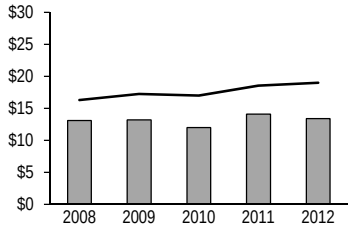
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	51.8%
Operating Costs	37.5%
Capital Costs	10.7%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$967,396
Operating Costs	$700,203
Capital Costs	$199,110
TOTAL	$1,866,709

Key: Cary ■ Benchmarking Average — Fiscal Years 2008 through 2012

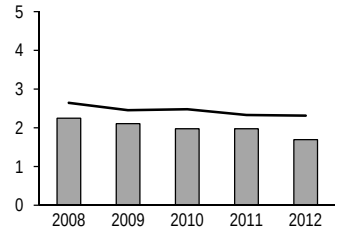
Resource Measures

Yard Waste and Leaf Collection Costs per Capita



	2008	2009	2010	2011	2012
Cary	$13.10	$13.22	$12.01	$14.12	$13.41
Average	$16.34	$17.28	$17.03	$18.59	$19.04

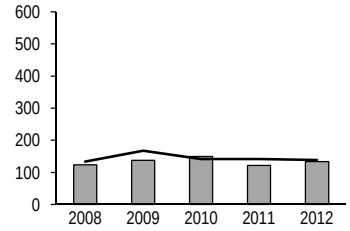
Yard Waste and Leaf Collection FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Cary	2.3	2.1	2.0	2.0	1.7
Average	2.6	2.5	2.5	2.3	2.3

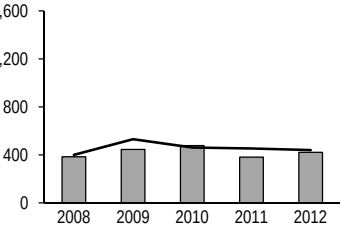
Workload Measures

Yard Waste and Leaf Tons Collected per 1,000 Population



	2008	2009	2010	2011	2012
Cary	123	138	149	122	134
Average	133	168	142	142	138

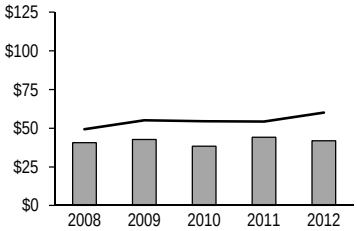
Yard Waste and Leaf Tons Collected per 1,000 Collection Points



	2008	2009	2010	2011	2012
Cary	383	444	477	379	420
Average	399	531	462	453	440

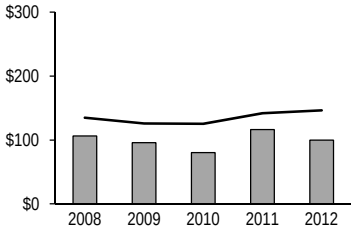
Efficiency Measures

Yard Waste and Leaf Collection Cost per Collection Point



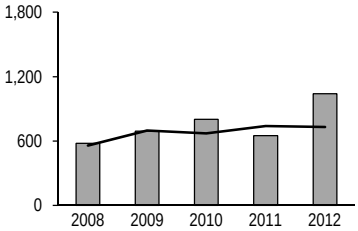
	2008	2009	2010	2011	2012
Cary	$41	$43	$38	$44	$42
Average	$49	$55	$55	$54	$60

Yard Waste and Leaf Collection Cost per Ton Collected



	2008	2009	2010	2011	2012
Cary	$106	$96	$80	$116	$100
Average	$135	$126	$125	$142	$146

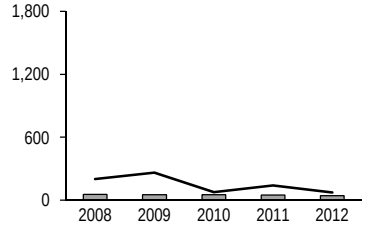
Yard Waste and Leaf Tons Collected per Collection FTE



	2008	2009	2010	2011	2012
Cary	580	692	803	652	1,042
Average	559	698	670	739	732

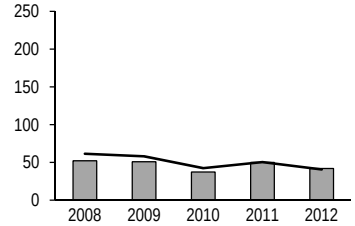
Effectiveness Measures

Collection Complaints per 10,000 Collection Points



	2008	2009	2010	2011	2012
Cary	55	51	51	50	42
Average	202	261	77	139	74

Valid Complaints per 10,000 Collection Points



	2008	2009	2010	2011	2012
Cary	52	51	37	50	42
Average	61	58	42	50	41

Charlotte Yard Waste/Leaf Collection

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

Charlotte collects yard waste once per week curbside. The collection process was significantly revised for FY 2010–11. Previously Charlotte had been divided into zones, with private contractors competing and providing some yard waste services. However, the city now performs all yard waste collection.

Yard waste includes leaves, stems, grass, limbs, and other residential organic matter. Limbs should be separated in piles small enough for one individual to handle. Leaves and grass clippings must be placed in untied plastic bags or in uncovered trash cans. Yard waste placed at the curb by a commercial landscaping service will not be collected by the city. The city of Charlotte used thirty-four two-person crews working from rear loaders to service the entire city. Additional trucks and staff are allocated as a yard waste reserve.

Leaves are collected in bags and are debagged at the curb as part of the regular yard waste service. A special seasonal leaf collection is not done by the city of Charlotte.

Conditions Affecting Service, Performance, and Costs

Starting with FY 2010–11, Charlotte's yard waste function is being wholly performed by the city. In earlier years it was done by a combination of city staff and a zone contract.

Municipal Profile

Population (OSBM 2011)	751,999
Land Area (Square Miles)	301.48
Persons per Square Mile	2,494
Median Family Income U.S. Census 2010	$61,405

Service Profile

FTE Positions—Collection	73.0
FTE Positions—Other	3.0
Collection Frequency	
Yard Waste	1 x week
Collection Points	209,834
Tons Collected	
Yard Waste	51,945
Seasonal Leaves	with yard waste
Total Tons Collected	51,945
Monthly Service Fee	No

Full Cost Profile

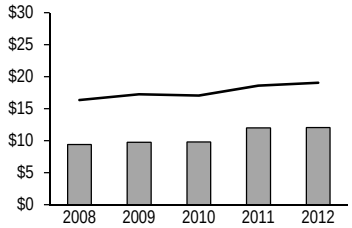
Cost Breakdown by Percentage	
Personal Services	42.9%
Operating Costs	43.9%
Capital Costs	13.2%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$3,893,645
Operating Costs	$3,986,424
Capital Costs	$1,200,557
TOTAL	$9,080,626

Charlotte — Yard Waste/Leaf Collection

Key: Charlotte ■ Benchmarking Average — Fiscal Years 2008 through 2012

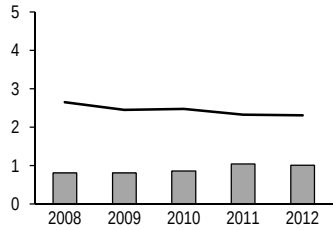
Resource Measures

Yard Waste and Leaf Collection Costs per Capita



	2008	2009	2010	2011	2012
Charlotte	$9.40	$9.73	$9.81	$12.02	$12.08
Average	$16.34	$17.28	$17.03	$18.59	$19.04

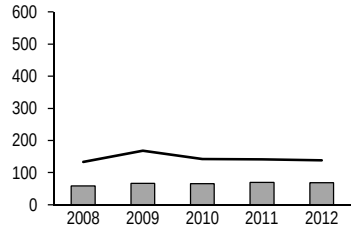
Yard Waste and Leaf Collection FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Charlotte	0.8	0.8	0.9	1.0	1.0
Average	2.6	2.5	2.5	2.3	2.3

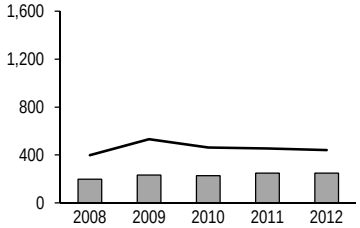
Workload Measures

Yard Waste and Leaf Tons Collected per 1,000 Population



	2008	2009	2010	2011	2012
Charlotte	59	67	66	70	69
Average	133	168	142	142	138

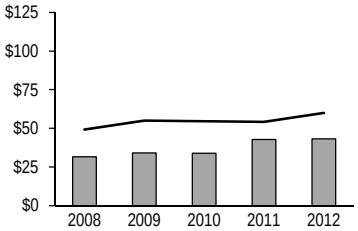
Yard Waste and Leaf Tons Collected per 1,000 Collection Points



	2008	2009	2010	2011	2012
Charlotte	198	233	227	248	248
Average	399	531	462	453	440

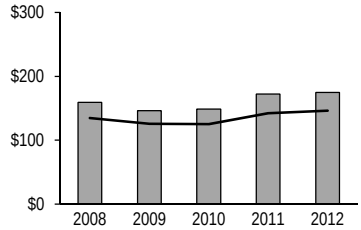
Efficiency Measures

Yard Waste and Leaf Collection Cost per Collection Point



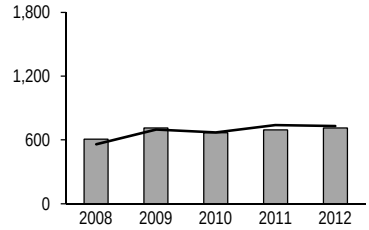
	2008	2009	2010	2011	2012
Charlotte	$32	$34	$34	$43	$43
Average	$49	$55	$55	$54	$60

Yard Waste and Leaf Collection Cost per Ton Collected



	2008	2009	2010	2011	2012
Charlotte	$159	$146	$149	$172	$175
Average	$135	$126	$125	$142	$146

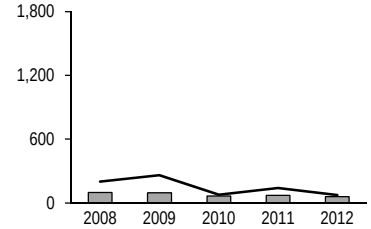
Yard Waste and Leaf Tons Collected per Collection FTE



	2008	2009	2010	2011	2012
Charlotte	606	712	668	696	712
Average	559	698	670	739	732

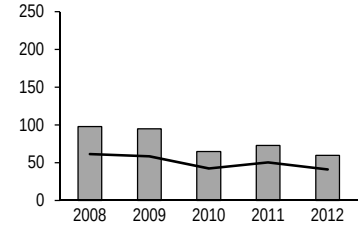
Effectiveness Measures

Collection Complaints per 10,000 Collection Points



	2008	2009	2010	2011	2012
Charlotte	98	95	65	73	60
Average	202	261	77	139	74

Valid Complaints per 10,000 Collection Points



	2008	2009	2010	2011	2012
Charlotte	98	95	65	73	60
Average	61	58	42	50	41

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Concord collects all yard waste once per week. Yard waste includes limbs, logs, grass clippings, shrubbery clippings, and leaves.

Concord used three two-person crews with garbage trucks and a one-person crew with a dump truck to collect yard waste during FY 2011–12. Four two-person crews also were used to collect limbs and brush with knuckleboom trucks on a weekly basis.

Concord's seasonal loose leaf collection runs from mid-October through mid-February. Each street is serviced following a publicized schedule a minimum of three times for loose leaf collection during this period. Residents who bag their leaves receive weekly collection along with the normal yard waste collection program.

Conditions Affecting Service, Performance, and Costs
Concord shifted to more use of city staff for yard waste collection in FY 2007–08 and less use of inmate labor to supplement city crews.

Municipal Profile

Population (OSBM 2011)	80,386
Land Area (Square Miles)	60.28
Persons per Square Mile	1,333
Median Family Income U.S. Census 2010	$63,643

Service Profile

FTE Positions—Collection	23.8
FTE Positions—Other	0.8
Collection Frequency	
Yard Waste	1 x week
Seasonal Leaf Collection	3 sweeps
Collection Points	28,131
Tons Collected	
Yard Waste	5,850
Seasonal Leaves	1,842
Total Tons Collected	7,692
Monthly Service Fee	No

Full Cost Profile

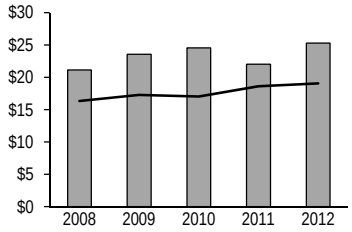
Cost Breakdown by Percentage	
Personal Services	57.7%
Operating Costs	29.8%
Capital Costs	12.5%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,172,613
Operating Costs	$606,451
Capital Costs	$254,833
TOTAL	$2,033,897

Concord — Yard Waste/Leaf Collection

Key: Concord ■ Benchmarking Average — Fiscal Years 2008 through 2012

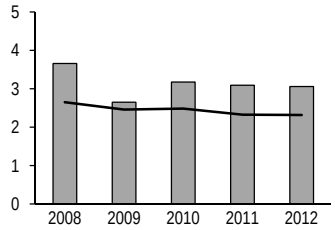
Resource Measures

Yard Waste and Leaf Collection Costs per Capita



	2008	2009	2010	2011	2012
Concord	$21.13	$23.54	$24.55	$22.02	$25.30
Average	$16.34	$17.28	$17.03	$18.59	$19.04

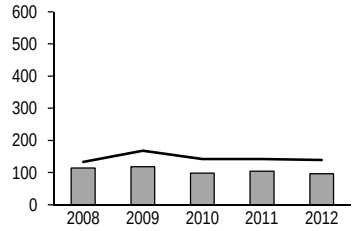
Yard Waste and Leaf Collection FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Concord	3.7	2.7	3.2	3.1	3.1
Average	2.6	2.5	2.5	2.3	2.3

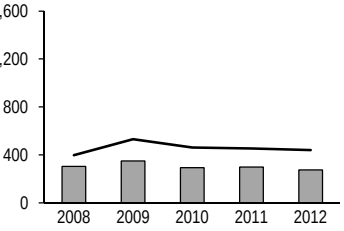
Workload Measures

Yard Waste and Leaf Tons Collected per 1,000 Population



	2008	2009	2010	2011	2012
Concord	114	118	98	104	96
Average	133	168	142	142	138

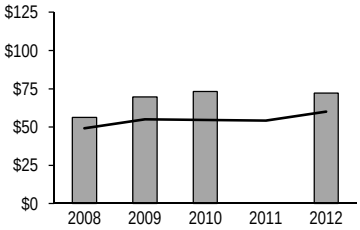
Yard Waste and Leaf Tons Collected per 1,000 Collection Points



	2008	2009	2010	2011	2012
Concord	303	350	292	298	273
Average	399	531	462	453	440

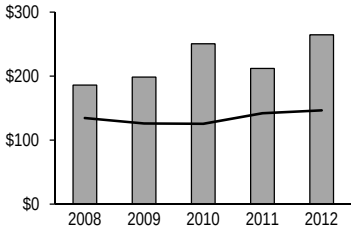
Efficiency Measures

Yard Waste and Leaf Collection Cost per Collection Point



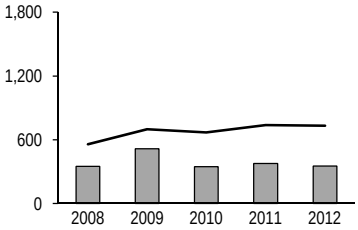
	2008	2009	2010	2011	2012
Concord	$56	$70	$73	$0	$72
Average	$49	$55	$55	$54	$60

Yard Waste and Leaf Collection Cost per Ton Collected



	2008	2009	2010	2011	2012
Concord	$186	$199	$251	$212	$264
Average	$135	$126	$125	$142	$146

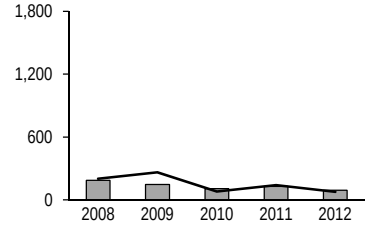
Yard Waste and Leaf Tons Collected per Collection FTE



	2008	2009	2010	2011	2012
Concord	349	516	347	379	353
Average	559	698	670	739	732

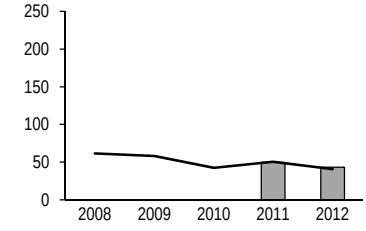
Effectiveness Measures

Collection Complaints per 10,000 Collection Points



	2008	2009	2010	2011	2012
Concord	185	145	105	127	90
Average	202	261	77	139	74

Valid Complaints per 10,000 Collection Points



	2008	2009	2010	2011	2012
Concord				50	43
Average	61	58	42	50	41

Greensboro Yard Waste/Leaf Collection

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

Greensboro collects yard waste once per week curbside, either in clear plastic bags, thirty-five-gallon containers, or tied in bundles not to exceed fifty pounds or five feet in length. Yard waste includes grass, weeds, leaves, tree trimmings, plants, shrubbery trimmings, and other materials generated in yard maintenance. Yard waste does include some bagged leaves during the fall, and this waste is not broken out separately into leaf collection.

The city provides yard waste service to all single-family residences inside the city limits. Yard waste crews include nine two-person crews that rotate between driver and collector. The crews work four days per week, ten hours per day.

Seasonal leaf collection (October through January) is provided by Greensboro's Field Operations Division. Leaves are picked up a minimum of two times from November until mid-January by vacuuming the leaves from the curb.

Conditions Affecting Service, Performance, and Costs

Municipal Profile

Population (OSBM 2011)	272,196
Land Area (Square Miles)	127.14
Persons per Square Mile	2,141
Median Family Income U.S. Census 2010	$52,752

Service Profile

FTE Positions—Collection	44.8
FTE Positions—Other	1.2
Collection Frequency	
Yard Waste	1 x week
Seasonal Leaf Collection	2 sweeps
Collection Points	80,640
Tons Collected	
Yard Waste	14,851
Seasonal Leaves	13,089
Total Tons Collected	27,940
Monthly Service Fee	No

Full Cost Profile

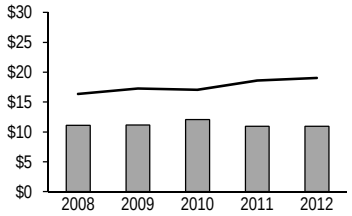
Cost Breakdown by Percentage	
Personal Services	33.8%
Operating Costs	66.2%
Capital Costs	0.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,006,201
Operating Costs	$1,968,601
Capital Costs	$0
TOTAL	$2,974,802

Greensboro Yard Waste/Leaf Collection

Key: Greensboro ■ Benchmarking Average — Fiscal Years 2008 through 2012

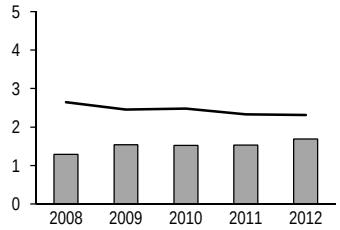
Resource Measures

Yard Waste and Leaf Collection Costs per Capita



	2008	2009	2010	2011	2012
Greensboro	$11.09	$11.13	$12.09	$10.95	$10.93
Average	$16.34	$17.28	$17.03	$18.59	$19.04

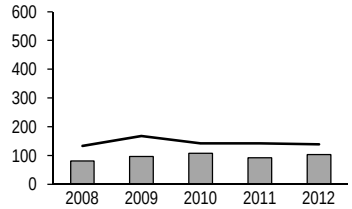
Yard Waste and Leaf Collection FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Greensboro	1.3	1.5	1.5	1.5	1.7
Average	2.6	2.5	2.5	2.3	2.3

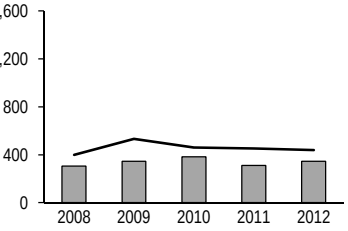
Workload Measures

Yard Waste and Leaf Tons Collected per 1,000 Population



	2008	2009	2010	2011	2012
Greensboro	81	96	108	92	103
Average	133	168	142	142	138

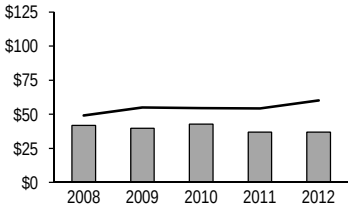
Yard Waste and Leaf Tons Collected per 1,000 Collection Points



	2008	2009	2010	2011	2012
Greensboro	305	345	382	310	346
Average	399	531	462	453	440

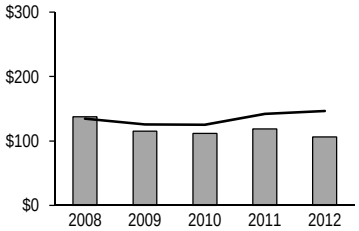
Efficiency Measures

Yard Waste and Leaf Collection Cost per Collection Point



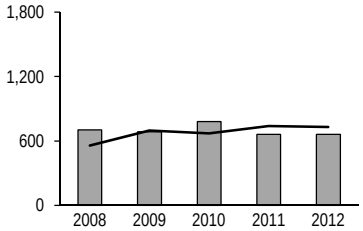
	2008	2009	2010	2011	2012
Greensboro	$42	$40	$43	$37	$37
Average	$49	$55	$55	$54	$60

Yard Waste and Leaf Collection Cost per Ton Collected



	2008	2009	2010	2011	2012
Greensboro	$137	$115	$112	$119	$106
Average	$135	$126	$125	$142	$146

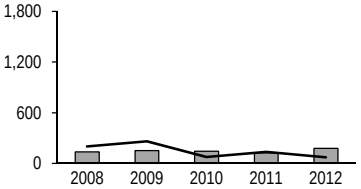
Yard Waste and Leaf Tons Collected per Collection FTE



	2008	2009	2010	2011	2012
Greensboro	705	685	780	661	662
Average	559	698	670	739	732

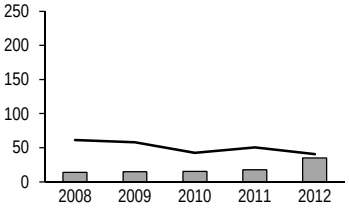
Effectiveness Measures

Collection Complaints per 10,000 Collection Points



	2008	2009	2010	2011	2012
Greensboro	136	153	144	127	180
Average	202	261	77	139	74

Valid Complaints per 10,000 Collection Points



	2008	2009	2010	2011	2012
Greensboro	14	15	16	18	35
Average	61	58	42	50	41

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Greenville collects yard waste once per week curbside. Yard waste includes tree limbs up to six feet in length or four inches in diameter, bushes, grass clippings, and other vegetative matter. The city does not charge a separate fee for yard waste, leaves, or bulky items. It is part of the solid waste fee.

Greenville uses two-person crews to collect yard waste. Crews are made up of a driver and a collection worker. Each crew has an assigned route for each day.

The city's seasonal leaf collection service runs from November to February. Leaves are collected weekly from the backs of curbs. The city uses five crews, each having a driver and two collection workers. The leaf collection crews are all seasonal employees.

Conditions Affecting Service, Performance, and Costs
Greenville joined the project in July 2009, with the first year of reporting being for FY 2008–09.

Greenville does not collect data on complaints for yard waste services.

Municipal Profile

Population (OSBM 2011)	85,059
Land Area (Square Miles)	34.70
Persons per Square Mile	2,451
Median Family Income U.S. Census 2010	$50,395

Service Profile

FTE Positions—Collection	22.0
FTE Positions—Other	0.0
Collection Frequency	
Yard Waste	1 x week
Seasonal Leaf Collection	1 x week
Collection Points	20,000
Tons Collected	
Yard Waste	na
Seasonal Leaves	na
Total Tons Collected	18,000
Monthly Service Fee	No

Full Cost Profile

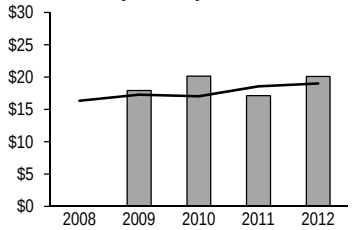
Cost Breakdown by Percentage	
Personal Services	62.7%
Operating Costs	26.6%
Capital Costs	10.7%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,073,385
Operating Costs	$455,046
Capital Costs	$182,789
TOTAL	$1,711,220

Greenville — Yard Waste/Leaf Collection

Key: Greenville ■ Benchmarking Average — Fiscal Years 2008 through 2012

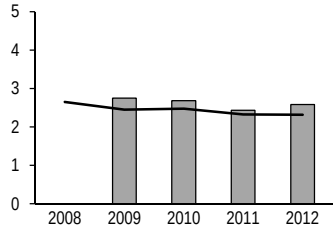
Resource Measures

Yard Waste and Leaf Collection Costs per Capita



	2008	2009	2010	2011	2012
Greenville		$17.94	$20.15	$17.13	$20.12
Average	$16.34	$17.28	$17.03	$18.59	$19.04

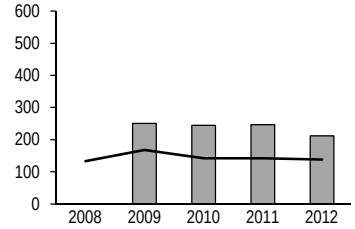
Yard Waste and Leaf Collection FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Greenville		2.8	2.7	2.4	2.6
Average	2.6	2.5	2.5	2.3	2.3

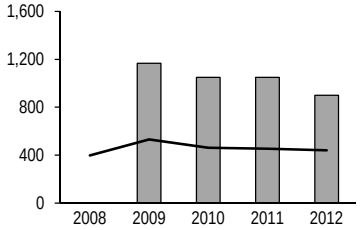
Workload Measures

Yard Waste and Leaf Tons Collected per 1,000 Population



	2008	2009	2010	2011	2012
Greenville		251	245	247	212
Average	133	168	142	142	138

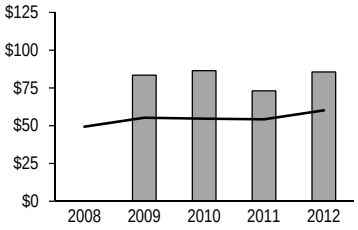
Yard Waste and Leaf Tons Collected per 1,000 Collection Points



	2008	2009	2010	2011	2012
Greenville		1,167	1,050	1,050	900
Average	399	531	462	453	440

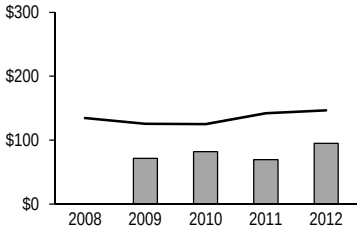
Efficiency Measures

Yard Waste and Leaf Collection Cost per Collection Point



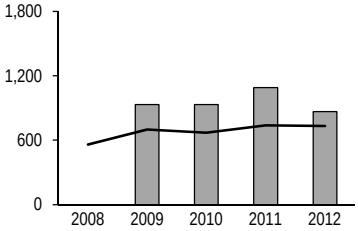
	2008	2009	2010	2011	2012
Greenville		$83	$86	$73	$86
Average	$49	$55	$55	$54	$60

Yard Waste and Leaf Collection Cost per Ton Collected



	2008	2009	2010	2011	2012
Greenville		$72	$82	$69	$95
Average	$135	$126	$125	$142	$146

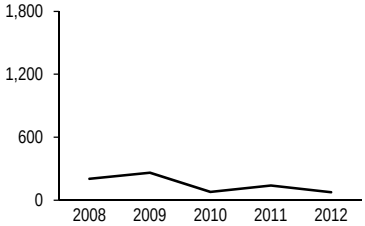
Yard Waste and Leaf Tons Collected per Collection FTE



	2008	2009	2010	2011	2012
Greenville		933	933	1,091	867
Average	559	698	670	739	732

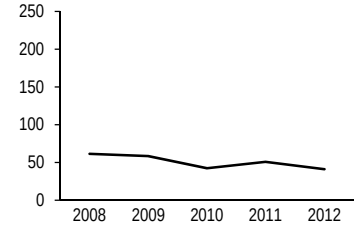
Effectiveness Measures

Collection Complaints per 10,000 Collection Points



	2008	2009	2010	2011	2012
Greenville					
Average	202	261	77	139	74

Valid Complaints per 10,000 Collection Points



	2008	2009	2010	2011	2012
Greenville					
Average	61	58	42	50	41

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

Hickory collects yard waste once per week curbside. Yard waste includes tree limbs less than six feet in length and six inches in diameter, shrubs, grass clippings, leaves, and other vegetative matter. The city does not charge a separate fee for yard waste, leaves, or bulky items. It is part of the solid waste fee. Residents use either clear plastic bags or open containers.

Hickory is divided into five sections for the yard waste program. Three routes are serviced each day within each section, using three rear loaders with crews comprised of one driver and one laborer each. Large piles are collected with a knuckleboom loader with one driver on a scheduled basis working about half-time.

All yard waste is collected and stockpiled at the city yard waste facility. Debris is ground into mulch or compost and sold back to citizens or used for city projects.

The city's seasonal leaf collection service runs from November to January. There are two sweeps down each city street during this time. City crews use leaf vacuums to collect leaves in box trucks. Hickory uses temporary contract workers to help with leaf collection. These seasonal employees are counted in the total employee count, but only for the one-fourth of the year they work.

Conditions Affecting Service, Performance, and Costs

Hickory's yard waste collection is set up to provide regular service but also takes requests for service when collection is needed. These calls for service cannot be separated out from actual complaints. The high rate of "collection complaints per 10,000 collection points" is driven by this reporting structure rather than by true complaints about service. Hickory does not allocate the resources it would take to differentiate between valid and non-valid complaints. Complaints for FY 2009–10 through FY 2011–12 were not available.

Municipal Profile

Population (OSBM 2011)	40,086
Land Area (Square Miles)	29.72
Persons per Square Mile	1,349
Median Family Income U.S. Census 2010	$54,093

Service Profile

FTE Positions—Collection	9.3
FTE Positions—Other	0.5
Collection Frequency	
Yard Waste	1 x week
Seasonal Leaf Collection	2 sweeps
Collection Points	12,100
Tons Collected	
Yard Waste	3,195
Seasonal Leaves	3,388
Total Tons Collected	6,583
Monthly Service Fee	No

Full Cost Profile

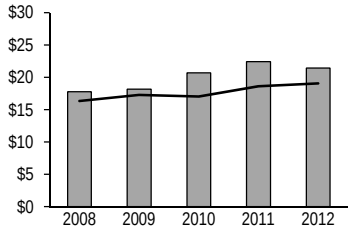
Cost Breakdown by Percentage	
Personal Services	45.8%
Operating Costs	37.1%
Capital Costs	17.1%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$393,512
Operating Costs	$318,350
Capital Costs	$147,294
TOTAL	$859,156

Hickory Yard Waste/Leaf Collection

Key: Hickory ■ Benchmarking Average — Fiscal Years 2008 through 2012

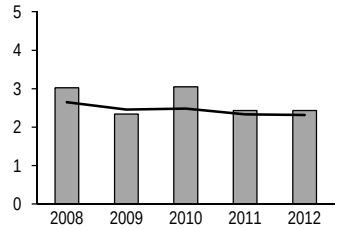
Resource Measures

Yard Waste and Leaf Collection Costs per Capita



	2008	2009	2010	2011	2012
Hickory	$17.75	$18.15	$20.69	$22.42	$21.43
Average	$16.34	$17.28	$17.03	$18.59	$19.04

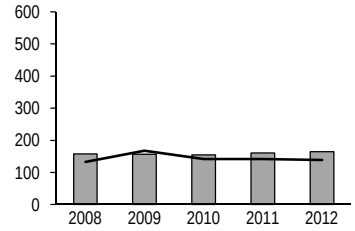
Yard Waste and Leaf Collection FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Hickory	3.0	2.3	3.1	2.4	2.4
Average	2.6	2.5	2.5	2.3	2.3

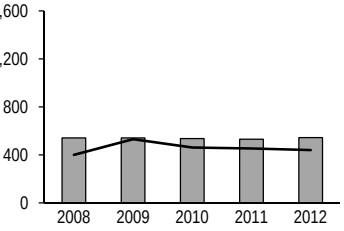
Workload Measures

Yard Waste and Leaf Tons Collected per 1,000 Population



	2008	2009	2010	2011	2012
Hickory	158	157	155	160	164
Average	133	168	142	142	138

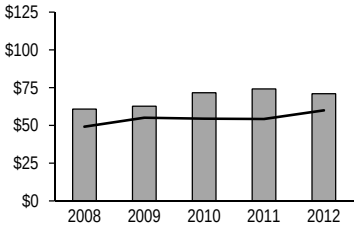
Yard Waste and Leaf Tons Collected per 1,000 Collection Points



	2008	2009	2010	2011	2012
Hickory	541	541	536	531	544
Average	399	531	462	453	440

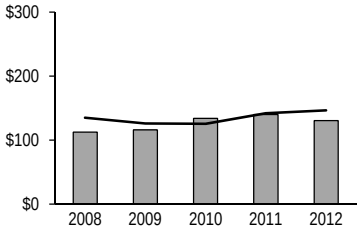
Efficiency Measures

Yard Waste and Leaf Collection Cost per Collection Point



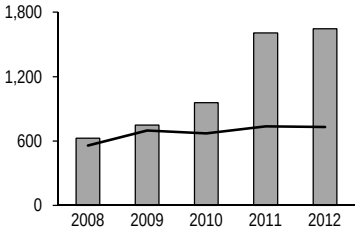
	2008	2009	2010	2011	2012
Hickory	$61	$63	$72	$74	$71
Average	$49	$55	$55	$54	$60

Yard Waste and Leaf Collection Cost per Ton Collected



	2008	2009	2010	2011	2012
Hickory	$113	$116	$134	$140	$131
Average	$135	$126	$125	$142	$146

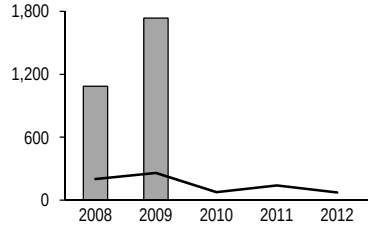
Yard Waste and Leaf Tons Collected per Collection FTE



	2008	2009	2010	2011	2012
Hickory	628	749	957	1,606	1,646
Average	559	698	670	739	732

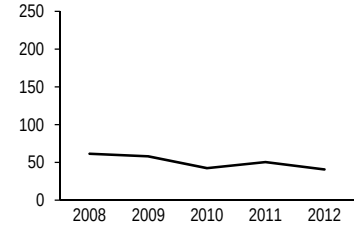
Effectiveness Measures

Collection Complaints per 10,000 Collection Points



	2008	2009	2010	2011	2012
Hickory	1086	1737			
Average	202	261	77	139	74

Valid Complaints per 10,000 Collection Points



	2008	2009	2010	2011	2012
Hickory					
Average	61	58	42	50	41

High Point — Yard Waste/Leaf Collection

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

Collectible yard waste in High Point's program consists solely of vegetative matter resulting from landscaping and lawn maintenance, including grass clippings, leaves, brush, tree branches, flowers, and other organic materials.

Yard waste is collected once each week curbside using three-person crews. Each crew is composed of one driver and two collectors. The work schedule is from Monday through Thursday. There is no separate fee charged for yard waste collection.

The city provides two citywide cycles of loose leaf collection beginning mid-November and continuing through mid-January. There are usually three leaf collection crews with one person each on truck-mounted vacuum trucks and four crews with five employees each on pick-up trucks with self-contained vacuums. Bagged leaves are collected once per week with the regular yard waste.

Conditions Affecting Service, Performance, and Costs

There was a shift of employees out of yard waste collection in FY 2009–10. The city had been picking up bulk limbs, but this was discontinued as it was not required by ordinance. The employees were shifted over to bulk white good collection. Stopping collection of the bulk limbs led to a small increase in citizen complaints.

Municipal Profile

Population (OSBM 2011)	105,498
Land Area (Square Miles)	53.83
Persons per Square Mile	1,960
Median Family Income U.S. Census 2010	$49,720

Service Profile

FTE Positions—Collection	14.5
FTE Positions—Other	0.0
Collection Frequency	
Yard Waste	1 x week
Seasonal Leaf Collection	2 sweeps
Collection Points	35,544
Tons Collected	
Yard Waste	4,020
Seasonal Leaves	2,359
Total Tons Collected	6,379
Monthly Service Fee	No

Full Cost Profile

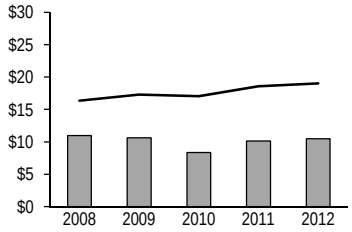
Cost Breakdown by Percentage	
Personal Services	60.6%
Operating Costs	28.6%
Capital Costs	10.8%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$667,858
Operating Costs	$315,102
Capital Costs	$119,359
TOTAL	$1,102,319

High Point — Yard Waste/Leaf Collection

Key: High Point ■ Benchmarking Average — Fiscal Years 2008 through 2012

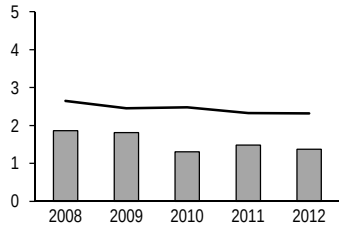
Resource Measures

Yard Waste and Leaf Collection Costs per Capita



	2008	2009	2010	2011	2012
High Point	$10.98	$10.62	$8.35	$10.12	$10.45
Average	$16.34	$17.28	$17.03	$18.59	$19.04

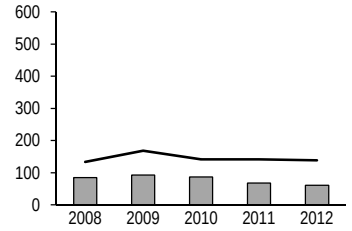
Yard Waste and Leaf Collection FTEs per 10,000 Population



	2008	2009	2010	2011	2012
High Point	1.9	1.8	1.3	1.5	1.4
Average	2.6	2.5	2.5	2.3	2.3

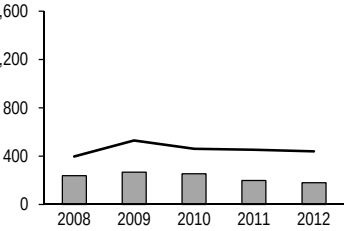
Workload Measures

Yard Waste and Leaf Tons Collected per 1,000 Population



	2008	2009	2010	2011	2012
High Point	85	93	87	68	60
Average	133	168	142	142	138

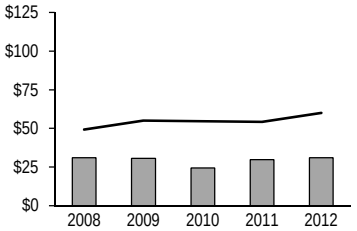
Yard Waste and Leaf Tons Collected per 1,000 Collection Points



	2008	2009	2010	2011	2012
High Point	239	268	254	200	179
Average	399	531	462	453	440

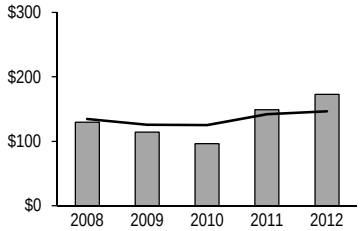
Efficiency Measures

Yard Waste and Leaf Collection Cost per Collection Point



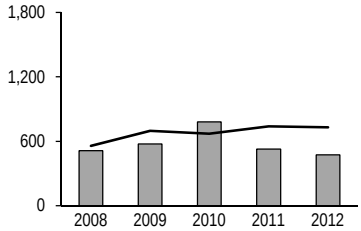
	2008	2009	2010	2011	2012
High Point	$31	$31	$24	$30	$31
Average	$49	$55	$55	$54	$60

Yard Waste and Leaf Collection Cost per Ton Collected



	2008	2009	2010	2011	2012
High Point	$130	$114	$96	$149	$173
Average	$135	$126	$125	$142	$146

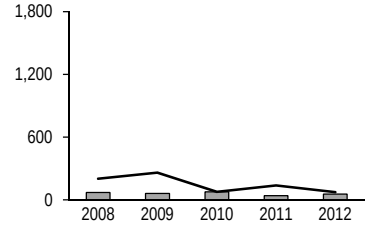
Yard Waste and Leaf Tons Collected per Collection FTE



	2008	2009	2010	2011	2012
High Point	512	575	781	526	473
Average	559	698	670	739	732

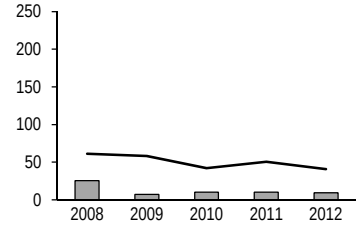
Effectiveness Measures

Collection Complaints per 10,000 Collection Points



	2008	2009	2010	2011	2012
High Point	70	63	76	40	55
Average	202	261	77	139	74

Valid Complaints per 10,000 Collection Points



	2008	2009	2010	2011	2012
High Point	26	7	10	10	9
Average	61	58	42	50	41

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

Yard waste is picked up weekly at the curb in Salisbury. Yard waste includes limbs, shrubs, bagged grass clippings, and bagged leaves. It is collected the same day as trash and recycling materials for city residents.

The city uses two to three two-person crews, each consisting of a driver and laborer, on packer trucks for yard waste collection. One to two additional two-member crews operating two knuckleboom trucks collect large brush piles and limbs. One supervisor patrols the routes throughout the day, coordinating pick-ups and responding to citizen requests.

Loose leaves are collected curbside during leaf season, which runs from mid-October through March. Loose leaves are collected every third week during leaf season. Bagged leaves are collected as part of the weekly yard waste program.

One to seven crews, each composed of an operator, a street maintenance worker, and a seasonal worker, are used for the annual leaf collection program.

Conditions Affecting Service, Performance, and Costs

Municipal Profile

Population (OSBM 2011)	33,704
Land Area (Square Miles)	22.18
Persons per Square Mile	1,519
Median Family Income U.S. Census 2010	$40,192

Service Profile

FTE Positions—Collection	9.0
FTE Positions—Other	0.0
Collection Frequency	
Yard Waste	1 x week
Seasonal Leaf Collection	1 x 3 weeks
Collection Points	12,000
Tons Collected	
Yard Waste	5,433
Seasonal Leaves	2,613
Total Tons Collected	8,046
Monthly Service Fee	No

Full Cost Profile

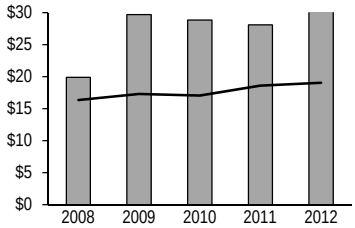
Cost Breakdown by Percentage	
Personal Services	45.0%
Operating Costs	36.5%
Capital Costs	18.5%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$492,428
Operating Costs	$399,413
Capital Costs	$202,571
TOTAL	$1,094,412

Salisbury Yard Waste/Leaf Collection

Key: Salisbury ■ Benchmarking Average — Fiscal Years 2008 through 2012

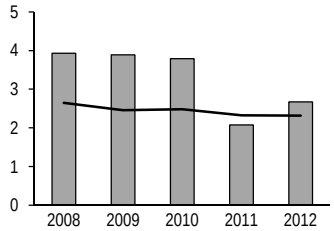
Resource Measures

Yard Waste and Leaf Collection Costs per Capita



	2008	2009	2010	2011	2012
Salisbury	$19.90	$29.69	$28.86	$28.10	$32.47
Average	$16.34	$17.28	$17.03	$18.59	$19.04

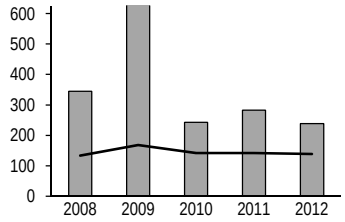
Yard Waste and Leaf Collection FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Salisbury	3.9	3.9	3.8	2.1	2.7
Average	2.6	2.5	2.5	2.3	2.3

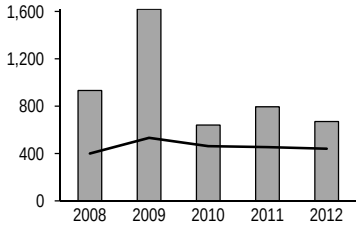
Workload Measures

Yard Waste and Leaf Tons Collected per 1,000 Population



	2008	2009	2010	2011	2012
Salisbury	344	629	242	283	239
Average	133	168	142	142	138

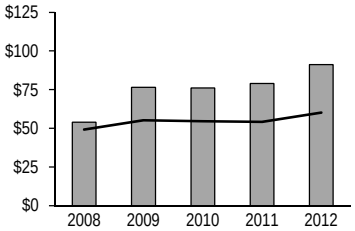
Yard Waste and Leaf Tons Collected per 1,000 Collection Points



	2008	2009	2010	2011	2012
Salisbury	934	1,619	639	795	671
Average	399	531	462	453	440

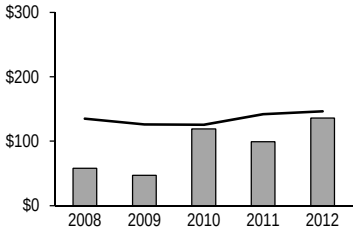
Efficiency Measures

Yard Waste and Leaf Collection Cost per Collection Point



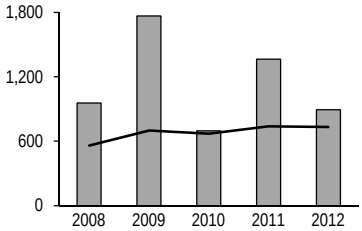
	2008	2009	2010	2011	2012
Salisbury	$54	$76	$76	$79	$91
Average	$49	$55	$55	$54	$60

Yard Waste and Leaf Collection Cost per Ton Collected



	2008	2009	2010	2011	2012
Salisbury	$58	$47	$119	$99	$136
Average	$135	$126	$125	$142	$146

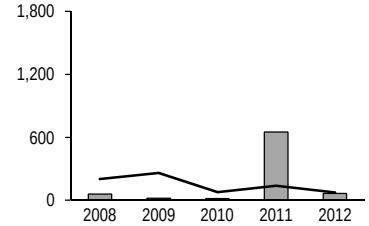
Yard Waste and Leaf Tons Collected per Collection FTE



	2008	2009	2010	2011	2012
Salisbury	956	1,767	697	1,363	894
Average	559	698	670	739	732

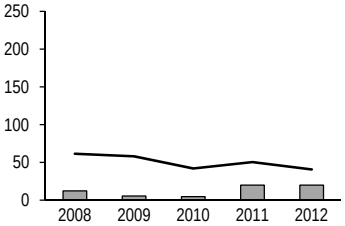
Effectiveness Measures

Collection Complaints per 10,000 Collection Points



	2008	2009	2010	2011	2012
Salisbury	60	18	17	650	65
Average	202	261	77	139	74

Valid Complaints per 10,000 Collection Points



	2008	2009	2010	2011	2012
Salisbury	12	6	5	20	20
Average	61	58	42	50	41

Wilmington — Yard Waste/Leaf Collection

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

The city collects yard waste curbside once per week. Yard waste is defined as organic material, grass and shrubbery clippings, small branches, twigs, leaves, and pine needles. Tree limbs and branches cannot be longer than six feet in length or more than six inches in diameter.

There is no limit on the type or number of containers that residents can use when placing yard waste at the curb for pick up, but the amount of crew time spent at each household is limited to fifteen minutes. Yard waste is picked up using packer trucks staffed by two-person crews consisting of one driver and one laborer working four ten-hour days each week.

There was no separate fee for yard waste collection including bulky items. However, the cost is included in the fee for solid waste collection.

Leaf collection is not a separate service for the city of Wilmington. Leaves are collected throughout the year with the regular yard waste program.

Conditions Affecting Service, Performance, and Costs

Municipal Profile

Population (OSBM 2011)	108,337
Land Area (Square Miles)	51.49
Persons per Square Mile	2,104
Median Family Income U.S. Census 2010	$57,892

Service Profile

FTE Positions—Collection	21.3
FTE Positions—Other	0.3
Collection Frequency	
Yard Waste	1 x week
Collection Points	30,310
Tons Collected	
Yard Waste	12,451
Seasonal Leaves	with yard waste
Total Tons Collected	12,451
Monthly Service Fee	Included in solid waste fee

Full Cost Profile

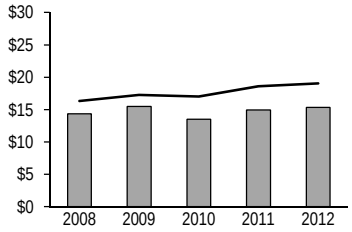
Cost Breakdown by Percentage	
Personal Services	47.8%
Operating Costs	39.6%
Capital Costs	12.6%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$793,851
Operating Costs	$658,199
Capital Costs	$208,872
TOTAL	$1,660,922

Wilmington — Yard Waste/Leaf Collection

Key: Wilmington ■ Benchmarking Average — Fiscal Years 2008 through 2012

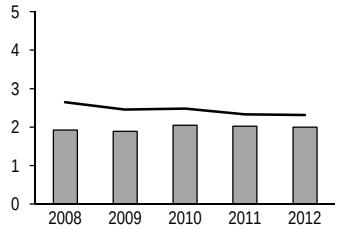
Resource Measures

Yard Waste and Leaf Collection Costs per Capita



	2008	2009	2010	2011	2012
Wilmington	$14.32	$15.50	$13.51	$14.95	$15.33
Average	$16.34	$17.28	$17.03	$18.59	$19.04

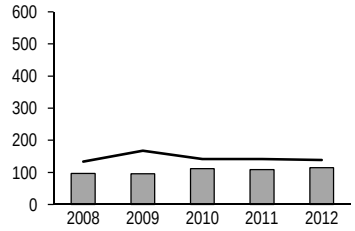
Yard Waste and Leaf Collection FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Wilmington	1.9	1.9	2.1	2.0	2.0
Average	2.6	2.5	2.5	2.3	2.3

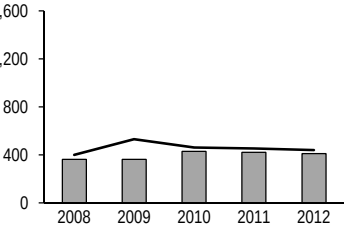
Workload Measures

Yard Waste and Leaf Tons Collected per 1,000 Population



	2008	2009	2010	2011	2012
Wilmington	97	96	112	109	115
Average	133	168	142	142	138

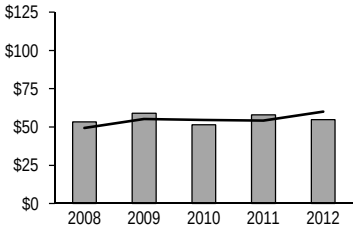
Yard Waste and Leaf Tons Collected per 1,000 Collection Points



	2008	2009	2010	2011	2012
Wilmington	363	363	427	420	411
Average	399	531	462	453	440

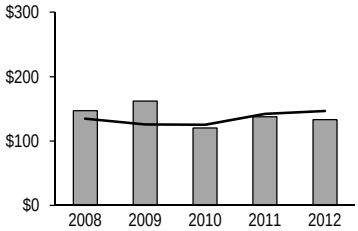
Efficiency Measures

Yard Waste and Leaf Collection Cost per Collection Point



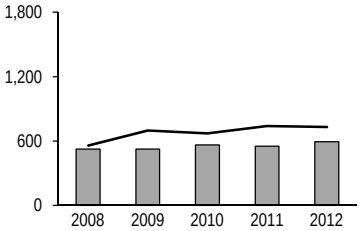
	2008	2009	2010	2011	2012
Wilmington	$53	$59	$52	$58	$55
Average	$49	$55	$55	$54	$60

Yard Waste and Leaf Collection Cost per Ton Collected



	2008	2009	2010	2011	2012
Wilmington	$147	$162	$121	$138	$133
Average	$135	$126	$125	$142	$146

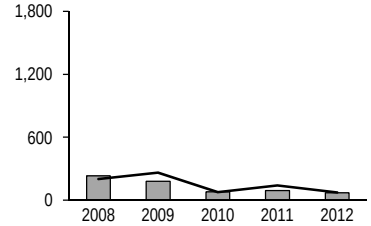
Yard Waste and Leaf Tons Collected per Collection FTE



	2008	2009	2010	2011	2012
Wilmington	527	527	563	552	593
Average	559	698	670	739	732

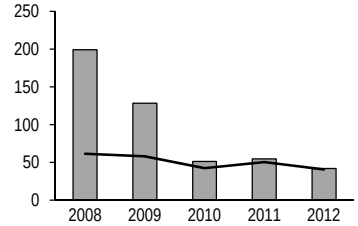
Effectiveness Measures

Collection Complaints per 10,000 Collection Points



	2008	2009	2010	2011	2012
Wilmington	233	179	79	91	70
Average	202	261	77	139	74

Valid Complaints per 10,000 Collection Points



	2008	2009	2010	2011	2012
Wilmington	199	128	51	55	42
Average	61	58	42	50	41

Wilson Yard Waste/Leaf Collection

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

Yard waste is containerized in bags, sheets, roll-out containers, or other container types for collection by rear-loader packers. Yard waste is collected once per week by compost crews on the same day as residential refuse collection.

The city uses two three-person crews on Tuesday and Friday and three to four three-person crews on Monday and Thursday to collect yard waste. Each crew is composed of one driver and two workers. These crews rotate collection between residential refuse and yard waste. A one-person crew uses a knuckleboom truck to collect large limbs daily.

The city's leaf season is from mid-October to mid-January. Leaves are collected loose at the curb on a one-to-three-week cycle. The city uses leaf vacuum machines and compacting leaf trucks to collect loose leaves.

Six to eight three-person crews are used to collect loose leaves. The drivers are permanent employees. Collectors are seasonal employees.

Conditions Affecting Service, Performance, and Costs

During Fiscal Year 2011–2012, Wilson picked up additional yard waste generated from Hurrican Irene. An estimated extra 3,494 tons were collected after the storm.

Municipal Profile

Population (OSBM 2011)	49,122
Land Area (Square Miles)	28.78
Persons per Square Mile	1,707
Median Family Income U.S. Census 2010	$43,442

Service Profile

FTE Positions—Collection	15.5
FTE Positions—Other	0.0
Collection Frequency	
Yard Waste	1 x week
Seasonal Leaf Collection	1 x 3 weeks
Collection Points	19,900
Tons Collected	
Yard Waste	8,810
Seasonal Leaves	2,038
Total Tons Collected	10,848
Monthly Service Fee	Included in solid waste fee

Full Cost Profile

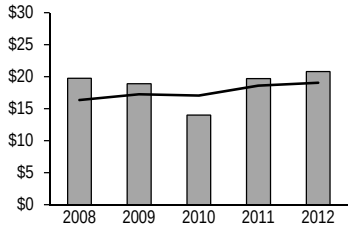
Cost Breakdown by Percentage	
Personal Services	44.3%
Operating Costs	36.8%
Capital Costs	18.9%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$452,273
Operating Costs	$375,929
Capital Costs	$193,432
TOTAL	$1,021,634

Wilson — Yard Waste/Leaf Collection

Key: Wilson ■ Benchmarking Average — Fiscal Years 2008 through 2012

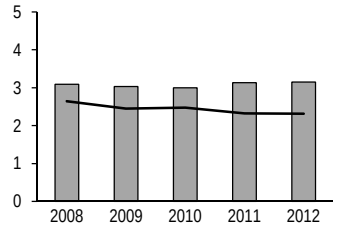
Resource Measures

Yard Waste and Leaf Collection Costs per Capita



	2008	2009	2010	2011	2012
Wilson	$19.74	$18.90	$14.00	$19.71	$20.80
Average	$16.34	$17.28	$17.03	$18.59	$19.04

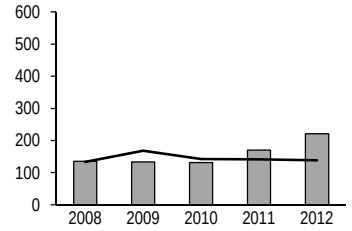
Yard Waste and Leaf Collection FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Wilson	3.1	3.0	3.0	3.1	3.2
Average	2.6	2.5	2.5	2.3	2.3

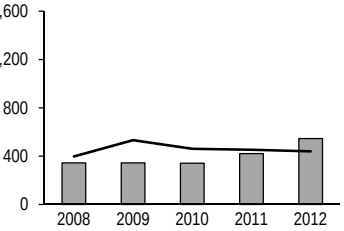
Workload Measures

Yard Waste and Leaf Tons Collected per 1,000 Population



	2008	2009	2010	2011	2012
Wilson	135	133	132	170	221
Average	133	168	142	142	138

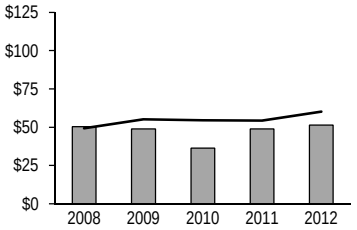
Yard Waste and Leaf Tons Collected per 1,000 Collection Points



	2008	2009	2010	2011	2012
Wilson	345	343	342	422	545
Average	399	531	462	453	440

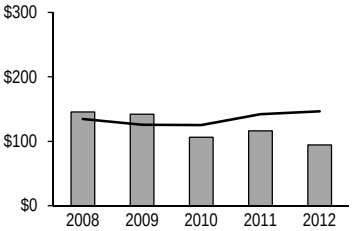
Efficiency Measures

Yard Waste and Leaf Collection Cost per Collection Point



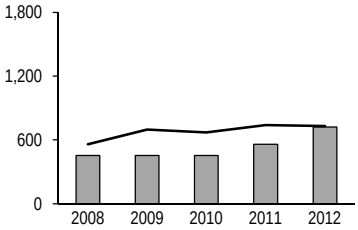
	2008	2009	2010	2011	2012
Wilson	$50	$49	$36	$49	$51
Average	$49	$55	$55	$54	$60

Yard Waste and Leaf Collection Cost per Ton Collected



	2008	2009	2010	2011	2012
Wilson	$146	$142	$106	$116	$94
Average	$135	$126	$125	$142	$146

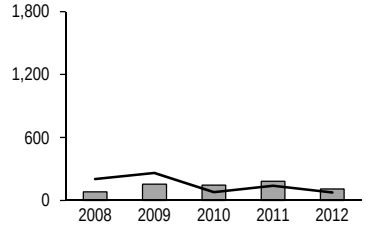
Yard Waste and Leaf Tons Collected per Collection FTE



	2008	2009	2010	2011	2012
Wilson	453	453	453	560	723
Average	559	698	670	739	732

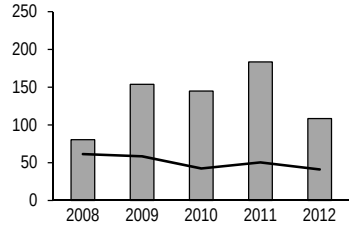
Effectiveness Measures

Collection Complaints per 10,000 Collection Points



	2008	2009	2010	2011	2012
Wilson	80	154	145	183	109
Average	202	261	77	139	74

Valid Complaints per 10,000 Collection Points



	2008	2009	2010	2011	2012
Wilson	80	154	145	183	109
Average	61	58	42	50	41

Winston-Salem Yard Waste/Leaf Collection

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

The city operates a curbside collection program for brush, leaves, and bulky items. Brush is collected throughout the year, while leaves and bulky items are collected on a seasonal basis. Brush is defined as small tree limbs, branches, and shrubbery clippings. Tree and shrubbery limbs cannot be larger than six inches in diameter or six feet in length. A city ordinance requires that brush be collected once every ten working days except during leaf season. There were no separate fees for the curbside collection program.

The yard waste cart program provides weekly collection of containerized yard waste placed in ninety-six-gallon carts. The city uses six one-person crews using automated packers and one two-person crew using a rear-loading packer to service these carts. Collection is provided Monday through Thursday. Carts are delivered on Friday.

Residents who participate in the yard waste cart program pay an annual $60 fee. Residents also pay for the ninety-six-gallon carts at a cost of $60 if the cart is picked up or $65 if the cart is delivered. A household can have up to three carts.

The city's seasonal leaf collection program picks up leaves that are deposited at the curb between November 1 and January 15. Loose leaves are vacuumed two to three times during this time period. Containerized leaves are collected throughout the year as part of the yard waste program. The city uses thirty-two crews for seasonal leaf collection, with a combination of equipment operators, maintenance workers, and both permanent and seasonal workers. During Fiscal Year 2011–2012 several automated vacuum trucks were added to the fleet.

Conditions Affecting Service, Performance, and Costs

The performance measure "cost per collection point" is based on 76,064 collection points.

Municipal Profile

Population (OSBM 2011)	232,143
Land Area (Square Miles)	132.45
Persons per Square Mile	1,753
Median Family Income U.S. Census 2010	$51,491

Service Profile

FTE Positions—Collection	86.1
FTE Positions—Other	0.0
Collection Frequency	
Yard Waste	1 x week
Seasonal Leaf Collection	1 x 3 weeks
Brush	1 x 10 days
Collection Points	
Brush	76,064
Leaves	76,064
Yard Waste Cart	13,863
Tons Collected	
Yard Waste	22,839
Seasonal Leaves	15,965
Total Tons Collected	38,804
Monthly Service Fee	No

Full Cost Profile

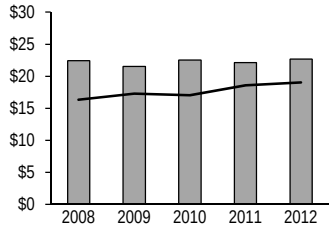
Cost Breakdown by Percentage	
Personal Services	51.1%
Operating Costs	33.4%
Capital Costs	15.5%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$2,692,115
Operating Costs	$1,757,642
Capital Costs	$817,505
TOTAL	$5,267,262

Winston-Salem Yard Waste/Leaf Collection

Key: Winston-Salem ■ Benchmarking Average — Fiscal Years 2008 through 2012

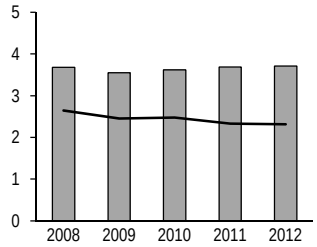
Resource Measures

Yard Waste and Leaf Collection Costs per Capita



	2008	2009	2010	2011	2012
Winston-Salem	$22.45	$21.51	$22.55	$22.13	$22.69
Average	$16.34	$17.28	$17.03	$18.59	$19.04

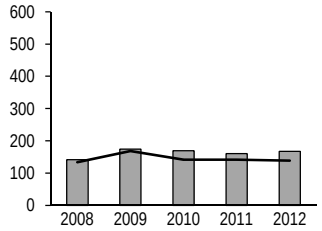
Yard Waste and Leaf Collection FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Winston-Salem	3.7	3.6	3.6	3.7	3.7
Average	2.6	2.5	2.5	2.3	2.3

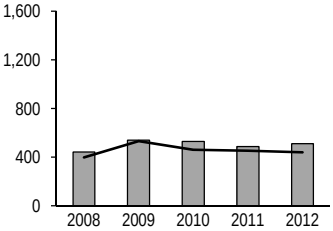
Workload Measures

Yard Waste and Leaf Tons Collected per 1,000 Population



	2008	2009	2010	2011	2012
Winston-Salem	142	174	169	161	167
Average	133	168	142	142	138

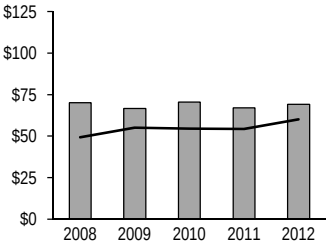
Yard Waste and Leaf Tons Collected per 1,000 Collection Points



	2008	2009	2010	2011	2012
Winston-Salem	442	540	528	486	510
Average	399	531	462	453	440

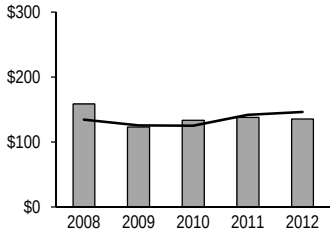
Efficiency Measures

Yard Waste and Leaf Collection Cost per Collection Point



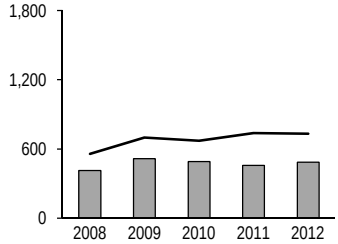
	2008	2009	2010	2011	2012
Winston-Salem	$70	$67	$70	$67	$69
Average	$49	$55	$55	$54	$60

Yard Waste and Leaf Collection Cost per Ton Collected



	2008	2009	2010	2011	2012
Winston-Salem	$159	$123	$133	$138	$136
Average	$135	$126	$125	$142	$146

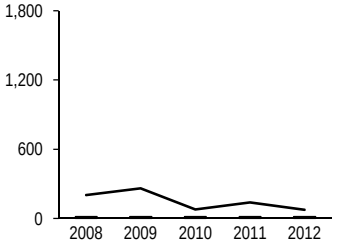
Yard Waste and Leaf Tons Collected per Collection FTE



	2008	2009	2010	2011	2012
Winston-Salem	414	517	490	457	484
Average	559	698	670	739	732

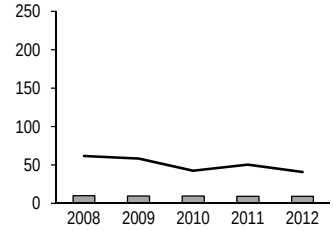
Effectiveness Measures

Collection Complaints per 10,000 Collection Points



	2008	2009	2010	2011	2012
Winston-Salem	17	16	16	16	16
Average	202	261	77	139	74

Valid Complaints per 10,000 Collection Points



	2008	2009	2010	2011	2012
Winston-Salem	10	10	10	9	9
Average	61	58	42	50	41

UNC
SCHOOL OF
GOVERNMENT

Performance and Cost Data

POLICE SERVICES

PERFORMANCE MEASURES FOR POLICE SERVICES

SERVICE DEFINITION

Police Services consist of all police activities performed by sworn and non-sworn personnel. This includes, but is not limited to, activities performed by patrol, traffic, investigations, special units, support staff, supervisors, and police administration. This definition captures all functions of the police department except for emergency communications.

NOTES ON PERFORMANCE MEASURES

1. Dispatched Calls

These are calls resulting in the dispatch of an officer. Most dispatches result from calls coming into the emergency communications center or the police department, but some are self-initiated by officers on duty. Multiple calls resulting in the dispatch of several officers are counted as one.

2. Uniform Crime Reporting (UCR) Part I Crimes

Uniform Crime Reporting (UCR) Part I crimes include crimes against persons (criminal homicide, forcible rape, robbery, and aggravated assault) and crimes against property (burglary, larceny, motor vehicle theft, and arson).

3. Incident-Based Reporting (IBR) Part I Crimes

Incident-Based Reporting (IBR) Part I crimes include crimes against persons (criminal homicide, forcible rape, robbery, and aggravated assault) and crimes against property (burglary, larceny, motor vehicle theft, and arson). The difference between the UCR method and the IBR method for reporting crimes is that IBR counts crime and arrest activities at the incident level, as opposed to counting only the most serious crime with multiple offenses.

4. Full-Time Equivalent (FTE) Positions: Sworn Officers

The number of full-time equivalent (FTE) positions is the number of budgeted positions for sworn officers during the fiscal year.

5. Response Time to High Priority Calls

Each police department defines high priority calls somewhat differently. The definitions generally refer to crimes in progress or situations where there are risks of injury or threats to life or property. Response time commences with the dispatch of an officer and ends with the arrival of the officer at the scene of the incident. The officer may be dispatched while on patrol or from the police station.

Police Services

Summary of Key Dimensions of Service

City or Town	Police Department Accredited?	Number of Sworn Officers	Average Length of Service for Sworn Officers (Years)	Number of Patrol Vehicles	Reporting Format	Part I Crimes			Part II Crimes	Dispatched Calls	Number of Traffic Accidents
						Against Persons	Against Property	Total			
Apex	No	58	11.8	45	IBR	31	684	715	1,811	26,840	970
Asheville	Yes	215	7.8	197	IBR	428	4,784	5,212	5,076	111,230	4,475
Burlington	Yes	125	10.2	151	IBR	420	3,992	4,412	5,043	69,601	2,337
Cary	Yes	178	9.2	125	IBR	120	2,170	2,290	3,067	134,172	4,004
Concord	No	158.25	10.0	174	IBR	126	3,364	3,490	2,024	83,407	3,088
Greensboro	Yes	673	10.0	240	IBR	1,290	13,347	14,637	15,584	298,045	8,201
Greenville	Yes	187	11.4	163	IBR	483	3,729	4,212	5,691	83,571	5,644
Hickory	No	118	9.7	152	IBR	218	2,819	3,037	3,618	66,707	2,053
High Point	No	227	10.6	238	UCR	527	4,914	5,441	3,415	118,549	2,692
Salisbury	Yes	81	10.9	93	IBR	218	2,128	2,346	1,664	31,668	1,711
Wilmington	Yes	256	11.4	270	UCR	654	5,902	6,556	5,538	177,042	3,648
Wilson	Yes	119	9.3	139	UCR	218	2,482	2,700	3,701	92,947	2,043
Winston-Salem	Yes	561	10.9	424	IBR	1,714	14,416	16,130	34,738	253,602	8,514

EXPLANATORY FACTORS

These are factors that the project found affected police services performance and cost in one or more of the municipalities:

Demographic makeup of the community
Community policing policies
Population density and land area
Downtown area characteristics
Use of incident-based reporting
Presence of unique problems in particular areas, such as drugs or gangs
Emphasis on quick response to all calls
Vehicle take-home policy
Beat structure
Use of special units

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The Town of Apex Police Department provides an array of police services, including patrol, investigations, a special response unit, and school resource officers at the high school and middle schools located in the town.

The city had fifty-eight sworn officer positions authorized for the year, with an average length of service of nearly twelve years. Police services occupies a headquarters located in downtown Apex, newly built in 2010, which houses all divisions in the depatment. There is also an unmanned substation attached to one of the town fire stations.

Officers in Apex in the partrol division work twelve-hour modified DuPont schedules. Each patrol squad is also assigned a flex officer. The traffic unit works a modified DuPont schedule based on crash statistics. The investigations division works Monday through Friday from 8 a.m. to 5 p.m., with one investigator working from 2 p.m. to 11 p.m. The investigator working the late shift is also the on-call investigator, and this position rotates every week.

Patrol and investigation units are assigned individual vehicles. Command staff also have individually assigned vehicles, which are the only take-home vehicles in the fleet.

The police department was successful in clearing a total of 371 Part I cases in FY 2011–12.

The definition of a high priority call in Apex is any call when the immediate arrival and presence of the police may prevent death or injury or alleviate the threat of death or injury.

Conditions Affecting Service, Performance, and Costs
Apex began participation in the benchmarking project in July 2011, with FY 2010–11 being the first reporting year.

Municipal Profile

Population (OSBM 2011)	38,696
Land Area (Square Miles)	15.63
Persons per Square Mile	2,477
Median Family Income U.S. Census 2010	$97,201

Service Profile

FTE Positions—Sworn	58.0
FTE Positions—Other	15.0
Marked and Unmarked Patrol Vehicles	45
Part I Crimes Reported	
Homicide	0
Rape	6
Robbery	7
Assault	18
Burglary	66
Larceny	605
Auto Theft	9
Arson	4
TOTAL	715
Part II Crimes Reported	1,811
Part I Crimes Cleared	
Persons	30
Property	341
TOTAL	371
Reporting Format	IBR
Number of Calls Dispatched	26,840
Number of Traffic Accidents	970
Property Damage for Accidents	$4,398,626

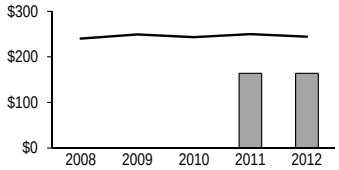
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	71.4%
Operating Costs	19.9%
Capital Costs	8.7%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$4,534,715
Operating Costs	$1,261,715
Capital Costs	$552,043
TOTAL	$6,348,473

Key: Apex ■ Benchmarking Average — Fiscal Years 2008 through 2012

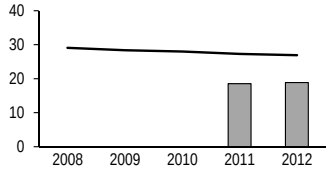
Resource Measures

Police Services Costs per Capita



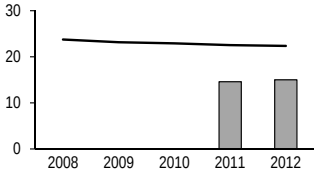
	2008	2009	2010	2011	2012
Apex				$164	$164
Average	$240	$249	$243	$250	$244

Total Police Services Personnel per 10,000 Population



	2008	2009	2010	2011	2012
Apex				18.5	18.9
Average	29.1	28.3	28.0	27.3	26.9

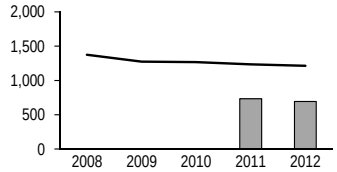
Sworn Police Officers per 10,000 Population



	2008	2009	2010	2011	2012
Apex				14.6	15.0
Average	23.7	23.2	22.9	22.5	22.4

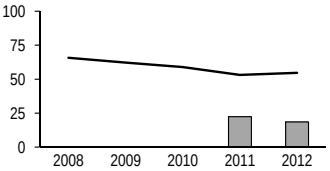
Workload Measures

Calls Dispatched per 1,000 Population



	2008	2009	2010	2011	2012
Apex				734	694
Average	1,374	1,274	1,266	1,234	1,213

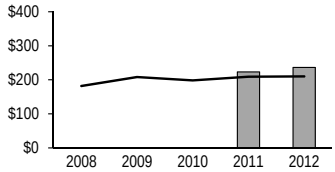
Part I Crimes per 1,000 Population



	2008	2009	2010	2011	2012
Apex				22.4	18.5
Average	65.7	62.2	58.9	53.2	54.7

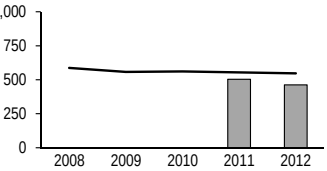
Efficiency Measures

Police Services Cost per Call Dispatched



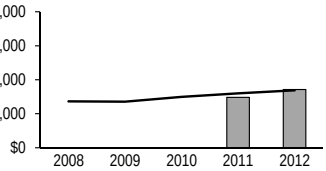
	2008	2009	2010	2011	2012
Apex				$223	$237
Average	$182	$208	$198	$209	$210

Calls Dispatched per Sworn Officer



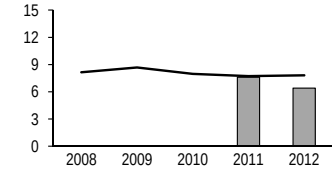
	2008	2009	2010	2011	2012
Apex				504	463
Average	587	557	561	554	547

Police Services Cost per Part I Case Cleared



	2008	2009	2010	2011	2012
Apex				$14,805	$17,112
Average	$13,626	$13,532	$14,953	$16,011	$16,873

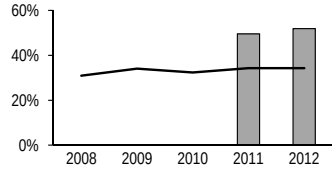
Part I Cases Cleared per Sworn Officer



	2008	2009	2010	2011	2012
Apex				7.6	6.4
Average	8.1	8.7	8.0	7.7	7.8

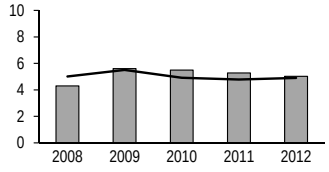
Effectiveness Measures

Percentage of Part I Cases Cleared of Those Reported



	2008	2009	2010	2011	2012
Apex				49.5%	51.9%
Average	30.9%	34.1%	32.4%	34.3%	34.3%

Response Time to High Priority Calls in Minutes



	2008	2009	2010	2011	2012
Apex	4.3	5.6	5.5	5.3	5.0
Average	5.0	5.5	4.9	4.8	4.9

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The Asheville Police Department provides an array of police services, including patrol, investigations, a telephone response unit, a canine unit, a special response unit, animal control, a drug enforcement unit, a hostage negotiation team, a hazardous device team, and several other special programs.

The city had 215 sworn officer positions authorized for the year, with an average length of service of about eight years. Police services occupies five facilities, the main downtown facility shared by the fire department and four substations.

Officers in Asheville work a varied DuPont schedule based on a fourteen-day period, working six twelve-hour days and one eight-hour day. The schedule requires two or three days on followed by two days off in alternating sequences over the two-week period. A power squad is assigned to work the evening shift during the peak time of calls. Detectives work four ten-hour days with half the detectives off Monday and the other half off on Fridays. Detective supervisors work five eight-hour days.

Specialty units such as traffic, SWAT, and detectives have assigned take-home cars. Additionally, sergeants and higher-ranked officers also have assigned vehicles. Patrol cars have multiple users.

The police department was successful in clearing a total of 2,037 Part I cases in FY 2011–12. The definition of a high priority call in Asheville is any call dealing with a crime in progress or a situation where there is immediate danger to a person.

Conditions Affecting Service, Performance, and Costs
Asheville switched over its crime reporting format from UCR to IBR in June 2009.

Significant efforts have been made, starting in FY 2006–07, to reduce drug crime in Asheville. The number of Part I crimes has declined, which is believed to be due in part to the focus on reducing drug crime.

Asheville's costs for police services were up in FY 2007–08 due to the addition of fifteen sworn officers during the year and the final stages of implementation of a market-based pay plan for police officers.

The average response time to high priority calls reflects the response time of the first arriving unit. Self-initiated calls are not included in the response time. Due to a better classification of high priority calls at the Asheville communications unit, police have been able to lower their response time to high priority calls.

Municipal Profile

Population (OSBM 2011)	85,646
Land Area (Square Miles)	45.40
Persons per Square Mile	1,886
Median Family Income U.S. Census 2010	$53,350

Service Profile

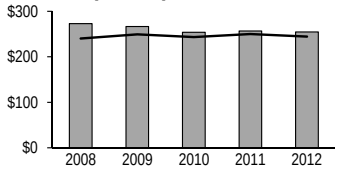
FTE Positions—Sworn	215.0
FTE Positions—Other	50.0
Marked and Unmarked Patrol Vehicles	197
Part I Crimes Reported	
Homicide	10
Rape	32
Robbery	169
Assault	217
Burglary	804
Larceny	3,645
Auto Theft	317
Arson	18
TOTAL	5,212
Part II Crimes Reported	5,076
Part I Crimes Cleared	
Persons	237
Property	1,800
TOTAL	2,037
Reporting Format	IBR
Number of Calls Dispatched	111,230
Number of Traffic Accidents	4,475
Property Damage for Accidents	$14,020,341

Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	69.8%
Operating Costs	22.7%
Capital Costs	7.6%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$15,201,620
Operating Costs	$4,943,093
Capital Costs	$1,647,822
TOTAL	$21,792,535

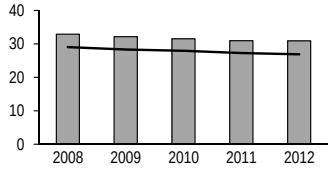
Resource Measures

Police Services Costs per Capita



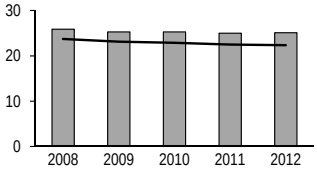
	2008	2009	2010	2011	2012
Asheville	$272.87	$267	$254	$257	$254
Average	$240	$249	$243	$250	$244

Total Police Services Personnel per 10,000 Population



	2008	2009	2010	2011	2012
Asheville	33.0	32.2	31.6	31.0	30.9
Average	29.1	28.3	28.0	27.3	26.9

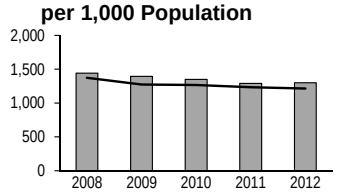
Sworn Police Officers per 10,000 Population



	2008	2009	2010	2011	2012
Asheville	25.9	25.3	25.3	25.0	25.1
Average	23.7	23.2	22.9	22.5	22.4

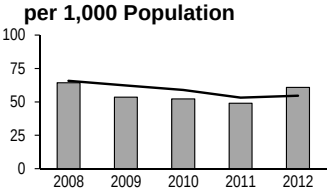
Workload Measures

Calls Dispatched per 1,000 Population



	2008	2009	2010	2011	2012
Asheville	1,441	1,394	1,348	1,289	1,299
Average	1,374	1,274	1,266	1,234	1,213

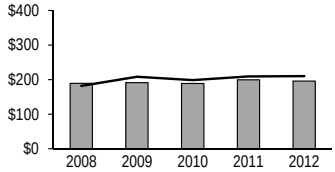
Part I Crimes per 1,000 Population



	2008	2009	2010	2011	2012
Asheville	64.3	53.6	52.3	48.9	60.9
Average	65.7	62.2	58.9	53.2	54.7

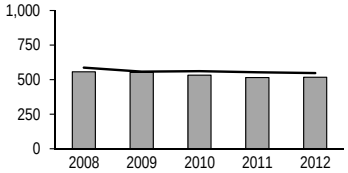
Efficiency Measures

Police Services Cost per Call Dispatched



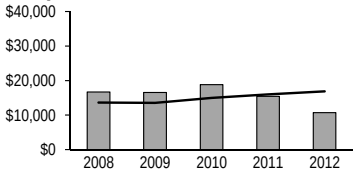
	2008	2009	2010	2011	2012
Asheville	$189	$191	$189	$199	$196
Average	$182	$208	$198	$209	$210

Calls Dispatched per Sworn Officer



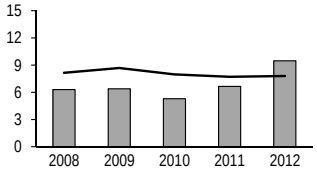
	2008	2009	2010	2011	2012
Asheville	557	552	533	516	517
Average	587	557	561	554	547

Police Services Cost per Part I Case Cleared



	2008	2009	2010	2011	2012
Asheville	$16,711	$16,536	$18,814	$15,442	$10,698
Average	$13,626	$13,532	$14,953	$16,011	$16,873

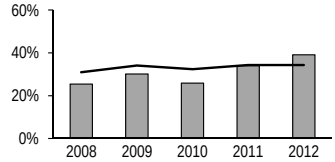
Part I Cases Cleared per Sworn Officer



	2008	2009	2010	2011	2012
Asheville	6.3	6.4	5.3	6.7	9.5
Average	8.1	8.7	8.0	7.7	7.8

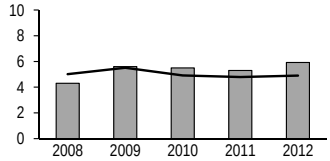
Effectiveness Measures

Percentage of Part I Cases Cleared of Those Reported



	2008	2009	2010	2011	2012
Asheville	25.4%	30.1%	25.9%	34.0%	39.1%
Average	30.9%	34.1%	32.4%	34.3%	34.3%

Response Time to High Priority Calls in Minutes



	2008	2009	2010	2011	2012
Asheville	4.3	5.6	5.5	5.3	5.9
Average	5.0	5.5	4.9	4.8	4.9

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The Burlington Police Department provides an array of police services, including patrol, investigations, a telephone response unit, a canine unit, a motorcycle unit, a special response unit, a drug enforcement unit, an animal control officer, and other programs.

The town had 125 sworn officer positions authorized for the year, with an average length of service of ten years. Police services occupies its own separate building. There are also several substations and a separate facility for animal control services and a pet adoption center.

Burlington's uniform patrol officers work a permanent day or night shift with four days on, four days off, for 10.75 hours each day for a total of 2,080 hours per year. The schedule includes eighty-four court hours and forty training hours. Investigators work a forty-hour week of four ten-hour days.

Vehicles are assigned following a take-home policy. All sworn employees with the exception of the Chief, Deputy Chief, and Major have take-home vehicles.

The definition of a high priority call in Burlington is any call requiring immediate police response. This includes crimes in progress where there is a threat to life and officers responding to traffic crashes or other incidents creating a life-threatening situation.

The police department was successful in clearing a total of 1,405 Part I cases in FY 2011–12.

Conditions Affecting Service, Performance, and Costs
The average response time to high priority calls reflects the response time of the first arriving unit. Self-initiated calls are not included in the response time.

Municipal Profile

Population (OSBM 2011)	51,263
Land Area (Square Miles)	25.21
Persons per Square Mile	2,034
Median Family Income	$46,461
U.S. Census 2010	

Service Profile

FTE Positions—Sworn	125.0
FTE Positions—Other	30.0
Marked and Unmarked Patrol Vehicles	151
Part I Crimes Reported	
Homicide	1
Rape	18
Robbery	109
Assault	292
Burglary	919
Larceny	2,912
Auto Theft	153
Arson	8
TOTAL	4,412
Part II Crimes Reported	5,043
Part I Crimes Cleared	
Persons	260
Property	1,145
TOTAL	1,405
Reporting Format	IBR
Number of Calls Dispatched	69,601
Number of Traffic Accidents	2,337
Property Damage for Accidents	$6,632,068

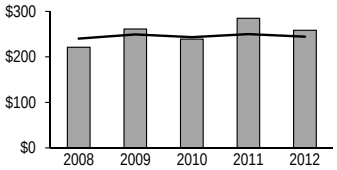
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	80.8%
Operating Costs	19.2%
Capital Costs	0.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$10,710,638
Operating Costs	$2,539,333
Capital Costs	$0
TOTAL	$13,249,971

Key: Burlington ■ Benchmarking Average — Fiscal Years 2008 through 2012

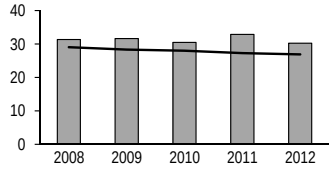
Resource Measures

Police Services Costs per Capita



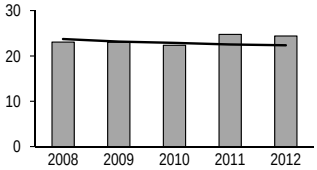
	2008	2009	2010	2011	2012
Burlington	$221.32	$261	$239	$285	$258
Average	$240	$249	$243	$250	$244

Total Police Services Personnel per 10,000 Population



	2008	2009	2010	2011	2012
Burlington	31.3	31.6	30.5	32.9	30.2
Average	29.1	28.3	28.0	27.3	26.9

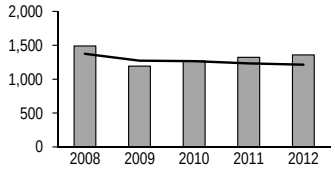
Sworn Police Officers per 10,000 Population



	2008	2009	2010	2011	2012
Burlington	23.1	23.0	22.4	24.8	24.4
Average	23.7	23.2	22.9	22.5	22.4

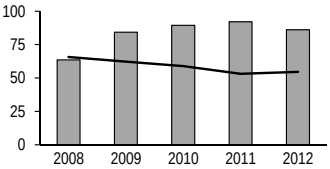
Workload Measures

Calls Dispatched per 1,000 Population



	2008	2009	2010	2011	2012
Burlington	1,490	1,193	1,269	1,323	1,358
Average	1,374	1,274	1,266	1,234	1,213

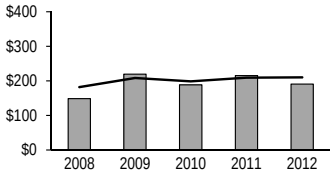
Part I Crimes per 1,000 Population



	2008	2009	2010	2011	2012
Burlington	63.6	84.2	89.4	92.1	86.1
Average	65.7	62.2	58.9	53.2	54.7

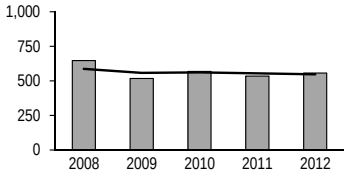
Efficiency Measures

Police Services Cost per Call Dispatched



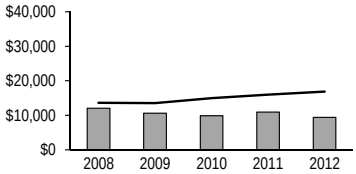
	2008	2009	2010	2011	2012
Burlington	$148	$219	$188	$215	$190
Average	$182	$208	$198	$209	$210

Calls Dispatched per Sworn Officer



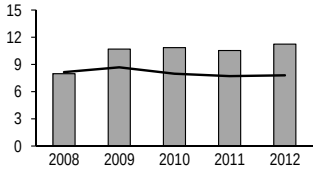
	2008	2009	2010	2011	2012
Burlington	647	518	568	534	557
Average	587	557	561	554	547

Police Services Cost per Part I Case Cleared



	2008	2009	2010	2011	2012
Burlington	$12,044	$10,614	$9,853	$10,917	$9,431
Average	$13,626	$13,532	$14,953	$16,011	$16,873

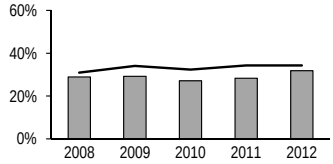
Part I Cases Cleared per Sworn Officer



	2008	2009	2010	2011	2012
Burlington	8.0	10.7	10.8	10.5	11.2
Average	8.1	8.7	8.0	7.7	7.8

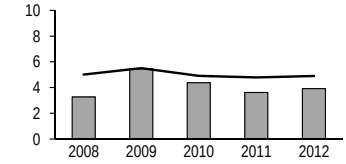
Effectiveness Measures

Percentage of Part I Cases Cleared of Those Reported



	2008	2009	2010	2011	2012
Burlington	28.9%	29.2%	27.1%	28.3%	31.8%
Average	30.9%	34.1%	32.4%	34.3%	34.3%

Response Time to High Priority Calls in Minutes



	2008	2009	2010	2011	2012
Burlington	3.3	5.4	4.4	3.6	3.9
Average	5.0	5.5	4.9	4.8	4.9

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

The Cary Police Department provides an array of police services, including patrol, investigations, a motorcycle unit, a special response unit, bicycle patrol, animal control, drug enforcement, a youth services program for public schools, and a canine unit.

The town had 178 sworn officer positions authorized for the fiscal year, with an average length of service of 9.2 years. The primary police headquarters is located in a three-story building shared with the town's technology services department. The department also operates three substations.

In order to provide continuous service to the citizens of Cary, personnel are assigned to permanent shifts. These shifts overlap by design to provide sufficient protection during shift changes and to provide additional coverage during the times of peak activity. Tuesday through Friday the staff consists of three platoons of officers working ten-hour shifts. Saturday through Monday the staff consists of two platoons of officers working twelve-and-a-half-hour shifts. Investigators work on-call schedules and are also scheduled to work some evening hours to ensure coverage during the most active times of the day.

Two uniformed patrol officers are assigned to each marked vehicle. Traffic officers and detectives are assigned individual vehicles. Only the detective on call is allowed to take home a vehicle, and the on-call assignment rotates.

The town defines a high priority call as one which is life-threatening in nature.

The police department was successful in clearing a total of 717 Part I cases in FY 2011–12.

Conditions Affecting Service, Performance, and Costs

The average response time to high priority calls reflects the response time of the first arriving unit. Self-initiated calls with a response time of zero are included in the average response time to high priority calls.

Municipal Profile

Population (OSBM 2011)	139,172
Land Area (Square Miles)	54.56
Persons per Square Mile	2,551
Median Family Income	$108,956
U.S. Census 2010	

Service Profile

FTE Positions—Sworn	178.0
FTE Positions—Other	14.5
Marked and Unmarked Patrol Vehicles	125
Part I Crimes Reported	
Homicide	2
Rape	11
Robbery	39
Assault	68
Burglary	353
Larceny	1,743
Auto Theft	62
Arson	12
TOTAL	2,290
Part II Crimes Reported	3,067
Part I Crimes Cleared	
Persons	89
Property	628
TOTAL	717
Reporting Format	IBR
Number of Calls Dispatched	134,172
Number of Traffic Accidents	4,004
Property Damage for Accidents	$11,530,455

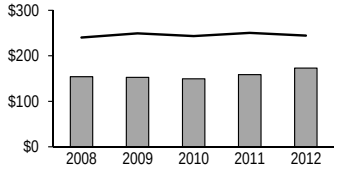
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	72.8%
Operating Costs	21.8%
Capital Costs	5.5%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$17,528,951
Operating Costs	$5,243,387
Capital Costs	$1,320,941
TOTAL	$24,093,279

Key: Cary ■ Benchmarking Average — Fiscal Years 2008 through 2012

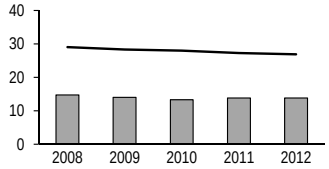
Resource Measures

Police Services Costs per Capita



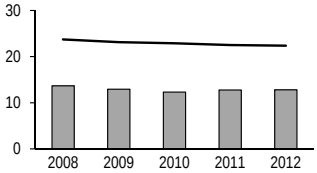
	2008	2009	2010	2011	2012
Cary	$153.91	$153	$150	$159	$173
Average	$240	$249	$243	$250	$244

Total Police Services Personnel per 10,000 Population



	2008	2009	2010	2011	2012
Cary	14.7	14.0	13.3	13.8	13.8
Average	29.1	28.3	28.0	27.3	26.9

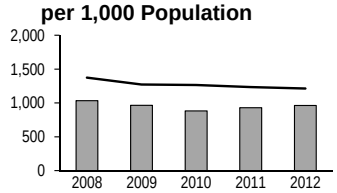
Sworn Police Officers per 10,000 Population



	2008	2009	2010	2011	2012
Cary	13.7	12.9	12.3	12.8	12.8
Average	23.7	23.2	22.9	22.5	22.4

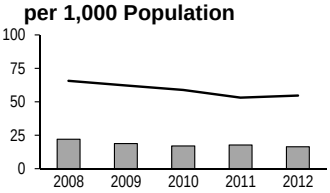
Workload Measures

Calls Dispatched per 1,000 Population



	2008	2009	2010	2011	2012
Cary	1,033	964	883	931	964
Average	1,374	1,274	1,266	1,234	1,213

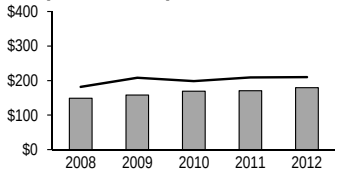
Part I Crimes per 1,000 Population



	2008	2009	2010	2011	2012
Cary	22.0	18.8	17.1	17.7	16.5
Average	65.7	62.2	58.9	53.2	54.7

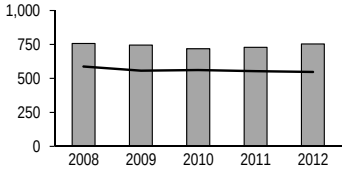
Efficiency Measures

Police Services Cost per Call Dispatched



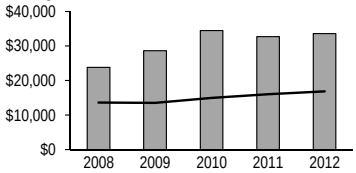
	2008	2009	2010	2011	2012
Cary	$149	$158	$169	$170	$180
Average	$182	$208	$198	$209	$210

Calls Dispatched per Sworn Officer



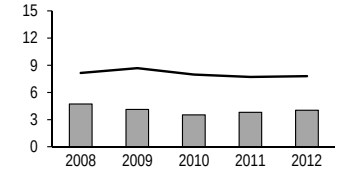
	2008	2009	2010	2011	2012
Cary	757	746	719	729	754
Average	587	557	561	554	547

Police Services Cost per Part I Case Cleared



	2008	2009	2010	2011	2012
Cary	$23,835	$28,624	$34,450	$32,694	$33,603
Average	$13,626	$13,532	$14,953	$16,011	$16,873

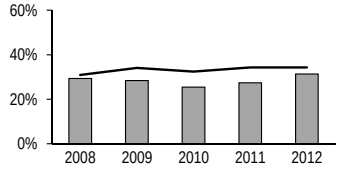
Part I Cases Cleared per Sworn Officer



	2008	2009	2010	2011	2012
Cary	4.7	4.1	3.5	3.8	4.0
Average	8.1	8.7	8.0	7.7	7.8

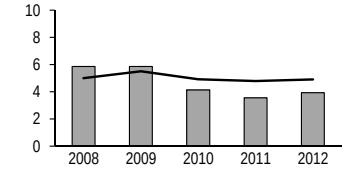
Effectiveness Measures

Percentage of Part I Cases Cleared of Those Reported



	2008	2009	2010	2011	2012
Cary	29.3%	28.4%	25.5%	27.4%	31.3%
Average	30.9%	34.1%	32.4%	34.3%	34.3%

Response Time to High Priority Calls in Minutes



	2008	2009	2010	2011	2012
Cary	5.9	5.9	4.1	3.6	3.9
Average	5.0	5.5	4.9	4.8	4.9

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

Concord's police department provides an array of police services, including patrol, investigations, a traffic unit, a telephone response unit, a canine unit, a special response unit, a bicycle patrol unit, a drug enforcement unit, and other programs such as school resource officers.

The city had 158.25 sworn officer positions authorized for the fiscal year, with an average length of service of ten years. The police headquarters is in a new separate building located downtown. Four substations are used, two in fire stations and two in shopping malls.

Uniformed patrol officers work twelve-hour rotating shifts. Investigators work five eight-hour days on first and second shifts. District Commanders have the authority to change individual schedules to meet peak demands.

The city defines high priority emergency calls as those involving an assault in progress, personal injury, breaking and entering, or robbery in progress.

Concord uses a one-on-one car plan. Officers may take their vehicles home if they live in the city or within one mile of the city limits.

The police department was successful in clearing a total of 2,049 Part I cases in FY 2011–12.

Conditions Affecting Service, Performance, and Costs

The average response time to high priority calls reflects the response time of the first arriving unit. Self-initiated calls are not included.

Municipal Profile

Population (OSBM 2011)	80,386
Land Area (Square Miles)	60.28
Persons per Square Mile	1,333
Median Family Income U.S. Census 2010	$63,643

Service Profile

FTE Positions—Sworn	158.25
FTE Positions—Other	20.0
Marked and Unmarked Patrol Vehicles	174
Part I Crimes Reported	
Homicide	4
Rape	20
Robbery	45
Assault	57
Burglary	515
Larceny	2,669
Auto Theft	164
Arson	16
TOTAL	3,490
Part II Crimes Reported	2,024
Part I Crimes Cleared	
Persons	78
Property	1,971
TOTAL	2,049
Reporting Format	IBR
Number of Calls Dispatched	83,407
Number of Traffic Accidents	3,088
Property Damage for Accidents	$10,056,887

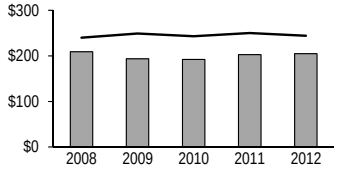
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	70.7%
Operating Costs	19.7%
Capital Costs	9.6%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$11,629,826
Operating Costs	$3,244,639
Capital Costs	$1,583,379
TOTAL	$16,457,844

Key: Concord ■ Benchmarking Average — Fiscal Years 2008 through 2012

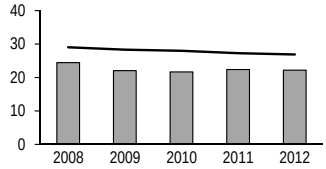
Resource Measures

Police Services Costs per Capita



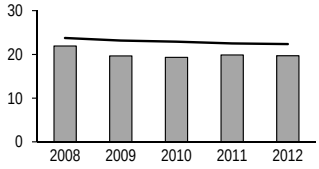
	2008	2009	2010	2011	2012
Concord	$209.05	$194	$192	$203	$205
Average	$240	$249	$243	$250	$244

Total Police Services Personnel per 10,000 Population



	2008	2009	2010	2011	2012
Concord	24.5	22.0	21.7	22.4	22.2
Average	29.1	28.3	28.0	27.3	26.9

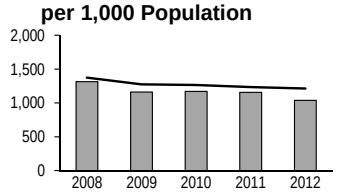
Sworn Police Officers per 10,000 Population



	2008	2009	2010	2011	2012
Concord	21.9	19.7	19.3	19.9	19.7
Average	23.7	23.2	22.9	22.5	22.4

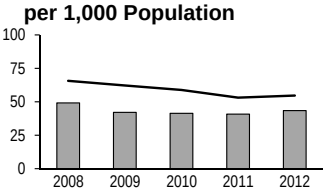
Workload Measures

Calls Dispatched per 1,000 Population



	2008	2009	2010	2011	2012
Concord	1,314	1,161	1,171	1,156	1,038
Average	1,374	1,274	1,266	1,234	1,213

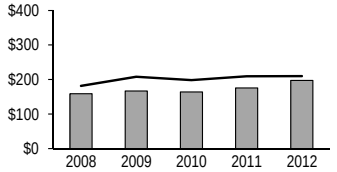
Part I Crimes per 1,000 Population



	2008	2009	2010	2011	2012
Concord	49.2	42.1	41.4	40.8	43.4
Average	65.7	62.2	58.9	53.2	54.7

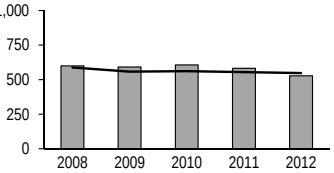
Efficiency Measures

Police Services Cost per Call Dispatched



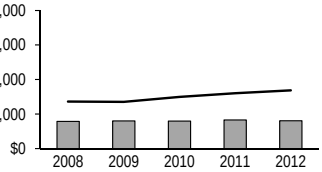
	2008	2009	2010	2011	2012
Concord	$159	$167	$164	$175	$197
Average	$182	$208	$198	$209	$210

Calls Dispatched per Sworn Officer



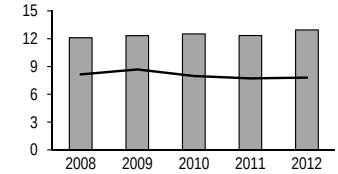
	2008	2009	2010	2011	2012
Concord	599	591	606	582	527
Average	587	557	561	554	547

Police Services Cost per Part I Case Cleared



	2008	2009	2010	2011	2012
Concord	$7,876	$7,999	$7,944	$8,268	$8,032
Average	$13,626	$13,532	$14,953	$16,011	$16,873

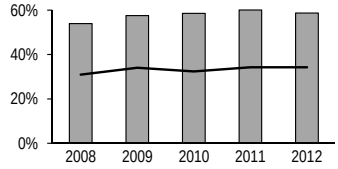
Part I Cases Cleared per Sworn Officer



	2008	2009	2010	2011	2012
Concord	12.1	12.3	12.5	12.3	12.9
Average	8.1	8.7	8.0	7.7	7.8

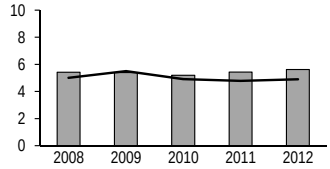
Effectiveness Measures

Percentage of Part I Cases Cleared of Those Reported



	2008	2009	2010	2011	2012
Concord	54.0%	57.5%	58.5%	60.1%	58.7%
Average	30.9%	34.1%	32.4%	34.3%	34.3%

Response Time to High Priority Calls in Minutes



	2008	2009	2010	2011	2012
Concord	5.4	5.4	5.2	5.4	5.6
Average	5.0	5.5	4.9	4.8	4.9

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Greensboro provides comprehensive police services, including patrol, investigations, a traffic unit, a telephone response unit, a forensics laboratory, a canine unit, a motorcycle unit, a special response unit, a bicycle patrol unit, a drug enforcement unit, and a student outreach and recruiting program.

The city had 673 sworn officer positions authorized for the fiscal year, with an average length of service of ten years. The police department is housed in a downtown facility with other city departments. The city also has three substations that serve as remote line-up facilities.

Patrol officers work a four-days-on and four-days-off fixed schedule. There are four shifts each day, with each patrol officer shift lasting eleven hours. Investigators and administrative personnel work Monday through Friday from 8 a.m. to 5 p.m. Schedules can be adjusted at any time according to call demand, special events, or special incidents.

Line patrol officers do not take vehicles home. Patrol supervisors, division commanders, and some investigators take vehicles home depending on their assignment.

Greensboro defines a high priority emergency call as one where there is a potential for imminent serious injury or death. The police department was successful in clearing a total of 4,122 Part I cases in FY 2011–12.

Conditions Affecting Service, Performance, and Costs
The average response time to high priority calls reflects the response time of the first arriving unit. Self-initiated calls with a response time of zero are included in the average response time to high priority calls with the exception of traffic stops and report-only calls.

A new dispatch system in Greensboro implemented in FY 2007–08 prevents repeat calls leading to multiple dispatches. If a call comes in from the same area on the same incident, the system will combine the calls rather than generating multiple dispatches. This system change means that the number of dispatched calls for Greensboro declined not because of service changes but due primarily to data reporting differences.

Beginning in FY 2009–10, Greensboro refined its reporting of response time and now only includes patrol calls, which are the majority of calls. Calls to special units are no longer included. A change was also made in the prioritization of calls, which improved response time for the most urgent calls.

Dispatched calls rose noticeably over earlier years due to significant annexations to the city.

Municipal Profile

Population (OSBM 2011)	272,196
Land Area (Square Miles)	127.14
Persons per Square Mile	2,141
Median Family Income	$52,752
U.S. Census 2010	

Service Profile

FTE Positions—Sworn	673.0
FTE Positions—Other	112.0
Marked and Unmarked Patrol Vehicles	240
Part I Crimes Reported	
Homicide	23
Rape	83
Robbery	598
Assault	586
Burglary	3,877
Larceny	8,742
Auto Theft	638
Arson	90
TOTAL	14,637
Part II Crimes Reported	15,584
Part I Crimes Cleared	
Persons	651
Property	3,471
TOTAL	4,122
Reporting Format	IBR
Number of Calls Dispatched	298,045
Number of Traffic Accidents	8,201
Property Damage for Accidents	$30,999,508

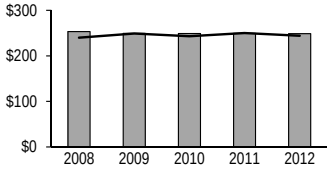
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	78.9%
Operating Costs	21.1%
Capital Costs	0.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$53,480,758
Operating Costs	$14,280,633
Capital Costs	$0
TOTAL	$67,761,391

Key: Greensboro ■ Benchmarking Average — Fiscal Years 2008 through 2012

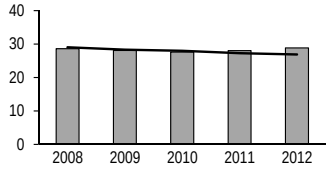
Resource Measures

Police Services Costs per Capita



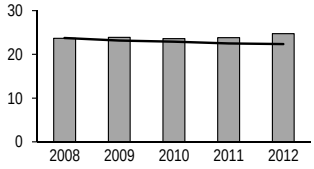
	2008	2009	2010	2011	2012
Greensboro	$253.30	$249	$249	$249	$249
Average	$240	$249	$243	$250	$244

Total Police Services Personnel per 10,000 Population



	2008	2009	2010	2011	2012
Greensboro	28.6	28.1	27.6	28.0	28.8
Average	29.1	28.3	28.0	27.3	26.9

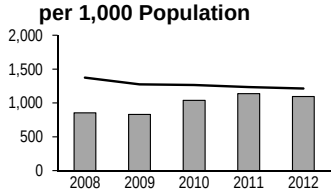
Sworn Police Officers per 10,000 Population



	2008	2009	2010	2011	2012
Greensboro	23.7	23.9	23.6	23.8	24.7
Average	23.7	23.2	22.9	22.5	22.4

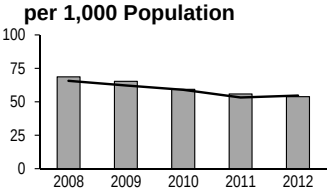
Workload Measures

Calls Dispatched per 1,000 Population



	2008	2009	2010	2011	2012
Greensboro	854	830	1,038	1,138	1,095
Average	1,374	1,274	1,266	1,234	1,213

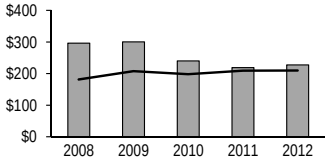
Part I Crimes per 1,000 Population



	2008	2009	2010	2011	2012
Greensboro	68.7	65.3	59.4	55.9	53.8
Average	65.7	62.2	58.9	53.2	54.7

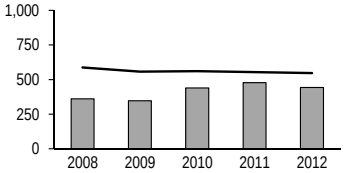
Efficiency Measures

Police Services Cost per Call Dispatched



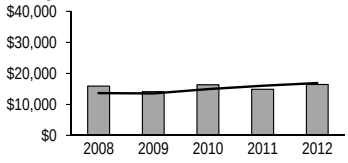
	2008	2009	2010	2011	2012
Greensboro	$297	$301	$240	$219	$227
Average	$182	$208	$198	$209	$210

Calls Dispatched per Sworn Officer



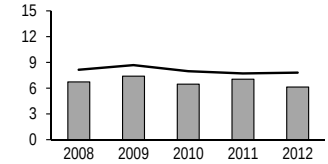
	2008	2009	2010	2011	2012
Greensboro	361	347	440	478	443
Average	587	557	561	554	547

Police Services Cost per Part I Case Cleared



	2008	2009	2010	2011	2012
Greensboro	$15,923	$14,113	$16,338	$14,876	$16,439
Average	$13,626	$13,532	$14,953	$16,011	$16,873

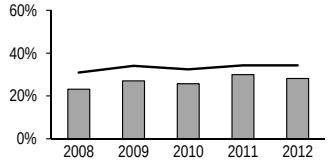
Part I Cases Cleared per Sworn Officer



	2008	2009	2010	2011	2012
Greensboro	6.7	7.4	6.5	7.0	6.1
Average	8.1	8.7	8.0	7.7	7.8

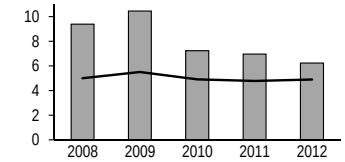
Effectiveness Measures

Percentage of Part I Cases Cleared of Those Reported



	2008	2009	2010	2011	2012
Greensboro	23.2%	27.1%	25.7%	30.0%	28.2%
Average	30.9%	34.1%	32.4%	34.3%	34.3%

Response Time to High Priority Calls in Minutes



	2008	2009	2010	2011	2012
Greensboro	9.4	10.5	7.2	7.0	6.2
Average	5.0	5.5	4.9	4.8	4.9

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Greenville provides a full array of police services, including patrol, investigations, a canine unit, a special response unit, bicycle patrol, and drug enforcement.

The city had 187 sworn officer positions authorized for the fiscal year, with an average length of service of 11.42 years. The police department occupies space in the city government building.

Patrol officers work a rotating schedule of two on/two off/three on/two off/two on/three off. There are four shifts each day for patrol officers, with the shifts lasting eleven hours. Investigators and administrative personnel work Monday through Friday, with eight hour shifts. Schedules are subject to change based on call demand, special events, or unusual events.

Some patrol officers have take-home vehicles. There are seven to eight take-home cars per shift. They are assigned by seniority and whether or not the officer lives in the city limits. Officers on a shift who do not have a take-home car are assigned a pool car to drive each day. All investigators and administation personnel (with one exception) have take-home cars.

Greenville defines high priority emergency calls as those situations that present a potential for imminent serious injury or death. These calls will be dispatched to the first available patrol unit, which may require a citywide dispatch.

The police department was successful in clearing a total of 1,135 Part I cases in FY 2011–12.

Conditions Affecting Service, Performance, and Costs
Greenville joined the project in July 2009, with the first year of reporting being for FY 2008–09.

Greenville switched to a new records management system near the end of FY 2008–09. Due to complications with the system changeover, the city was not able to provide data on clearances for crimes for FY 2008–09.

The average response time to high priority calls reflects the response time of the first arriving unit. Self-initiated calls are not included in the response times.

Municipal Profile

Population (OSBM 2011)	85,059
Land Area (Square Miles)	34.70
Persons per Square Mile	2,451
Median Family Income	$50,395
U.S. Census 2010	

Service Profile

FTE Positions—Sworn	187.0
FTE Positions—Other	53.0
Marked and Unmarked Patrol Vehicles	163
Part I Crimes Reported	
Homicide	9
Rape	15
Robbery	196
Assault	263
Burglary	1,134
Larceny	2,475
Auto Theft	114
Arson	6
TOTAL	4,212
Part II Crimes Reported	5,691
Part I Crimes Cleared	
Persons	228
Property	907
TOTAL	1,135
Reporting Format	IBR
Number of Calls Dispatched	83,571
Number of Traffic Accidents	5,644
Property Damage for Accidents	$13,454,780

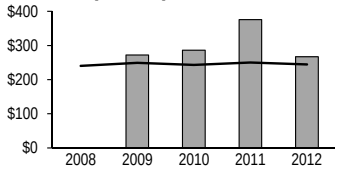
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	72.7%
Operating Costs	23.6%
Capital Costs	3.7%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$16,521,407
Operating Costs	$5,367,607
Capital Costs	$834,175
TOTAL	$22,723,189

Key: Greenville ■ Benchmarking Average — Fiscal Years 2008 through 2012

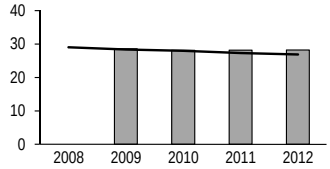
Resource Measures

Police Services Costs per Capita



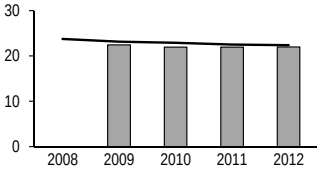
	2008	2009	2010	2011	2012
Greenville		$272	$286	$376	$267
Average	$240	$249	$243	$250	$244

Total Police Services Personnel per 10,000 Population



	2008	2009	2010	2011	2012
Greenville		28.5	28.1	28.2	28.2
Average	29.1	28.3	28.0	27.3	26.9

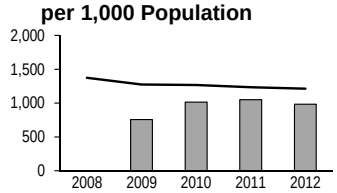
Sworn Police Officers per 10,000 Population



	2008	2009	2010	2011	2012
Greenville		22.5	21.9	22.0	22.0
Average	23.7	23.2	22.9	22.5	22.4

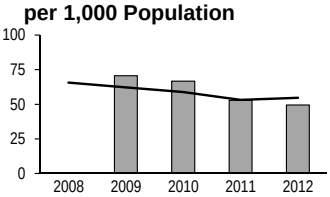
Workload Measures

Calls Dispatched per 1,000 Population



	2008	2009	2010	2011	2012
Greenville		757	1,013	1,051	983
Average	1,374	1,274	1,266	1,234	1,213

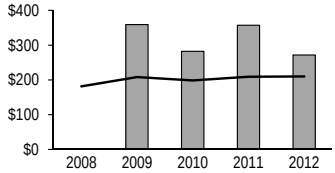
Part I Crimes per 1,000 Population



	2008	2009	2010	2011	2012
Greenville		70.6	66.7	52.9	49.5
Average	65.7	62.2	58.9	53.2	54.7

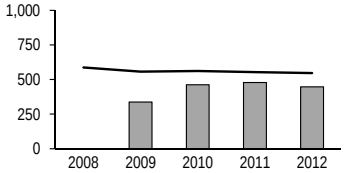
Efficiency Measures

Police Services Cost per Call Dispatched



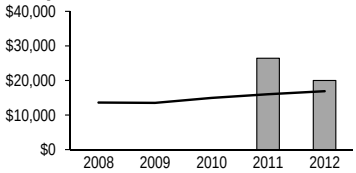
	2008	2009	2010	2011	2012
Greenville		$359	$282	$357	$272
Average	$182	$208	$198	$209	$210

Calls Dispatched per Sworn Officer



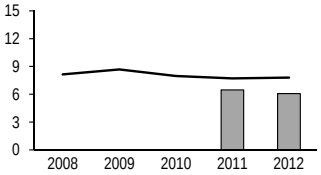
	2008	2009	2010	2011	2012
Greenville		337	462	478	447
Average	587	557	561	554	547

Police Services Cost per Part I Case Cleared



	2008	2009	2010	2011	2012
Greenville				$26,454	$20,020
Average	$13,626	$13,532	$14,953	$16,011	$16,873

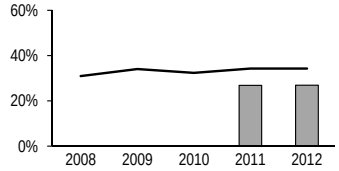
Part I Cases Cleared per Sworn Officer



	2008	2009	2010	2011	2012
Greenville				6.5	6.1
Average	8.1	8.7	8.0	7.7	7.8

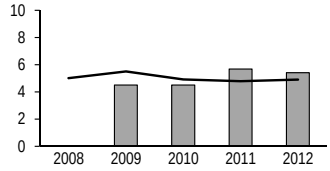
Effectiveness Measures

Percentage of Part I Cases Cleared of Those Reported



	2008	2009	2010	2011	2012
Greenville				26.8%	26.9%
Average	30.9%	34.1%	32.4%	34.3%	34.3%

Response Time to High Priority Calls in Minutes



	2008	2009	2010	2011	2012
Greenville		4.5	4.5	5.7	5.4
Average	5.0	5.5	4.9	4.8	4.9

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Hickory provides a full array of police services, including patrol, investigations, a traffic unit, a laboratory facility, a canine unit, a special response unit, bicycle patrol, a jail/holding facility, animal control, drug enforcement, and a DARE program.

The city had 118 sworn officer positions authorized for the fiscal year, with an average length of service of 9.7 years. The police department occupies its own three-story facility, completed in January 1996. Each of the five community police areas has an office located in its respective community. These offices are not staffed. They are used for interviews, to obtain information, to store supplies, and to make phone calls.

Patrol officers work a fourteen-day, 80.5-hour cycle. During this period, officers work seven 11.5-hour days. Each of the five districts is commanded by a lieutenant who establishes schedules based on need.

Investigators work Monday through Friday, either from 8:30 a.m. to 5:00 p.m. or 3:30 p.m. to 12:00 a.m. for the second-shift on-call investigators.

Hickory uses the one-officer, one-car plan. Officers take vehicles home if they live in or within one mile of the city. Officers who are members of specialized units needed for emergency response, such as special operations, K-9, or criminial investigations, may also take their vehicles home.

Hickory defines high priority emergency calls as those situations that present an in-progress threat to life or serious property loss. Officers are authorized to utilize blue lights and sirens during responses and may exceed posted speed limits by up to twenty miles per hour.

The police department was successful in clearing a total of 940 Part I cases in FY 2011–12.

Conditions Affecting Service, Performance, and Costs
The average response time to high priority calls reflects the response time of the first arriving unit. Self-initiated calls with a response time of zero are included in the average response time to high priority calls.

Beginning in FY 2007–08, Hickory was no longer including property checks and citizen contacts as part of total service calls for service or dispatches. The decline represents not a drop in service but a change in what was being counted.

Municipal Profile

Population (OSBM 2011)	40,086
Land Area (Square Miles)	29.72
Persons per Square Mile	1,349
Median Family Income	$54,093
U.S. Census 2010	

Service Profile

FTE Positions—Sworn	118.0
FTE Positions—Other	32.0
Marked and Unmarked Patrol Vehicles	152
Part I Crimes Reported	
Homicide	3
Rape	16
Robbery	92
Assault	107
Burglary	578
Larceny	2,100
Auto Theft	130
Arson	11
TOTAL	3,037
Part II Crimes Reported	3,618
Part I Crimes Cleared	
Persons	103
Property	837
TOTAL	940
Reporting Format	IBR
Number of Calls Dispatched	66,707
Number of Traffic Accidents	2,053
Property Damage for Accidents	$7,251,200

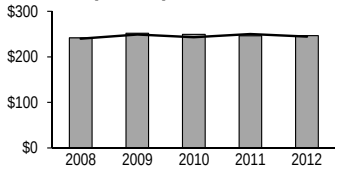
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	74.3%
Operating Costs	19.5%
Capital Costs	6.2%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$7,349,211
Operating Costs	$1,932,055
Capital Costs	$611,052
TOTAL	$9,892,318

Key: Hickory ■ Benchmarking Average — Fiscal Years 2008 through 2012

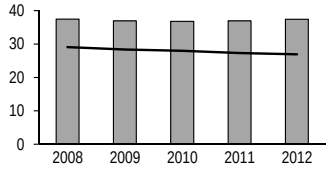
Resource Measures

Police Services Costs per Capita



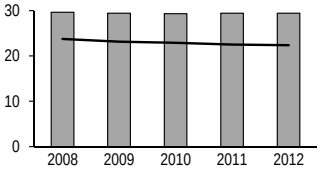
	2008	2009	2010	2011	2012
Hickory	$241.76	$252	$249	$246	$247
Average	$240	$249	$243	$250	$244

Total Police Services Personnel per 10,000 Population



	2008	2009	2010	2011	2012
Hickory	37.4	36.9	36.8	36.9	37.4
Average	29.1	28.3	28.0	27.3	26.9

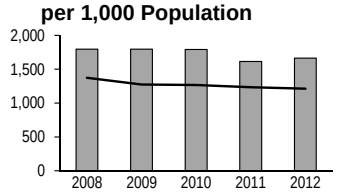
Sworn Police Officers per 10,000 Population



	2008	2009	2010	2011	2012
Hickory	29.7	29.4	29.3	29.4	29.4
Average	23.7	23.2	22.9	22.5	22.4

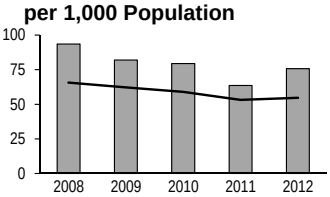
Workload Measures

Calls Dispatched per 1,000 Population



	2008	2009	2010	2011	2012
Hickory	1,797	1,797	1,792	1,613	1,664
Average	1,374	1,274	1,266	1,234	1,213

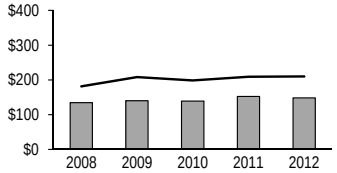
Part I Crimes per 1,000 Population



	2008	2009	2010	2011	2012
Hickory	93.6	82.0	79.5	63.5	75.8
Average	65.7	62.2	58.9	53.2	54.7

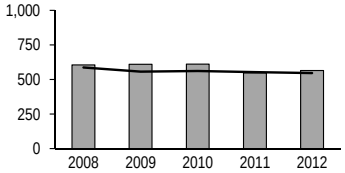
Efficiency Measures

Police Services Cost per Call Dispatched



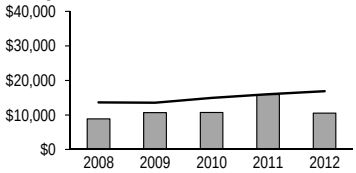
	2008	2009	2010	2011	2012
Hickory	$135	$140	$139	$153	$148
Average	$182	$208	$198	$209	$210

Calls Dispatched per Sworn Officer



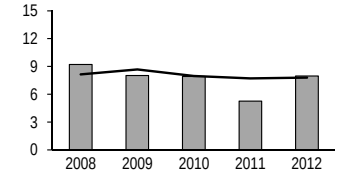
	2008	2009	2010	2011	2012
Hickory	606	611	611	548	565
Average	587	557	561	554	547

Police Services Cost per Part I Case Cleared



	2008	2009	2010	2011	2012
Hickory	$8,851	$10,659	$10,732	$15,903	$10,524
Average	$13,626	$13,532	$14,953	$16,011	$16,873

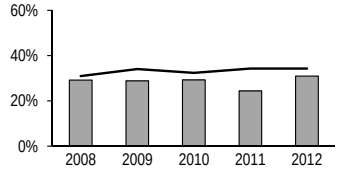
Part I Cases Cleared per Sworn Officer



	2008	2009	2010	2011	2012
Hickory	9.2	8.0	7.9	5.3	8.0
Average	8.1	8.7	8.0	7.7	7.8

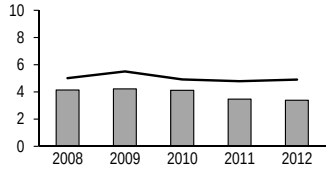
Effectiveness Measures

Percentage of Part I Cases Cleared of Those Reported



	2008	2009	2010	2011	2012
Hickory	29.2%	28.8%	29.2%	24.4%	31.0%
Average	30.9%	34.1%	32.4%	34.3%	34.3%

Response Time to High Priority Calls in Minutes



	2008	2009	2010	2011	2012
Hickory	4.1	4.2	4.1	3.5	3.4
Average	5.0	5.5	4.9	4.8	4.9

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

High Point's police department provides an array of police services, including patrol, investigations, traffic, a telephone response unit, a forensics laboratory, a canine unit, a motorcycle unit, a special response unit, a bicycle patrol unit, an animal control function, a drug enforcement unit, and other programs such as school resource officers.

The city had 227 sworn officer positions authorized for the fiscal year, with an average length of service of 10.6 years. The police department is located in a separate building from city hall.

Patrol officers work a 10.5-hour shift on either the first, second, or third shift. Officers are assigned to separate teams and alternate four days on and four days off. In order to provide coverage for peak hours, the second and third shifts overlap by 5.5 hours. This applies to both daytime and night coverage.

Detectives work a twenty-eight-day cycle of five days on and two days off. The first shift is from 8 a.m. to 5 p.m., and the second shift is from 4 p.m. to 12 a.m. Each week, three detectives rotate to cover the second shift.

Each officer is assigned a vehicle. Officers living within the city limits take vehicles home. If the officer lives outside of the city limits, the vehicle must be parked at an approved location within the city.

The city defines high priority emergency calls as those where the threat of physical injury or the level of danger created by a suspect or condition requires such a response.

The police department was successful in clearing a total of 2,224 Part I cases in FY 2011–12.

Conditions Affecting Service, Performance, and Costs

The average response time to high priority calls reflects the response time of the first arriving unit. Self-initiated calls with a response time of zero are not included in the average response time to high priority calls.

Municipal Profile

Population (OSBM 2011)	105,498
Land Area (Square Miles)	53.83
Persons per Square Mile	1,960
Median Family Income U.S. Census 2010	$49,720

Service Profile

FTE Positions—Sworn	227.0
FTE Positions—Other	38.0
Marked and Unmarked Patrol Vehicles	238
Part I Crimes Reported	
Homicide	2
Rape	25
Robbery	200
Assault	300
Burglary	1,218
Larceny	3,397
Auto Theft	262
Arson	37
TOTAL	5,441
Part II Crimes Reported	3,415
Part I Crimes Cleared	
Persons	363
Property	1,861
TOTAL	2,224
Reporting Format	UCR
Number of Calls Dispatched	118,549
Number of Traffic Accidents	2,692
Property Damage for Accidents	$10,983,556

Full Cost Profile

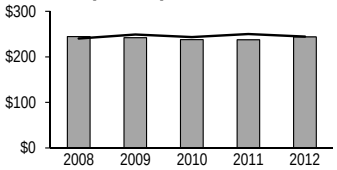
Cost Breakdown by Percentage	
Personal Services	72.1%
Operating Costs	22.7%
Capital Costs	5.2%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$18,539,391
Operating Costs	$5,834,199
Capital Costs	$1,329,878
TOTAL	$25,703,468

High Point — Police Services

Key: High Point ■ Benchmarking Average — Fiscal Years 2008 through 2012

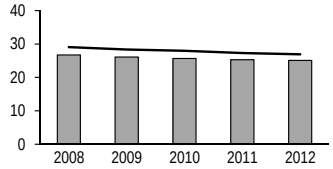
Resource Measures

Police Services Costs per Capita



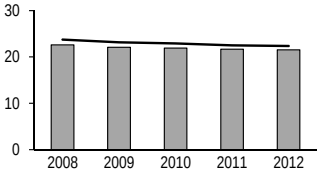
	2008	2009	2010	2011	2012
High Point	$244.61	$242	$238	$238	$244
Average	$240	$249	$243	$250	$244

Total Police Services Personnel per 10,000 Population



	2008	2009	2010	2011	2012
High Point	26.7	26.1	25.7	25.3	25.1
Average	29.1	28.3	28.0	27.3	26.9

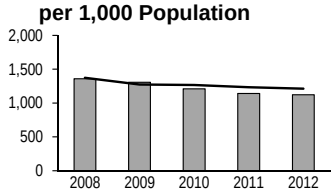
Sworn Police Officers per 10,000 Population



	2008	2009	2010	2011	2012
High Point	22.6	22.1	21.9	21.7	21.5
Average	23.7	23.2	22.9	22.5	22.4

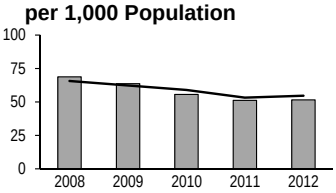
Workload Measures

Calls Dispatched per 1,000 Population



	2008	2009	2010	2011	2012
High Point	1,359	1,307	1,211	1,141	1,124
Average	1,374	1,274	1,266	1,234	1,213

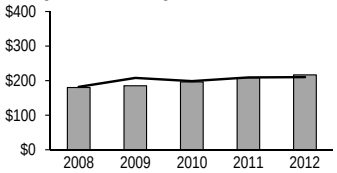
Part I Crimes per 1,000 Population



	2008	2009	2010	2011	2012
High Point	68.8	63.6	55.6	51.1	51.6
Average	65.7	62.2	58.9	53.2	54.7

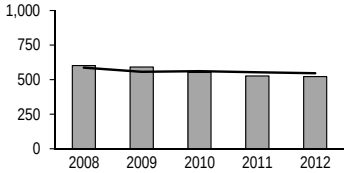
Efficiency Measures

Police Services Cost per Call Dispatched



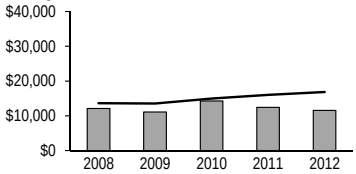
	2008	2009	2010	2011	2012
High Point	$180	$185	$196	$208	$217
Average	$182	$208	$198	$209	$210

Calls Dispatched per Sworn Officer



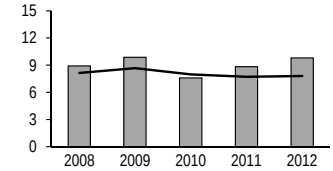
	2008	2009	2010	2011	2012
High Point	602	592	553	527	522
Average	587	557	561	554	547

Police Services Cost per Part I Case Cleared



	2008	2009	2010	2011	2012
High Point	$12,131	$11,107	$14,289	$12,421	$11,557
Average	$13,626	$13,532	$14,953	$16,011	$16,873

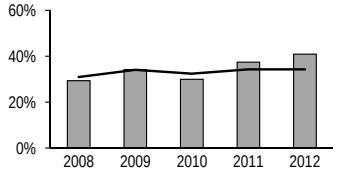
Part I Cases Cleared per Sworn Officer



	2008	2009	2010	2011	2012
High Point	8.9	9.9	7.6	8.8	9.8
Average	8.1	8.7	8.0	7.7	7.8

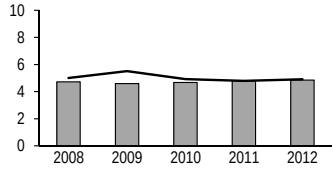
Effectiveness Measures

Percentage of Part I Cases Cleared of Those Reported



	2008	2009	2010	2011	2012
High Point	29.3%	34.2%	29.9%	37.4%	40.9%
Average	30.9%	34.1%	32.4%	34.3%	34.3%

Response Time to High Priority Calls in Minutes



	2008	2009	2010	2011	2012
High Point	4.7	4.6	4.7	4.8	4.9
Average	5.0	5.5	4.9	4.8	4.9

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Salisbury's police department provides an array of police services, including patrol, investigations, traffic, canine, special response, bicycle patrol, drug enforcement units, animal control, a school program, and other programs.

The city had eighty-one sworn officer positions authorized for the fiscal year, with an average length of service of 10.9 years. The police department is located in a two-story facility and also has two substations. One substation is located in a neighborhood and one substation is in office space located at Rowan Regional Medical Center.

Uniformed officers work a variety of shift schedules. The most common schedule is one twelve-hour shift, with two days on and two off, three days on and two off, and then two days on and three off. A few officers work 10.5-hour shifts, with four days on and three off. This 10.5-hour shift serves as flex coverage during the day's heaviest call volume period and can be moved according to departmental need.

Officers are assigned a vehicle when hired and are allowed to take it home if they live within Rowan County. If they live within Rowan County but beyond five miles of the city limits, they have to reimburse the city for the cost of mileage in excess of the five miles.

The police department was successful in clearing a total of 242 Part I cases in FY 2011–12.

The city defines high priority emergency calls as those involving crimes that are in progress or calls that are life-threatening or potentially life-threatening.

Conditions Affecting Service, Performance, and Costs
The average response time to high priority calls reflects the response time of the first arriving unit. Self-initiated calls with a response time of zero are included in the average response time to high priority calls.

Salisbury has increased special initiatives to reduce crime, such as through projects aimed at "hot spots" and aggressive prosecutions through Project Safe.

Municipal Profile

Population (OSBM 2011)	33,704
Land Area (Square Miles)	22.18
Persons per Square Mile	1,519
Median Family Income	$40,192
U.S. Census 2010	

Service Profile

FTE Positions—Sworn	81.0
FTE Positions—Other	18.0
Marked and Unmarked Patrol Vehicles	93
Part I Crimes Reported	
Homicide	4
Rape	11
Robbery	83
Assault	120
Burglary	543
Larceny	1,478
Auto Theft	98
Arson	9
TOTAL	2,346
Part II Crimes Reported	1,664
Part I Crimes Cleared	
Persons	80
Property	162
TOTAL	242
Reporting Format	IBR
Number of Calls Dispatched	31,668
Number of Traffic Accidents	1,711
Property Damage for Accidents	NA

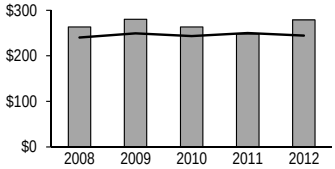
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	57.9%
Operating Costs	33.6%
Capital Costs	8.5%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$5,440,316
Operating Costs	$3,157,116
Capital Costs	$797,347
TOTAL	$9,394,779

Key: Salisbury ■ Benchmarking Average — Fiscal Years 2008 through 2012

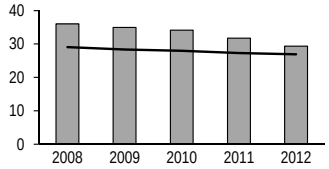
Resource Measures

Police Services Costs per Capita



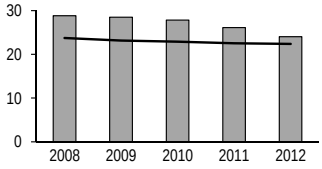
	2008	2009	2010	2011	2012
Salisbury	$263.39	$280	$264	$248	$279
Average	$240	$249	$243	$250	$244

Total Police Services Personnel per 10,000 Population



	2008	2009	2010	2011	2012
Salisbury	36.0	35.0	34.1	31.7	29.4
Average	29.1	28.3	28.0	27.3	26.9

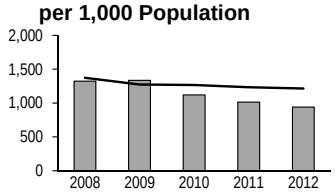
Sworn Police Officers per 10,000 Population



	2008	2009	2010	2011	2012
Salisbury	28.8	28.5	27.8	26.1	24.0
Average	23.7	23.2	22.9	22.5	22.4

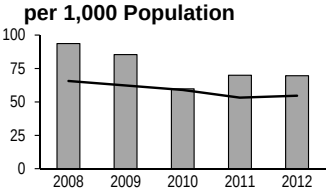
Workload Measures

Calls Dispatched per 1,000 Population



	2008	2009	2010	2011	2012
Salisbury	1,324	1,336	1,121	1,013	940
Average	1,374	1,274	1,266	1,234	1,213

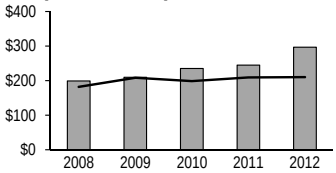
Part I Crimes per 1,000 Population



	2008	2009	2010	2011	2012
Salisbury	93.7	85.3	59.7	70.0	69.6
Average	65.7	62.2	58.9	53.2	54.7

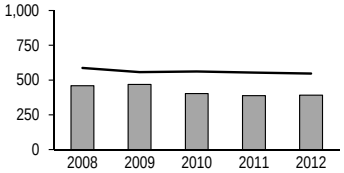
Efficiency Measures

Police Services Cost per Call Dispatched



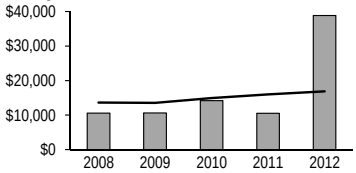
	2008	2009	2010	2011	2012
Salisbury	$199	$210	$235	$245	$297
Average	$182	$208	$198	$209	$210

Calls Dispatched per Sworn Officer



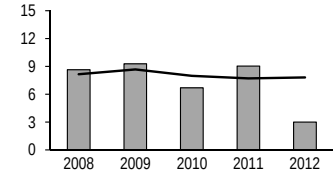
	2008	2009	2010	2011	2012
Salisbury	460	469	403	388	391
Average	587	557	561	554	547

Police Services Cost per Part I Case Cleared



	2008	2009	2010	2011	2012
Salisbury	$10,586	$10,603	$14,177	$10,523	$38,821
Average	$13,626	$13,532	$14,953	$16,011	$16,873

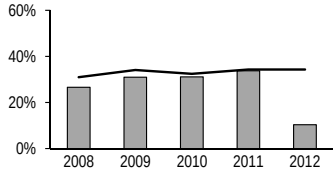
Part I Cases Cleared per Sworn Officer



	2008	2009	2010	2011	2012
Salisbury	8.6	9.3	6.7	9.0	3.0
Average	8.1	8.7	8.0	7.7	7.8

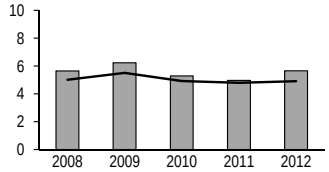
Effectiveness Measures

Percentage of Part I Cases Cleared of Those Reported



	2008	2009	2010	2011	2012
Salisbury	26.6%	31.0%	31.1%	33.7%	10.3%
Average	30.9%	34.1%	32.4%	34.3%	34.3%

Response Time to High Priority Calls in Minutes



	2008	2009	2010	2011	2012
Salisbury	5.6	6.2	5.3	5.0	5.7
Average	5.0	5.5	4.9	4.8	4.9

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Wilmington operates a full-service police department, including patrol, investigations, a traffic unit, a telephone response unit, a canine unit, a mounted/equine unit, a special response unit, drug enforcement, a warrants unit, and other crime prevention programs.

The city had 256 sworn officer positions authorized for the fiscal year, with an average length of service of 11.4 years. The police department took occupancy of a new facility early in 2007 located on the northside of the city. The department has one substation housing the special operations division and a second substation for the Southeast Patrol region. There are eight shifts for patrol officers. There are two shifts for investigators, a day shift and an evening one.

Take-home vehicles are assigned at the discretion of the chief or deputy chief. Generally, the chief, deputy chiefs, captains, lieutenants, and sergeants receive take-home cars. Additionally, specialty units such as the emergency response team and traffic are assigned take-home vehicles. Under the Individual Vehicle Assignment Program (IVAP), all sworn personnel with two years of service who live within fifteen miles of the Wilmington city limits are assigned take-home cars.

The police department was successful in clearing a total of 1,881 Part I cases in FY 2011–12.

Wilmington defines high priority emergency calls as those involving incidents in progress and presenting the potential for injury or property damage or situations where a suspect is at the scene and will elude apprehension or create a potential for personal injury, damage, or loss if officers do not arrive rapidly.

Conditions Affecting Service, Performance, and Costs
The average response time to high priority calls reflects the response time of the first arriving unit. Self-initiated calls with a response time of zero are included in the average response time to high priority calls.

Municipal Profile

Population (OSBM 2011)	108,337
Land Area (Square Miles)	51.49
Persons per Square Mile	2,104
Median Family Income	$57,892
U.S. Census 2010	

Service Profile

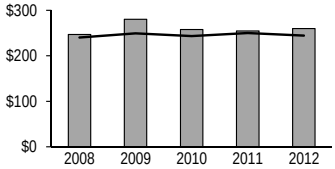
FTE Positions—Sworn	256.0
FTE Positions—Other	50.0
Marked and Unmarked Patrol Vehicles	270
Part I Crimes Reported	
Homicide	9
Rape	30
Robbery	248
Assault	367
Burglary	1,668
Larceny	3,836
Auto Theft	381
Arson	17
TOTAL	6,556
Part II Crimes Reported	5,538
Part I Crimes Cleared	
Persons	430
Property	1,451
TOTAL	1,881
Reporting Format	UCR
Number of Calls Dispatched	177,042
Number of Traffic Accidents	3,648
Property Damage for Accidents	$15,580,433

Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	66.8%
Operating Costs	23.9%
Capital Costs	9.3%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$18,809,321
Operating Costs	$6,717,875
Capital Costs	$2,622,741
TOTAL	$28,149,937

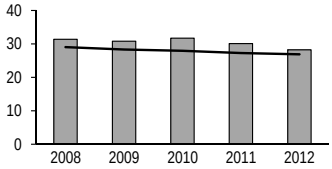
Resource Measures

Police Services Costs per Capita



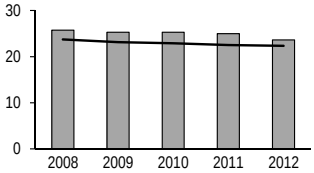
	2008	2009	2010	2011	2012
Wilmington	$246.91	$280	$258	$255	$260
Average	$240	$249	$243	$250	$244

Total Police Services Personnel per 10,000 Population



	2008	2009	2010	2011	2012
Wilmington	31.4	30.8	31.8	30.1	28.2
Average	29.1	28.3	28.0	27.3	26.9

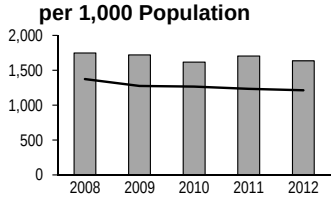
Sworn Police Officers per 10,000 Population



	2008	2009	2010	2011	2012
Wilmington	25.8	25.3	25.3	25.0	23.6
Average	23.7	23.2	22.9	22.5	22.4

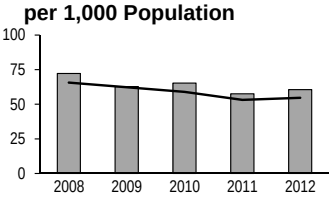
Workload Measures

Calls Dispatched per 1,000 Population



	2008	2009	2010	2011	2012
Wilmington	1,748	1,720	1,617	1,704	1,634
Average	1,374	1,274	1,266	1,234	1,213

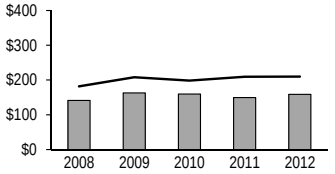
Part I Crimes per 1,000 Population



	2008	2009	2010	2011	2012
Wilmington	72.2	62.8	65.3	57.5	60.5
Average	65.7	62.2	58.9	53.2	54.7

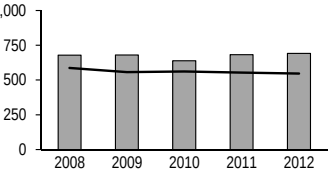
Efficiency Measures

Police Services Cost per Call Dispatched



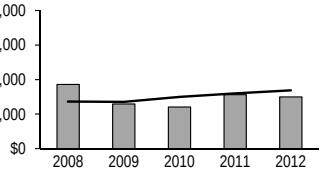
	2008	2009	2010	2011	2012
Wilmington	$141	$163	$160	$149	$159
Average	$182	$208	$198	$209	$210

Calls Dispatched per Sworn Officer



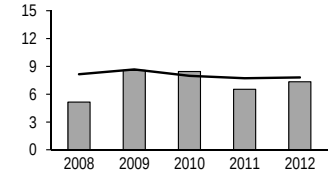
	2008	2009	2010	2011	2012
Wilmington	679	680	639	682	692
Average	587	557	561	554	547

Police Services Cost per Part I Case Cleared



	2008	2009	2010	2011	2012
Wilmington	$18,608	$12,925	$12,054	$15,602	$14,965
Average	$13,626	$13,532	$14,953	$16,011	$16,873

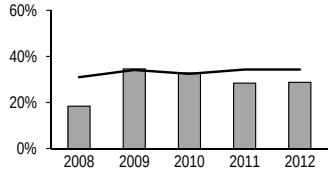
Part I Cases Cleared per Sworn Officer



	2008	2009	2010	2011	2012
Wilmington	5.2	8.6	8.5	6.5	7.3
Average	8.1	8.7	8.0	7.7	7.8

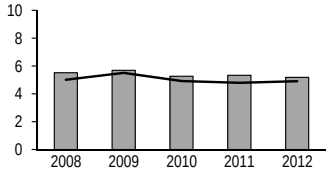
Effectiveness Measures

Percentage of Part I Cases Cleared of Those Reported



	2008	2009	2010	2011	2012
Wilmington	18.4%	34.5%	32.7%	28.4%	28.7%
Average	30.9%	34.1%	32.4%	34.3%	34.3%

Response Time to High Priority Calls in Minutes



	2008	2009	2010	2011	2012
Wilmington	5.5	5.7	5.3	5.3	5.2
Average	5.0	5.5	4.9	4.8	4.9

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Wilson's police department provides an array of police services, including patrol, investigations, a telephone response unit, a forensics laboratory, a canine unit, a part-time mounted equine unit, a special response unit, street crimes, drug enforcement, and other services.

The city had 119 sworn officer positions authorized for the fiscal year, with an average length of service of 9.3 years. The main police department headquarters is located in downtown Wilson, housing administration, records, property, major case investigations, police information services, victim services, evidence, and recruitment and training. There are six substations.

Patrol officers work twelve-hour shifts, working fourteen days of a twenty-eight day cycle (168 hours). Shifts are either 7 a.m. to 7 p.m. or 7 p.m. to 7 a.m. and are rotated every two weeks. Department needs may cause shifts to vary. Investigators generally work eight-hour shifts five days per week. Shifts are 8 a.m. to 5 p.m.

Each patrol officer is assigned a vehicle and may take the vehicle home if he or she resides in the city. Officers living outside the city limits park their vehicles at businesses.

The police department was successful in clearing a total of 950 Part I cases in FY 2011–12.

Wilson defines high priority emergency calls as calls related to crimes in progress that require immediate response: murder, rape, robbery, burglary, arson/fire, and assaults.

Conditions Affecting Service, Performance, and Costs
The average response time to high priority calls reflects the response time of the first unit to arrive. Self-initiated calls with a response time of zero are not included in the average response time to high priority calls.

Municipal Profile

Population (OSBM 2011)	49,122
Land Area (Square Miles)	28.78
Persons per Square Mile	1,707
Median Family Income	$43,442
U.S. Census 2010	

Service Profile

FTE Positions—Sworn	119.0
FTE Positions—Other	15.0
Marked and Unmarked Patrol Vehicles	139
Part I Crimes Reported	
Homicide	8
Rape	1
Robbery	69
Assault	140
Burglary	714
Larceny	1,620
Auto Theft	132
Arson	16
TOTAL	2,700
Part II Crimes Reported	3,701
Part I Crimes Cleared	
Persons	147
Property	803
TOTAL	950
Reporting Format	UCR
Number of Calls Dispatched	92,947
Number of Traffic Accidents	2,043
Property Damage for Accidents	NA

Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	64.4%
Operating Costs	28.4%
Capital Costs	7.3%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$9,630,848
Operating Costs	$4,244,217
Capital Costs	$1,088,679
TOTAL	$14,963,744

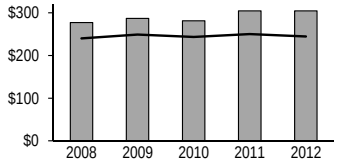
Wilson

Police Services

Key: Wilson ■ Benchmarking Average — Fiscal Years 2008 through 2012

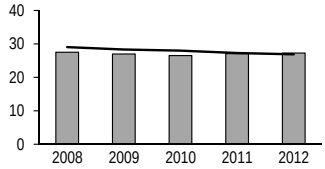
Resource Measures

Police Services Costs per Capita



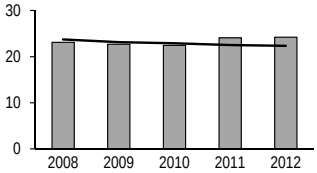
	2008	2009	2010	2011	2012
Wilson	$277.11	$287	$281	$305	$305
Average	$240	$249	$243	$250	$244

Total Police Services Personnel per 10,000 Population



	2008	2009	2010	2011	2012
Wilson	27.5	27.0	26.5	27.1	27.3
Average	29.1	28.3	28.0	27.3	26.9

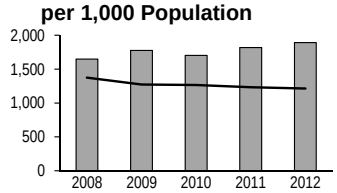
Sworn Police Officers per 10,000 Population



	2008	2009	2010	2011	2012
Wilson	23.1	22.7	22.4	24.1	24.2
Average	23.7	23.2	22.9	22.5	22.4

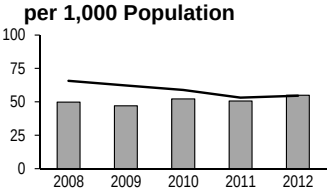
Workload Measures

Calls Dispatched per 1,000 Population



	2008	2009	2010	2011	2012
Wilson	1,650	1,776	1,702	1,820	1,892
Average	1,374	1,274	1,266	1,234	1,213

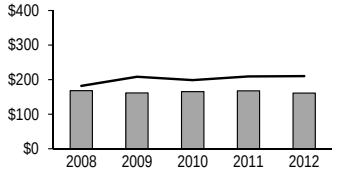
Part I Crimes per 1,000 Population



	2008	2009	2010	2011	2012
Wilson	49.9	47.1	52.2	50.6	55.0
Average	65.7	62.2	58.9	53.2	54.7

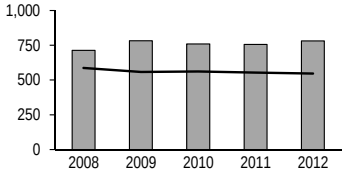
Efficiency Measures

Police Services Cost per Call Dispatched



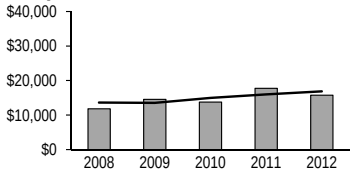
	2008	2009	2010	2011	2012
Wilson	$168	$162	$165	$167	$161
Average	$182	$208	$198	$209	$210

Calls Dispatched per Sworn Officer



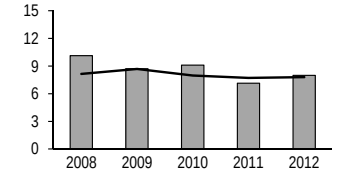
	2008	2009	2010	2011	2012
Wilson	714	783	759	756	781
Average	587	557	561	554	547

Police Services Cost per Part I Case Cleared



	2008	2009	2010	2011	2012
Wilson	$11,835	$14,532	$13,778	$17,735	$15,751
Average	$13,626	$13,532	$14,953	$16,011	$16,873

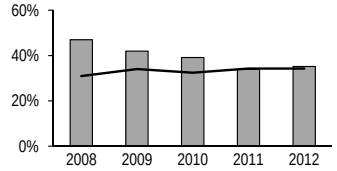
Part I Cases Cleared per Sworn Officer



	2008	2009	2010	2011	2012
Wilson	10.1	8.7	9.1	7.1	8.0
Average	8.1	8.7	8.0	7.7	7.8

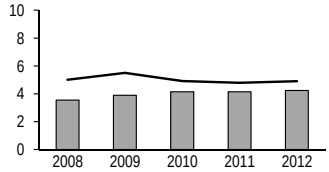
Effectiveness Measures

Percentage of Part I Cases Cleared of Those Reported



	2008	2009	2010	2011	2012
Wilson	47.0%	41.9%	39.1%	33.9%	35.2%
Average	30.9%	34.1%	32.4%	34.3%	34.3%

Response Time to High Priority Calls in Minutes



	2008	2009	2010	2011	2012
Wilson	3.6	3.9	4.2	4.2	4.2
Average	5.0	5.5	4.9	4.8	4.9

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Winston-Salem provides an array of police services to its citizens, including patrol, investigations, a traffic enforcement unit, a DWI Task Force, a telephone response unit, a canine unit, a special response unit, bicycle patrol, drug enforcement, a gang unit, and other crime prevention programs.

The city had 561 sworn officer positions authorized for FY 2011–12, with an average length of service of 10.9 years. The police department occupies the public safety center. It houses the police department, emergency communications, and the fire department administration. The special investigations division occupies offices in leased space in another facility. A downtown bike patrol office is maintained in the central downtown area.

The department employs a forward-rotating schedule of five shifts. Officers work five days on and four days off. Shifts are ten hours in length. The majority of investigators work Monday through Friday from 8 a.m. to 5 p.m.

Patrol vehicles are assigned to individual officers. Officers residing within Forsyth County take their vehicles home. If officers reside outside of the county, they park their vehicles in a residential or business area within the city limits.

The police department was successful in clearing a total of 5,098 Part I crimes in FY 2011–12.

Winston-Salem defines highest priority emergency calls as those dealing with a significant threat of imminent injury to persons or with crimes against persons that are in progress or just occurred and where the suspect is still there.

Conditions Affecting Service, Performance, and Costs
The average response time to high priority calls reflects the response time of the first arriving unit. Self-initiated calls with a response time of zero are included in the average response time to high priority calls.

The Winston-Salem Police Department does not investigate arsons, so arsons are not included in the crimes reported here. Arson investigations are handled by the Winston-Salem Fire Department.

For FY 2011–12, the Winston-Salem/Forsyth County School System contracted with the Winston-Salem Police Department for the provision of eighteen school resource officers to serve fourteen middle and high schools within Winston-Salem. The school system reimburses the city for eleven months of the cost of the officers.

Municipal Profile

Population (OSBM 2011)	232,143
Land Area (Square Miles)	132.45
Persons per Square Mile	1,753
Median Family Income U.S. Census 2010	$51,491

Service Profile

FTE Positions—Sworn	561.0
FTE Positions—Other	116.0
Marked and Unmarked Patrol Vehicles	424
Part I Crimes Reported	
Homicide	11
Rape	103
Robbery	454
Assault	1,146
Burglary	4,841
Larceny	8,834
Auto Theft	741
Arson	0
TOTAL	16,130
Part II Crimes Reported	34,738
Part I Crimes Cleared	
Persons	976
Property	4,122
TOTAL	5,098
Reporting Format	IBR
Number of Calls Dispatched	253,602
Number of Traffic Accidents	8,514
Property Damage for Accidents	$25,023,050

Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	75.4%
Operating Costs	16.8%
Capital Costs	7.8%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$47,674,437
Operating Costs	$10,603,064
Capital Costs	$4,941,746
TOTAL	$63,219,247

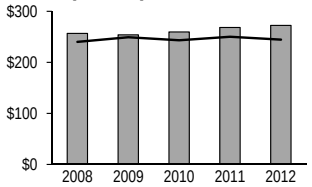
Winston-Salem

Police Services

Key: Winston-Salem ■ Benchmarking Average — Fiscal Years 2008 through 2012

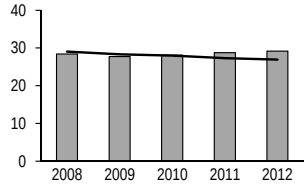
Resource Measures

Police Services Costs per Capita



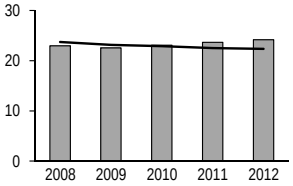
	2008	2009	2010	2011	2012
Winston-Salem	$256.72	$254	$259	$268	$272
Average	$240	$249	$243	$250	$244

Total Police Services Personnel per 10,000 Population



	2008	2009	2010	2011	2012
Winston-Salem	28.4	27.7	28.1	28.7	29.2
Average	29.1	28.3	28.0	27.3	26.9

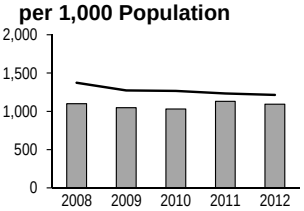
Sworn Police Officers per 10,000 Population



	2008	2009	2010	2011	2012
Winston-Salem	23.0	22.6	23.1	23.7	24.2
Average	23.7	23.2	22.9	22.5	22.4

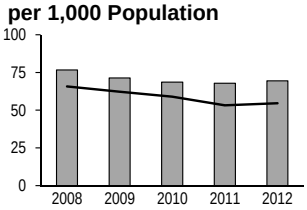
Workload Measures

Calls Dispatched per 1,000 Population



	2008	2009	2010	2011	2012
Winston-Salem	1,099	1,046	1,029	1,131	1,092
Average	1,374	1,274	1,266	1,234	1,213

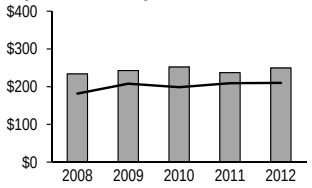
Part I Crimes per 1,000 Population



	2008	2009	2010	2011	2012
Winston-Salem	76.6	71.4	68.6	67.8	69.5
Average	65.7	62.2	58.9	53.2	54.7

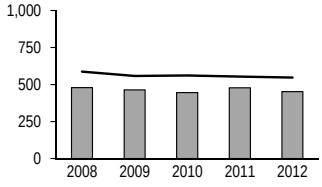
Efficiency Measures

Police Services Cost per Call Dispatched



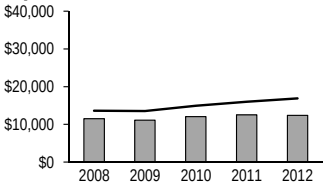
	2008	2009	2010	2011	2012
Winston-Salem	$234	$242	$252	$237	$249
Average	$182	$208	$198	$209	$210

Calls Dispatched per Sworn Officer



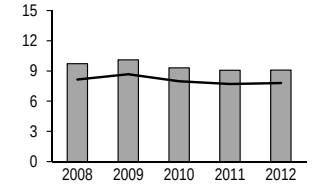
	2008	2009	2010	2011	2012
Winston-Salem	478	464	446	478	452
Average	587	557	561	554	547

Police Services Cost per Part I Case Cleared



	2008	2009	2010	2011	2012
Winston-Salem	$11,488	$11,138	$12,055	$12,500	$12,401
Average	$13,626	$13,532	$14,953	$16,011	$16,873

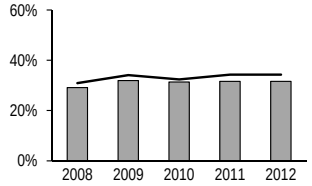
Part I Cases Cleared per Sworn Officer



	2008	2009	2010	2011	2012
Winston-Salem	9.7	10.1	9.3	9.1	9.1
Average	8.1	8.7	8.0	7.7	7.8

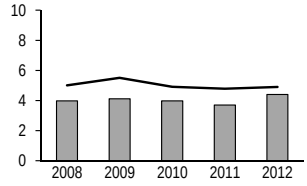
Effectiveness Measures

Percentage of Part I Cases Cleared of Those Reported



	2008	2009	2010	2011	2012
Winston-Salem	29.2%	31.9%	31.4%	31.6%	31.6%
Average	30.9%	34.1%	32.4%	34.3%	34.3%

Response Time to High Priority Calls in Minutes



	2008	2009	2010	2011	2012
Winston-Salem	4.0	4.1	4.0	3.7	4.4
Average	5.0	5.5	4.9	4.8	4.9

UNC
SCHOOL OF
GOVERNMENT

Performance and Cost Data

EMERGENCY COMMUNICATIONS

PERFORMANCE MEASURES FOR EMERGENCY COMMUNICATIONS

SERVICE DEFINITION

This service refers to the receipt and handling of 911 and other calls by an emergency communications center. Such a center must answer all calls, including those that come in over 911 lines and others that come over regular phone lines. Some calls result in the dispatch of a police or other emergency response unit. Others do not.

NOTES ON PERFORMANCE MEASURES

1. Number of Calls Answered and Number of Calls Dispatched per 1,000 Population

These are used as measures of workload. All calls coming into a police emergency communications center must be answered; therefore these measures assess service workload. Calls coming into a center also reflect actual or existing, if not full potential, need for emergency communications services. Many calls coming into a center are dispatched. Others come in over regular telephone lines, and still others may be referred to the center by an external call-taker, such as a county emergency communications center.

2. Telecommunicators

Telecommunicators are the personnel who handle the calls in the communication centers. They may take calls, dispatch calls, or do both. Telecommunicators receive specialized training. They work on a shift schedule that generally allows twenty-four-hour-a-day, seven-day-a-week coverage.

3. Average Number of Seconds from Initial Ring to Answer and Percentage of Calls Answered within Twenty Seconds

These are effectiveness measures that assess how quickly telecommunicators answer calls.

4. Average Processing Time (Seconds)

This is an effectiveness measure, representing the average time in seconds between when the telecommunicator answers the telephone and when Computer-Aided Dispatch (CAD) entry begins. This measure is often referred to as “talk time.”

5. For Calls Dispatched, Average Number of Seconds from CAD Entry to Dispatch—Highest Priority Calls

Some calls result in the dispatch of a police or other emergency response unit to a threatening or other similar emergency situation. Other calls result in a dispatch to a serious—but not emergency—situation. Other calls do not result in a dispatch. This measure assesses dispatch time for high priority, emergency situations.

Emergency Communications

Summary of Key Dimensions of Service

City or Town	Population Served	Number of FTEs	Average Length of Service for Call Takers (in Years)	Total Incoming Calls Handled	Total E-911 Calls Handled	Total Dispatches	Outgoing Calls Other than Dispatches
Apex	38,696	11.0	12.5	31,311	1,574	41,393	5,183
Asheville	85,646	24.0	8.3	209,646	31,240	111,230	45,917
Burlington	51,263	14.0	6.0	128,387	22,690	88,022	30,761
Cary	139,172	23.0	5.5	204,796	78,085	135,303	55,330
Concord	80,386	21.5	7.6	109,865	28,263	100,441	35,914
Greensboro	495,231	102.0	7.7	637,190	388,176	417,114	157,065
Greenville	85,059	17.0	11.3	96,342	28,031	83,571	NA
Hickory	40,086	13.0	9.4	NA	NA	NA	NA
High Point	105,498	27.0	12.0	274,649	88,617	137,693	86,103
Salisbury	33,704	10.0	7.3	68,897	12,364	32,174	NA
Winston-Salem	232,143	49.0	8.3	505,745	220,438	280,119	NA

NOTES

The population served by the municipal emergency communications center may go beyond municipal boundaries up to the entire county in cases where the service is a consolidated center.

EXPLANATORY FACTORS

These are factors that the project found affected emergency communication performance and cost in one or more of the municipalities:

Types of emergency response units dispatched, such as police, fire, and EMS
Number and proportion of nonemergency calls received by center
Types of assistance or advice, such as medical, that telecommunicators provide over the phone
Technology available to telecommunication centers
City's definition of what constitutes an "emergency" and "highest priority" call
Service to city only or to city and outlying areas
Training of telecommunicators
Demographic makeup of community
Organizational configuration and staffing for service

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

The Apex Emergency Communications Center is a division within the Apex Police Department. This center is a secondary public safety answering point within Wake County, using Raleigh computer-aided dispatch as a remote position. The communications center dispatches calls for police, fire, public works, and utilities.

The town owns a 150-foot radio tower which is tied into the Wake County radio system. The system is an 800 MHz system tied into the state VIPER system for radio operations.

Apex's emergency communications center handled a total of 31,311 incoming calls in the fiscal year and dispatched 41,393 calls. The city defines highest priority emergency calls as those with immediate life or property risk or in-progress calls.

Conditions Affecting Service, Performance, and Costs

Apex began participation in the benchmarking project in July 2011, with FY 2010–11 being the first reporting year.

The measure "percent of E-911 calls answered within twenty seconds" is a new measure added for FY 2009–10.

CAD entry for Apex does not begin immediately but is activated by operators.

Municipal Profile

Population (OSBM 2011)	38,696
Land Area (Square Miles)	15.63
Persons per Square Mile	2,477
Median Family Income U.S. Census 2010	$97,201
County	Wake

Service Profile

Primary or Secondary Answering Point	Secondary
Calls Dispatched	
Police	Yes
Fire	Yes
Other	Yes
FTE Positions	
Telecommunicators/Call-Takers	10.0
Other	1.0
Total Positions	11.0
Average Length of Service for Call-Takers	12.5 years
Total Incoming Calls	31,311
Total 911 Calls	1,574
Total Calls Dispatched	41,393
Outgoing Calls Other than Dispatch	5,183
Revenue from E-911 Fees	None

Full Cost Profile

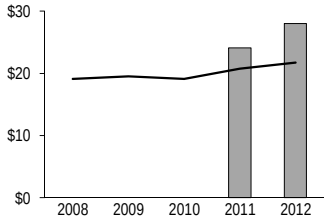
Cost Breakdown by Percentage	
Personal Services	71.1%
Operating Costs	21.7%
Capital Costs	7.2%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$770,707
Operating Costs	$235,375
Capital Costs	$78,053
TOTAL	$1,084,135

Apex Emergency Communications

Key: Apex ■ Benchmarking Average — Fiscal Years 2008 through 2012

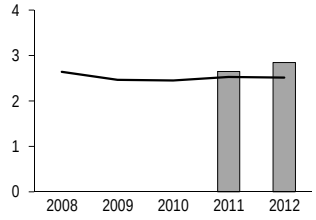
Resource Measures

Emergency Communications Services Costs per Capita



	2008	2009	2010	2011	2012
Apex				$24.10	$28.02
Average	$19.09	$19.54	$19.09	$20.75	$21.73

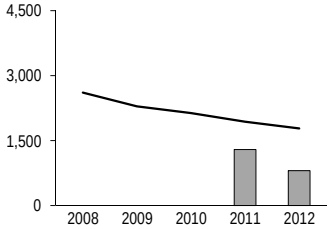
Emergency Communications FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Apex				2.65	2.84
Average	2.64	2.46	2.45	2.53	2.51

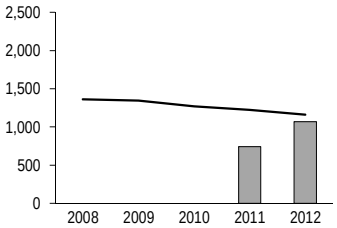
Workload Measures

Total Calls Answered per 1,000 Population



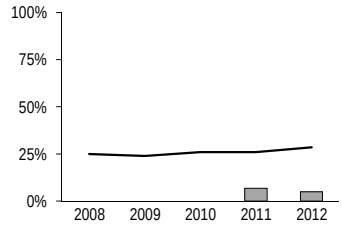
	2008	2009	2010	2011	2012
Apex				1,293	809
Average	2,612	2,288	2,138	1,935	1,785

Calls Dispatched per 1,000 Population



	2008	2009	2010	2011	2012
Apex				743	1,070
Average	1,363	1,345	1,272	1,222	1,160

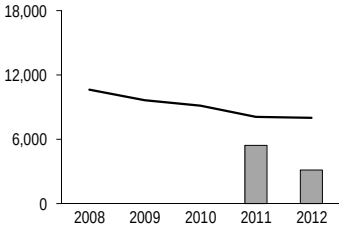
E-911 Calls as a Percentage of All Incoming Calls



	2008	2009	2010	2011	2012
Apex				6.9%	5.0%
Average	25.0%	23.9%	26.0%	26.0%	28.5%

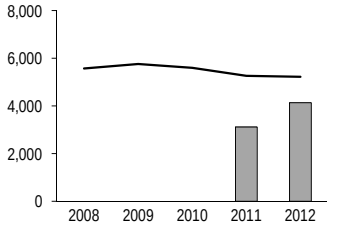
Efficiency Measures

Calls Answered per Telecommunicator



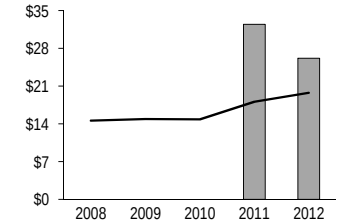
	2008	2009	2010	2011	2012
Apex				5,421	3,131
Average	10,636	9,632	9,119	8,098	7,986

Calls Dispatched per Telecommunicator



	2008	2009	2010	2011	2012
Apex				3,115	4,139
Average	5,569	5,757	5,596	5,260	5,222

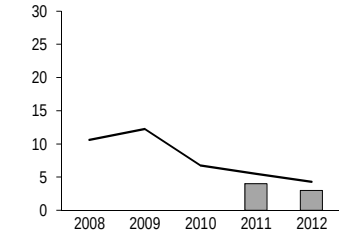
Emergency Communications Cost per Call Dispatched



	2008	2009	2010	2011	2012
Apex				$32.45	$26.19
Average	$14.60	$14.91	$14.83	$18.13	$19.76

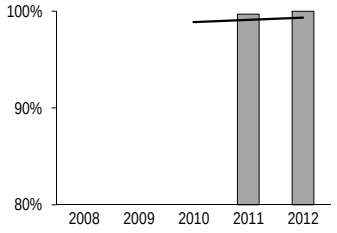
Effectiveness Measures

Number of Seconds from Initial Ring to Answer



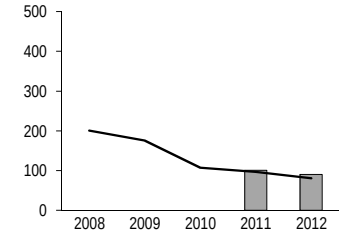
	2008	2009	2010	2011	2012
Apex				4	3
Average	11	12	7	5	4

Percent of E-911 Calls Answered within Twenty Seconds



	2008	2009	2010	2011	2012
Apex				100%	100%
Average			99%	99%	99%

Average Time in Seconds from CAD Entry to Dispatch for Priority One Calls



	2008	2009	2010	2011	2012
Apex				101	90
Average	201	176	107	97	81

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

Asheville's Communication Unit handles emergency calls for police and other assistance calls coming into its center from the city. The center is organizationally located in the Support Services Division of the police department. The city handles adminstrative calls, requests for police response, and E-911 calls.

The communications center operates twenty-four hours a day, seven days a week, using three rotating shifts. The communications center uses a call-taker for its E-911 emergency calls. Buncombe County takes such calls and directs them by computer to the city's communication center. Non-emergency calls, however, come directly into the city's communications center.

The city owns its communications infrastructure, consisting of three towers. One tower is used for repeated radio communications, while the other two towers are stand-alone sites which require officers/telecommunicators to manually switch channels. The city used the Motorola Simulcast.

Asheville's emergency communications center handled a total of 209,646 incoming calls in the fiscal year and dispatched 111,230 calls. The city defines highest priority emergency calls as crimes in progress and situations that are property- or life- threatening.

Conditions Affecting Service, Performance, and Costs

The measure "percent of E-911 calls answered within twenty seconds" is a new measure added for FY 2009–10.

CAD entry is an immediate action beginning when a telecommunicator hits "new call" or "new event." Asheville's community policing initiative encourages citizens to report criminal activity, and this has generated more calls over time. The wider use of cell phones has also made it easier for citizens to respond immediately, which has probably increased calls as well.

Asheville's communication unit has made an effort to better categorize high priority calls, which has helped reduce the time between the start of CAD entry to dispatch.

Municipal Profile

Population (OSBM 2011)	85,646
Land Area (Square Miles)	45.40
Persons per Square Mile	1,886
Median Family Income U.S. Census 2010	$53,350
County	Buncombe

Service Profile

Primary or Secondary Answering Point	Secondary
Calls Dispatched	
Police	Yes
Fire	No
Other	Yes
FTE Positions	
Telecommunicators/Call-Takers	21.0
Other	3.0
Total Positions	24.0
Average Length of Service for Call-Takers	8.3 years
Total Incoming Calls	209,646
Total 911 Calls	31,240
Total Calls Dispatched	111,230
Outgoing Calls Other than Dispatch	45,917
Revenue from E-911 Fees	None

Full Cost Profile

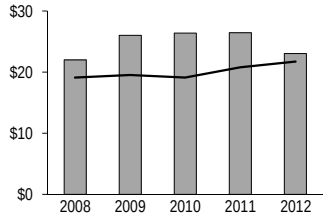
Cost Breakdown by Percentage	
Personal Services	59.6%
Operating Costs	39.4%
Capital Costs	1.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,174,068
Operating Costs	$777,432
Capital Costs	$19,292
TOTAL	$1,970,792

Asheville Emergency Communications

Key: Asheville ■ Benchmarking Average — Fiscal Years 2008 through 2012

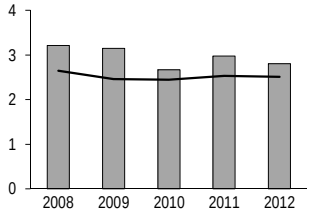
Resource Measures

Emergency Communications Services Costs per Capita



	2008	2009	2010	2011	2012
Asheville	$21.99	$26.01	$26.39	$26.45	$23.01
Average	$19.09	$19.54	$19.09	$20.75	$21.73

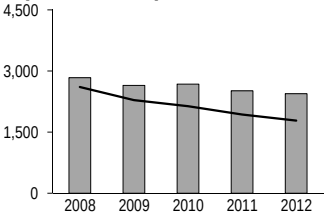
Emergency Communications FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Asheville	3.21	3.15	2.67	2.98	2.80
Average	2.64	2.46	2.45	2.53	2.51

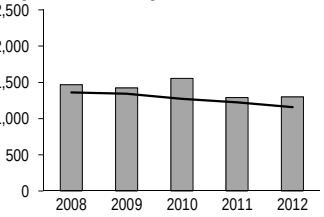
Workload Measures

Total Calls Answered per 1,000 Population



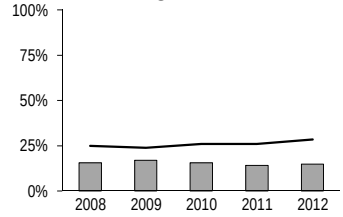
	2008	2009	2010	2011	2012
Asheville	2,838	2,651	2,677	2,519	2,448
Average	2,612	2,288	2,138	1,935	1,785

Calls Dispatched per 1,000 Population



	2008	2009	2010	2011	2012
Asheville	1,466	1,425	1,556	1,289	1,299
Average	1,363	1,345	1,272	1,222	1,160

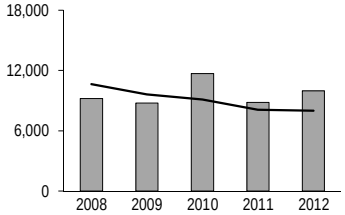
E-911 Calls as a Percentage of All Incoming Calls



	2008	2009	2010	2011	2012
Asheville	15.5%	17.0%	15.5%	14.2%	14.9%
Average	25.0%	23.9%	26.0%	26.0%	28.5%

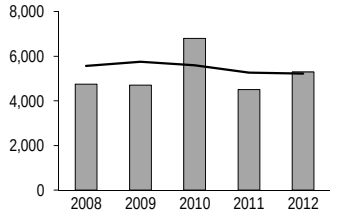
Efficiency Measures

Calls Answered per Telecommunicator



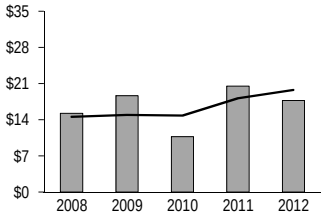
	2008	2009	2010	2011	2012
Asheville	9,205	8,771	11,702	8,814	9,983
Average	10,636	9,632	9,119	8,098	7,986

Calls Dispatched per Telecommunicator



	2008	2009	2010	2011	2012
Asheville	4,755	4,713	6,803	4,511	5,297
Average	5,569	5,757	5,596	5,260	5,222

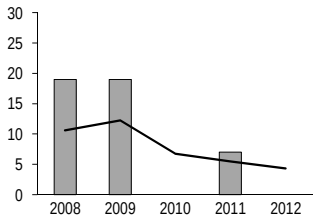
Emergency Communications Cost per Call Dispatched



	2008	2009	2010	2011	2012
Asheville	$15.26	$18.65	$10.72	$20.52	$17.72
Average	$14.60	$14.91	$14.83	$18.13	$19.76

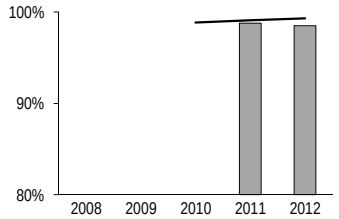
Effectiveness Measures

Number of Seconds from Initial Ring to Answer



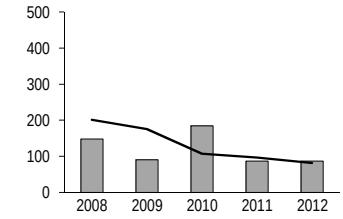
	2008	2009	2010	2011	2012
Asheville	19	19		7	
Average	11	12	7	5	4

Percent of E-911 Calls Answered within Twenty Seconds



	2008	2009	2010	2011	2012
Asheville				99%	98%
Average			99%	99%	99%

Average Time in Seconds from CAD Entry to Dispatch for Priority One Calls



	2008	2009	2010	2011	2012
Asheville	148	90	184	86	87
Average	201	176	107	97	81

Burlington Emergency Communications

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

The emegency communications center is a division within the Burlington Police Department. The unit is responsible for dispatching police and fire personnel for the city.

Burlington uses a mixed-mode analog/digital twenty-eight-channel trunked system with five towers shared with Greensboro and Guilford County. The communications infrastructure is a joint venture with Guilford County and the City of Greensboro. Burlington owns the subscriber units and infrastructure on its end of the system. The system is interfaced with the original Guilford/Greensboro system.

Burlington's communication center handled a total of 128,387 incoming calls in the fiscal year, dispatching 88,022 calls. The city defines highest priority emergency calls as any report that relates to a significant threat of imminent injury to a person or substantial damage to property.

Conditions Affecting Service, Performance, and Costs

The measure "percent of E-911 calls answered within twenty seconds" is a new measure added for FY 2009–10.

CAD entry is an immediate action with a new call or command line keystroke initiation.

The drop in the measure "average time in seconds from CAD entry to dispatch " primarily reflects a change in reporting rather than service changes. In the earlier years, some calls which did not require an ermergency response were being included. The lastest data is a more accurate reflection as it only includes calls for service requiring an emergency response.

Municipal Profile

Population (OSBM 2011)	51,263
Land Area (Square Miles)	25.21
Persons per Square Mile	2,034
Median Family Income U.S. Census 2010	$46,461
County	Alamance

Service Profile

Primary or Secondary Answering Point	Secondary
Calls Dispatched	
Police	Yes
Fire	Yes
Other	Yes
FTE Positions	
Telecommunicators/Call-Takers	12.0
Other	2.0
Total Positions	14.0
Average Length of Service for Call-Takers	6.0 years
Total Incoming Calls	128,387
Total 911 Calls	22,690
Total Calls Dispatched	88,022
Outgoing Calls Other than Dispatch	30,761
Revenue from E-911 Fees	None

Full Cost Profile

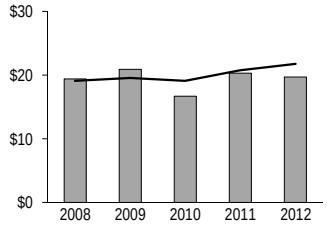
Cost Breakdown by Percentage	
Personal Services	65.2%
Operating Costs	32.8%
Capital Costs	2.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$657,825
Operating Costs	$330,664
Capital Costs	$20,477
TOTAL	$1,008,966

Burlington Emergency Communications

Key: Burlington ■ Benchmarking Average — Fiscal Years 2008 through 2012

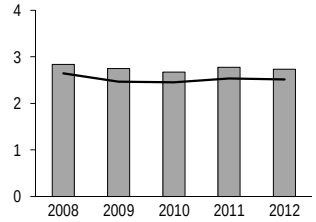
Resource Measures

Emergency Communications Services Costs per Capita



	2008	2009	2010	2011	2012
Burlington	$19.38	$20.89	$16.68	$20.29	$19.68
Average	$19.09	$19.54	$19.09	$20.75	$21.73

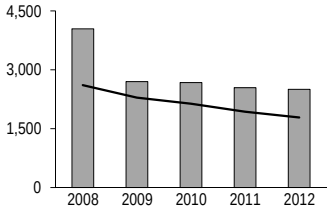
Emergency Communications FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Burlington	2.84	2.75	2.67	2.77	2.73
Average	2.64	2.46	2.45	2.53	2.51

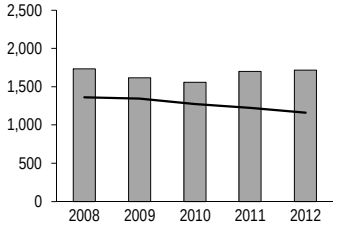
Workload Measures

Total Calls Answered per 1,000 Population



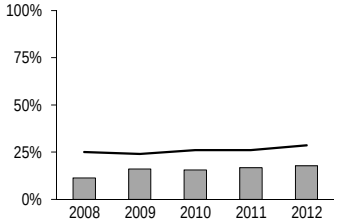
	2008	2009	2010	2011	2012
Burlington	4,042	2,699	2,677	2,544	2,504
Average	2,612	2,288	2,138	1,935	1,785

Calls Dispatched per 1,000 Population



	2008	2009	2010	2011	2012
Burlington	1,735	1,615	1,556	1,698	1,717
Average	1,363	1,345	1,272	1,222	1,160

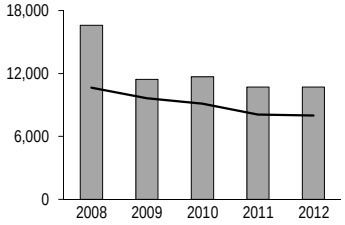
E-911 Calls as a Percentage of All Incoming Calls



	2008	2009	2010	2011	2012
Burlington	11.3%	16.0%	15.5%	16.8%	17.7%
Average	25.0%	23.9%	26.0%	26.0%	28.5%

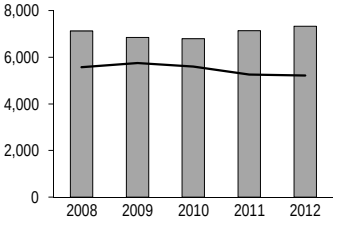
Efficiency Measures

Calls Answered per Telecommunicator



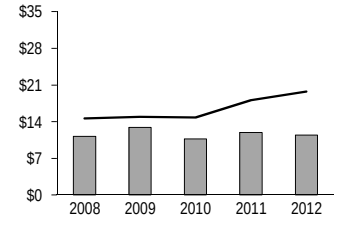
	2008	2009	2010	2011	2012
Burlington	16,621	11,453	11,702	10,699	10,699
Average	10,636	9,632	9,119	8,098	7,986

Calls Dispatched per Telecommunicator



	2008	2009	2010	2011	2012
Burlington	7,132	6,854	6,803	7,144	7,335
Average	5,569	5,757	5,596	5,260	5,222

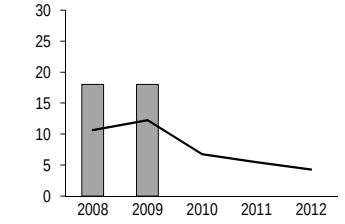
Emergency Communications Cost per Call Dispatched



	2008	2009	2010	2011	2012
Burlington	$11.17	$12.93	$10.72	$11.95	$11.46
Average	$14.60	$14.91	$14.83	$18.13	$19.76

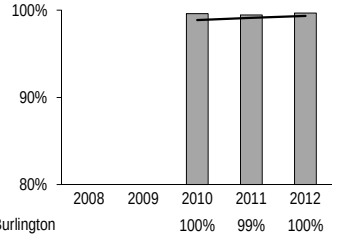
Effectiveness Measures

Number of Seconds from Initial Ring to Answer



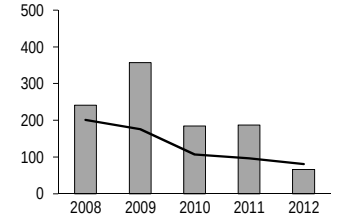
	2008	2009	2010	2011	2012
Burlington	18	18			
Average	11	12	7	5	4

Percent of E-911 Calls Answered within Twenty Seconds



	2008	2009	2010	2011	2012
Burlington			100%	99%	100%
Average			99%	99%	99%

Average Time in Seconds from CAD Entry to Dispatch for Priority One



	2008	2009	2010	2011	2012
Burlington	241	357	184	187	66
Average	201	176	107	97	81

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

The Cary Police Department handles all emergency and non-emergency communications for the town of Cary, dispatching all police and fire services for the town. The communications center is staffed with full-time telecommunicators, including five shift supervisors, who answer all emergency and non-emergency calls for service.

Cary uses the Motorola SmartNet 800 MHz radio system, with all the radio equipment being owned by the town. The town has two emergency back-up channels, one for police and one for fire. The transmission tower is located ten miles south of the communications center and is linked via microwave.

Cary's center handled a total of 204,796 calls in the fiscal year, dispatching 135,303 calls. The city defines highest priority emergency calls as any report that relates to a significant threat of imminent injury to a person or substantial damage to property.

Cary received $423,781 in E-911 revenues to support system operations.

Conditions Affecting Service, Performance, and Costs

The measure "percent of E-911 calls answered within twenty seconds" is a new measure added for FY 2009–10.

During FY 2011, the Town of Cary switched to a new Computer-Assisted Dispatch (CAD) system. The new CAD system has a manual dispatch, where the old system did this automatically. The process change has resulted in the average seconds for dispatch increasing over the prior year. As the telecommunicators have become familiar with the system, the average dispatch time is expected to come back down.

Municipal Profile

Population (OSBM 2011)	139,172
Land Area (Square Miles)	54.56
Persons per Square Mile	2,551
Median Family Income U.S. Census 2010	$108,956
County	Wake

Service Profile

Primary or Secondary Answering Point	Primary
Calls Dispatched	
Police	Yes
Fire	Yes
Other	Yes
FTE Positions	
Telecommunicators/Call-Takers	21.0
Other	2.0
Total Positions	23.0
Average Length of Service for Call-Takers	5.5 years
Total Incoming Calls	204,796
Total 911 Calls	78,085
Total Calls Dispatched	135,303
Outgoing Calls Other than Dispatch	55,330
Revenue from E-911 Fees	$423,781

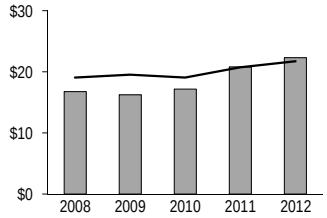
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	71.6%
Operating Costs	25.8%
Capital Costs	2.5%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$2,221,065
Operating Costs	$801,798
Capital Costs	$79,022
TOTAL	$3,101,885

Key: Cary ■ Benchmarking Average — Fiscal Years 2008 through 2012

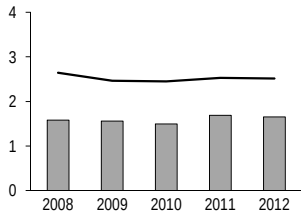
Resource Measures

Emergency Communications Services Costs per Capita



	2008	2009	2010	2011	2012
Cary	$16.74	$16.26	$17.17	$20.81	$22.29
Average	$19.09	$19.54	$19.09	$20.75	$21.73

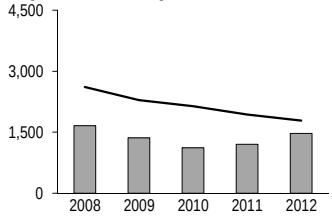
Emergency Communications FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Cary	1.58	1.56	1.49	1.69	1.65
Average	2.64	2.46	2.45	2.53	2.51

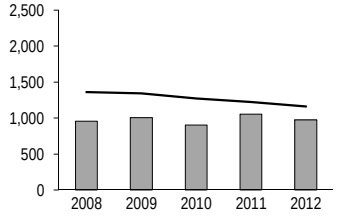
Workload Measures

Total Calls Answered per 1,000 Population



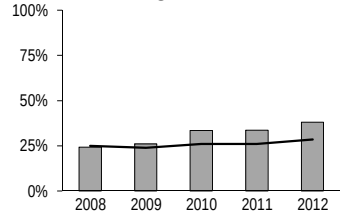
	2008	2009	2010	2011	2012
Cary	1,660	1,366	1,120	1,208	1,472
Average	2,612	2,288	2,138	1,935	1,785

Calls Dispatched per 1,000 Population



	2008	2009	2010	2011	2012
Cary	956	1,005	902	1,056	972
Average	1,363	1,345	1,272	1,222	1,160

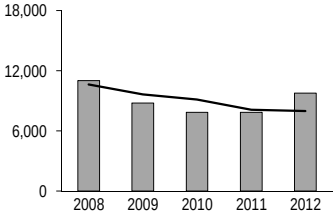
E-911 Calls as a Percentage of All Incoming Calls



	2008	2009	2010	2011	2012
Cary	24.2%	26.1%	33.4%	33.6%	38.1%
Average	25.0%	23.9%	26.0%	26.0%	28.5%

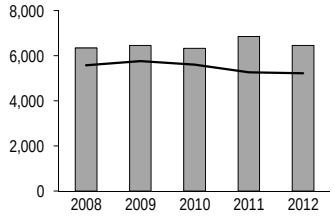
Efficiency Measures

Calls Answered per Telecommunicator



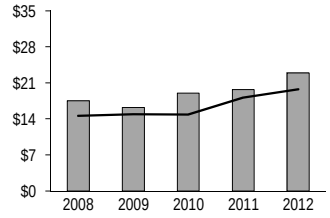
	2008	2009	2010	2011	2012
Cary	11,003	8,773	7,853	7,833	9,752
Average	10,636	9,632	9,119	8,098	7,986

Calls Dispatched per Telecommunicator



	2008	2009	2010	2011	2012
Cary	6,338	6,455	6,328	6,848	6,443
Average	5,569	5,757	5,596	5,260	5,222

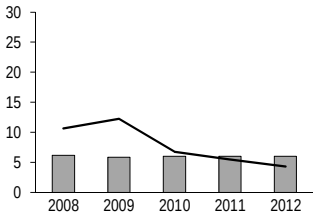
Emergency Communications Cost per Call Dispatched



	2008	2009	2010	2011	2012
Cary	$17.52	$16.17	$19.03	$19.71	$22.93
Average	$14.60	$14.91	$14.83	$18.13	$19.76

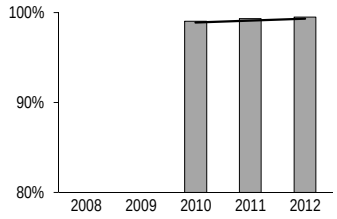
Effectiveness Measures

Number of Seconds from Initial Ring to Answer



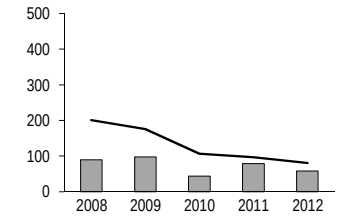
	2008	2009	2010	2011	2012
Cary	6	6	6	6	6
Average	11	12	7	5	4

Percent of E-911 Calls Answered within Twenty Seconds



	2008	2009	2010	2011	2012
Cary			99%	99%	99%
Average			99%	99%	99%

Average Time in Seconds from CAD Entry to Dispatch for Priority One Calls



	2008	2009	2010	2011	2012
Cary	90	98	44	79	58
Average	201	176	107	97	81

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

Concord's emergency communications center handles E-911 and non-emergency calls for the city. The emergency communications function of the city is separate from the police and fire functions and does not answer or transfer administrative calls for those departments. The emergency communications center does answer calls for utility and other city departments after hours, which is reflected in the number of incoming calls.

The city uses an 800 MHz system, which is a twelve-channel, five-site system shared with Cabarrus County and the City of Kannapolis.

Concord's center handled a total of 109,865 calls in the fiscal year, dispatching 100,441 calls.

Conditions Affecting Service, Performance, and Costs

The measure "percent of E-911 calls answered within twenty seconds" is a new measure added for FY 2009–10.

Municipal Profile

Population (OSBM 2011)	80,386
Land Area (Square Miles)	60.28
Persons per Square Mile	1,333
Median Family Income U.S. Census 2010	$63,643
County	Cabarrus

Service Profile

Primary or Secondary Answering Point	Primary
Calls Dispatched	
Police	Yes
Fire	Yes
Other	Yes
FTE Positions	
Telecommunicators/Call-Takers	20.5
Other	1.0
Total Positions	21.5
Average Length of Service for Call-Takers	7.6 years
Total Incoming Calls	109,865
Total 911 Calls	28,263
Total Calls Dispatched	100,441
Outgoing Calls Other than Dispatch	35,914
Revenue from E-911 Fees	None

Full Cost Profile

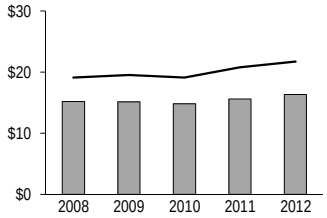
Cost Breakdown by Percentage	
Personal Services	84.0%
Operating Costs	14.6%
Capital Costs	1.4%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,100,667
Operating Costs	$191,150
Capital Costs	$18,772
TOTAL	$1,310,589

Concord Emergency Communications

Key: Concord ■ Benchmarking Average — Fiscal Years 2008 through 2012

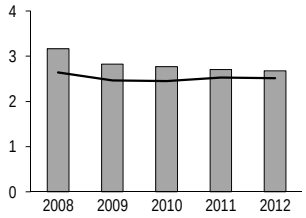
Resource Measures

Emergency Communications Services Costs per Capita



	2008	2009	2010	2011	2012
Concord	$15.18	$15.13	$14.78	$15.60	$16.30
Average	$19.09	$19.54	$19.09	$20.75	$21.73

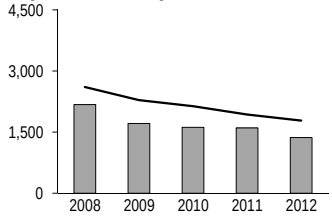
Emergency Communications FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Concord	3.17	2.82	2.77	2.70	2.67
Average	2.64	2.46	2.45	2.53	2.51

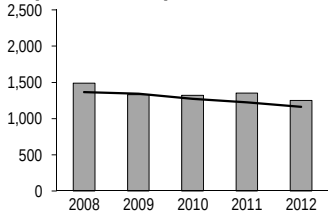
Workload Measures

Total Calls Answered per 1,000 Population



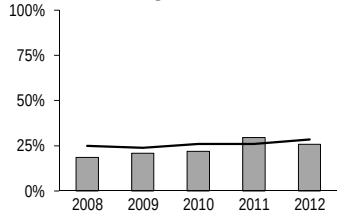
	2008	2009	2010	2011	2012
Concord	2,175	1,710	1,618	1,600	1,367
Average	2,612	2,288	2,138	1,935	1,785

Calls Dispatched per 1,000 Population



	2008	2009	2010	2011	2012
Concord	1,489	1,329	1,322	1,350	1,249
Average	1,363	1,345	1,272	1,222	1,160

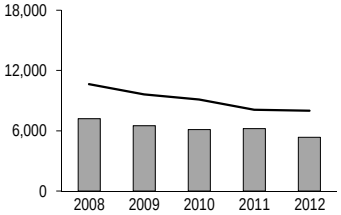
E-911 Calls as a Percentage of All Incoming Calls



	2008	2009	2010	2011	2012
Concord	18.6%	20.9%	21.9%	29.4%	25.7%
Average	25.0%	23.9%	26.0%	26.0%	28.5%

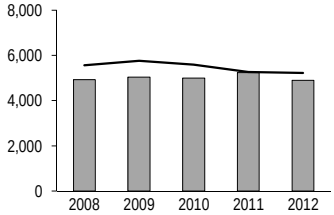
Efficiency Measures

Calls Answered per Telecommunicator



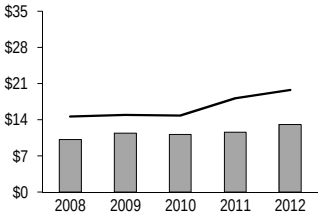
	2008	2009	2010	2011	2012
Concord	7,188	6,487	6,123	6,205	5,359
Average	10,636	9,632	9,119	8,098	7,986

Calls Dispatched per Telecommunicator



	2008	2009	2010	2011	2012
Concord	4,921	5,043	5,004	5,236	4,900
Average	5,569	5,757	5,596	5,260	5,222

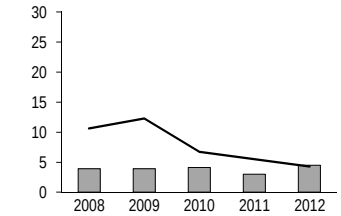
Emergency Communications Cost per Call Dispatched



	2008	2009	2010	2011	2012
Concord	$10.20	$11.38	$11.18	$11.56	$13.05
Average	$14.60	$14.91	$14.83	$18.13	$19.76

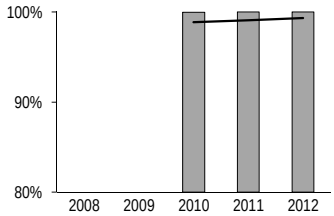
Effectiveness Measures

Number of Seconds from Initial Ring to Answer



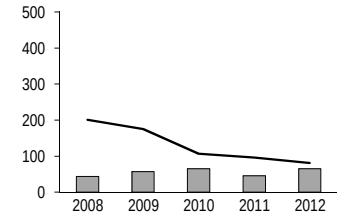
	2008	2009	2010	2011	2012
Concord	4	4	4	3	4
Average	11	12	7	5	4

Percent of E-911 Calls Answered within Twenty Seconds



	2008	2009	2010	2011	2012
Concord			100%	100%	100%
Average			99%	99%	99%

Average Time in Seconds from CAD Entry to Dispatch for Priority One Calls



	2008	2009	2010	2011	2012
Concord	44	57	65	46	65
Average	201	176	107	97	81

Greensboro Emergency Communications

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

Guilford Metro 911 operates under an interlocal agreement between the City of Greensboro and Guilford County. The public safety answering point serves as a separate department providing emergency communications for the City of Greensboro, Guilford County, and Gibsonville (except for the City of High Point Police and Fire). The services include dispatch and call intake for all law agencies, fire agencies, and EMS. The consolidation process enabled the first update of all 911 equipment in ten years and the creation of a back-up E-911 center to improve disaster preparedness. These changes contributed to slightly higher operational costs.

Guilford Metro 911 uses a twenty-eight-channel Motorola SmartNet 800 MHz radio system. The system has five tower sites and is jointly owned with Guilford County.

Greensboro's communication center handled a total of 637,190 incoming calls in the fiscal year, dispatching 417,114 calls. The city defines highest priority emergency calls as call types that require the fastest response, such as shootings, robberies, and domestic violence.

Greensboro received $1,620,000 in E-911 revenues to support system operations.

Conditions Affecting Service, Performance, and Costs

The measure "percent of E-911 calls answered within twenty seconds" is a new measure added for FY 2009–10.

Municipal Profile

Population (OSBM 2011)	495,231
Land Area (Square Miles)	649.42
Persons per Square Mile	763
Median Family Income U.S. Census 2010	$52,752
County	Guilford

Service Profile

Primary or Secondary Answering Point	Primary
Calls Dispatched	
Police	Yes
Fire	Yes
Other	Yes
FTE Positions	
Telecommunicators/Call-Takers	92.0
Other	10.0
Total Positions	102.0
Average Length of Service for Call-Takers	7.7 years
Total Incoming Calls	637,190
Total 911 Calls	388,176
Total Calls Dispatched	417,114
Outgoing Calls Other than Dispatch	157,065
Revenue from E-911 Fees	$1,620,000

Full Cost Profile

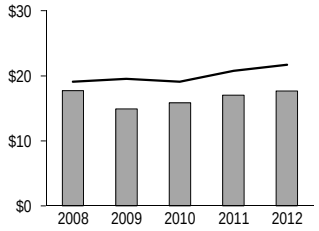
Cost Breakdown by Percentage	
Personal Services	68.9%
Operating Costs	31.1%
Capital Costs	0.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$6,032,470
Operating Costs	$2,726,544
Capital Costs	$0
TOTAL	$8,759,014

Greensboro Emergency Communications

Key: Greensboro ■ Benchmarking Average — Fiscal Years 2008 through 2012

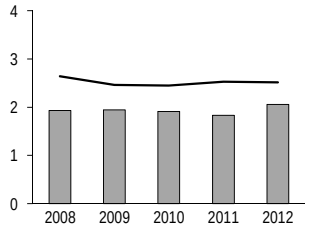
Resource Measures

Emergency Communications Services Costs per Capita



	2008	2009	2010	2011	2012
Greensboro	$17.73	$14.94	$15.84	$17.04	$17.69
Average	$19.09	$19.54	$19.09	$20.75	$21.73

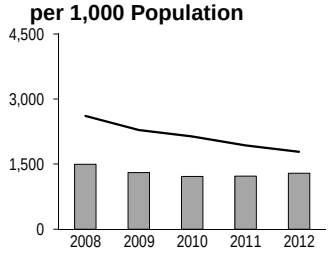
Emergency Communications FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Greensboro	1.93	1.94	1.91	1.84	2.06
Average	2.64	2.46	2.45	2.53	2.51

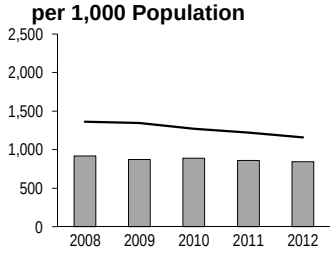
Workload Measures

Total Calls Answered per 1,000 Population



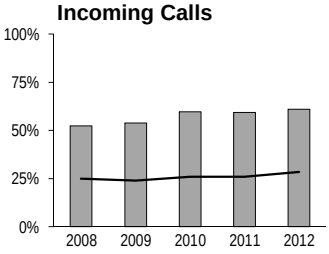
	2008	2009	2010	2011	2012
Greensboro	1,497	1,304	1,215	1,224	1,287
Average	2,612	2,288	2,138	1,935	1,785

Calls Dispatched per 1,000 Population



	2008	2009	2010	2011	2012
Greensboro	917	873	891	862	842
Average	1,363	1,345	1,272	1,222	1,160

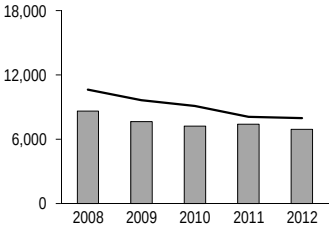
E-911 Calls as a Percentage of All Incoming Calls



	2008	2009	2010	2011	2012
Greensboro	52.3%	53.9%	59.6%	59.3%	60.9%
Average	25.0%	23.9%	26.0%	26.0%	28.5%

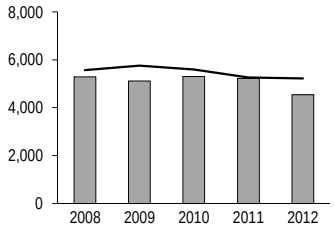
Efficiency Measures

Calls Answered per Telecommunicator



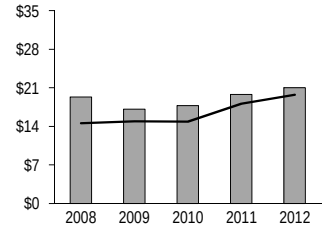
	2008	2009	2010	2011	2012
Greensboro	8,622	7,632	7,226	7,412	6,926
Average	10,636	9,632	9,119	8,098	7,986

Calls Dispatched per Telecommunicator



	2008	2009	2010	2011	2012
Greensboro	5,284	5,108	5,302	5,217	4,534
Average	5,569	5,757	5,596	5,260	5,222

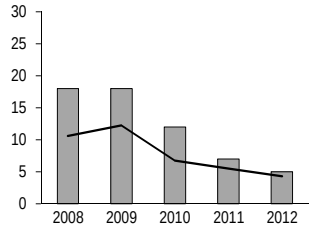
Emergency Communications Cost per Call Dispatched



	2008	2009	2010	2011	2012
Greensboro	$19.33	$17.12	$17.77	$19.77	$21.00
Average	$14.60	$14.91	$14.83	$18.13	$19.76

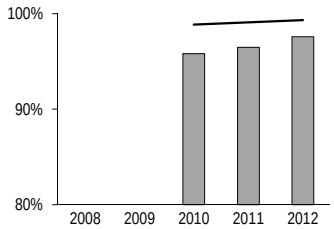
Effectiveness Measures

Number of Seconds from Initial Ring to Answer



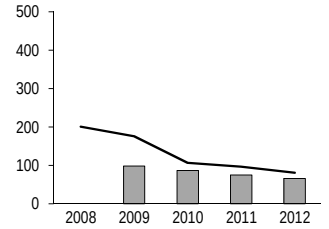
	2008	2009	2010	2011	2012
Greensboro	18	18	12	7	5
Average	11	12	7	5	4

Percent of E-911 Calls Answered within Twenty Seconds



	2008	2009	2010	2011	2012
Greensboro			96%	96%	98%
Average			99%	99%	99%

Average Time in Seconds from CAD Entry to Dispatch for Priority One Calls



	2008	2009	2010	2011	2012
Greensboro		98	86	75	66
Average	201	176	107	97	81

Greenville Emergency Communications

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Greenville's emergency communications center is a secondary public safety answering point, with Pitt County being the primary answering point. Pitt County initially receives all 911 calls and dispatches fire and EMS calls inside the city limits. All 911 calls for police services are transferred to the Greenville Police Department emergency communications center for dispatch. Calls can also be directly made to the police department over a dedicated emergency line.

The city does not own its own communications system and infrastructure. Greenville operates on the VIPER system maintained by the North Carolina State Highway Patrol. This system if fully maintained and operated by the state. The system has one tower located within the city limits and fully supports communication interoperability among all law enforcement agencies in Pitt County and with Greenville Fire/Rescue and East Care medical transport.

Greenville's center took in 96,342 incoming calls in the fiscal year and dispatched 83,571 calls.

Conditions Affecting Service, Performance, and Costs
Greenville joined the project in 2009, with the first year of reporting being for FY 2008–09.

The measure "percent of E-911 calls answered within twenty seconds" is a new measure added for FY 2009–10.

The system in use during most of the fiscal year required that a unicode for the incident type and a location be entered before the CAD entry could be started. Starting in June 2009, a new system allowed CAD entry to be automatically generated by hitting a "New Call" icon.

Telecommunicators in Greenville are also tasked with overseeing public safety cameras through several large monitors. When needed, they are instructed to log events requiring a response as service calls when required. This video monitoring results in higher staffing needs in the emergency communications center.

Municipal Profile

Population (OSBM 2011)	85,059
Land Area (Square Miles)	34.07
Persons per Square Mile	2,496
Median Family Income U.S. Census 2010	$50,395
County	Pitt

Service Profile

Primary or Secondary Answering Point	Primary
Calls Dispatched	
Police	Yes
Fire	No
Other	No
FTE Positions	
Telecommunicators/Call-Takers	16.0
Other	1.0
Total Positions	17.0
Average Length of Service for Call-Takers	11.3 years
Total Incoming Calls	96,342
Total 911 Calls	28,031
Total Calls Dispatched	83,571
Outgoing Calls Other than Dispatch	NA
Revenue from E-911 Fees	$441,535

Full Cost Profile

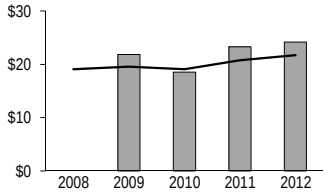
Cost Breakdown by Percentage	
Personal Services	60.0%
Operating Costs	36.4%
Capital Costs	3.5%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,236,051
Operating Costs	$749,969
Capital Costs	$72,501
TOTAL	$2,058,521

Greenville Emergency Communications

Key: Greenville ■ Benchmarking Average — Fiscal Years 2008 through 2012

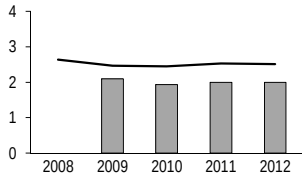
Resource Measures

Emergency Communications Services Costs per Capita



	2008	2009	2010	2011	2012
Greenville		$21.85	$18.55	$23.27	$24.20
Average	$19.09	$19.54	$19.09	$20.75	$21.73

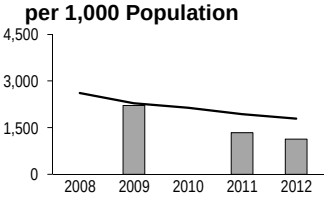
Emergency Communications FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Greenville		2.10	1.94	2.00	2.00
Average	2.64	2.46	2.45	2.53	2.51

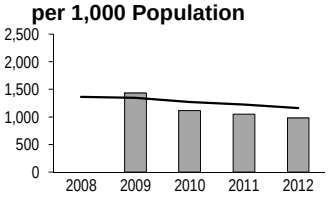
Workload Measures

Total Calls Answered per 1,000 Population



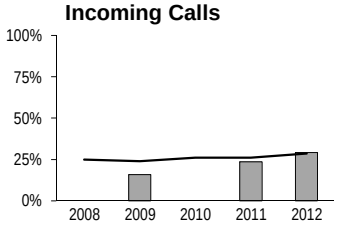
	2008	2009	2010	2011	2012
Greenville		2,207		1,336	1,133
Average	2,612	2,288	2,138	1,935	1,785

Calls Dispatched per 1,000 Population



	2008	2009	2010	2011	2012
Greenville		1,431	1,115	1,051	983
Average	1,363	1,345	1,272	1,222	1,160

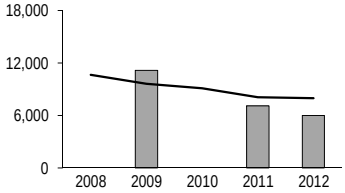
E-911 Calls as a Percentage of All Incoming Calls



	2008	2009	2010	2011	2012
Greenville		15.8%		23.5%	29.1%
Average	25.0%	23.9%	26.0%	26.0%	28.5%

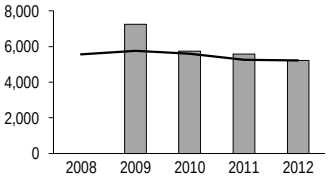
Efficiency Measures

Calls Answered per Telecommunicator



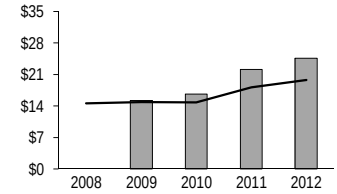
	2008	2009	2010	2011	2012
Greenville		11,184		7,108	6,021
Average	10,636	9,632	9,119	8,098	7,986

Calls Dispatched per Telecommunicator



	2008	2009	2010	2011	2012
Greenville		7,252	5,753	5,592	5,223
Average	5,569	5,757	5,596	5,260	5,222

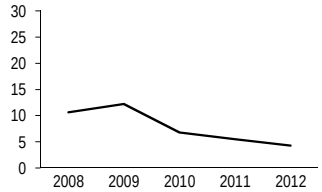
Emergency Communications Cost per Call Dispatched



	2008	2009	2010	2011	2012
Greenville		$15.27	$16.64	$22.14	$24.63
Average	$14.60	$14.91	$14.83	$18.13	$19.76

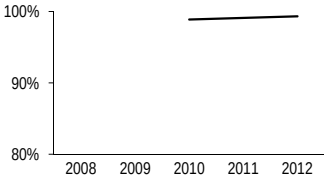
Effectiveness Measures

Number of Seconds from Initial Ring to Answer



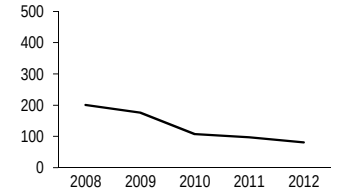
	2008	2009	2010	2011	2012
Greenville					
Average	11	12	7	5	4

Percent of E-911 Calls Answered within Twenty Seconds



	2008	2009	2010	2011	2012
Greenville					
Average			99%	99%	99%

Average Time in Seconds from CAD Entry to Dispatch for Priority One Calls



	2008	2009	2010	2011	2012
Greenville					
Average	201	176	107	97	81

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

Hickory's emergency communications center is a secondary public safety answering point, with Catawba County being the primary answering point. Catwaba County initially receives all 911 calls and dispatches fire and EMS calls inside the city limits. All 911 calls for police services are transferred to the emergency communications center for dispatch. Any emergency calls for other city services are transferred to the emergency communications center between 3:30 p.m. and 7:00 a.m.

The city owns its communications system and infrastructure. It uses an Ericson 800 MHz radio system. There is one 1,350-foot tower and antennas at two other sites. The system serves approximately 200 users in five city departments.

Conditions Affecting Service, Performance, and Costs

During FY 2011–12, the software tracking emergency communication calls crashed, and the data for calls could not be recovered for the enitre year.

The measure "percent of E-911 calls answered within twenty seconds" is a new measure added for FY 2009–10.

Incoming calls in Hickory are down because of changes in how calls are routed. Several special units now have their own administrative phones, so calls no longer come through the emergency communications center. Additionally, the animal control unit's operations were moved out of the police department, so their calls are now being fed through code enforcement.

Municipal Profile

Population (OSBM 2011)	40,086
Land Area (Square Miles)	29,717.00
Persons per Square Mile	1
Median Family Income U.S. Census 2010	$54,093
County	Catawba

Service Profile

Primary or Secondary Answering Point	Secondary
Calls Dispatched	
Police	Yes
Fire	No
Other	No
FTE Positions	
Telecommunicators/Call-Takers	13.0
Other	0.0
Total Positions	13.0
Average Length of Service for Call-Takers	9.4 years
Total Incoming Calls	NA
Total 911 Calls	NA
Total Calls Dispatched	NA
Outgoing Calls Other than Dispatch	NA
Revenue from E-911 Fees	None

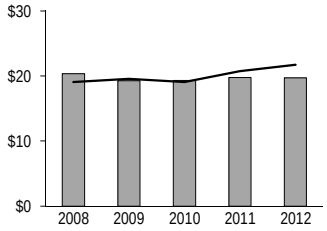
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	84.4%
Operating Costs	13.7%
Capital Costs	1.9%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$667,013
Operating Costs	$108,136
Capital Costs	$14,881
TOTAL	$790,030

Key: Hickory ■ Benchmarking Average — Fiscal Years 2008 through 2012

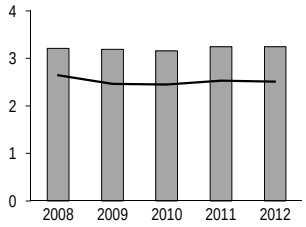
Resource Measures

Emergency Communications Services Costs per Capita



	2008	2009	2010	2011	2012
Hickory	$20.36	$19.26	$19.33	$19.77	$19.71
Average	$19.09	$19.54	$19.09	$20.75	$21.73

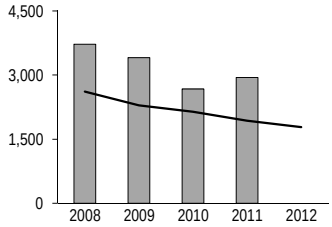
Emergency Communications FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Hickory	3.21	3.19	3.16	3.24	3.24
Average	2.64	2.46	2.45	2.53	2.51

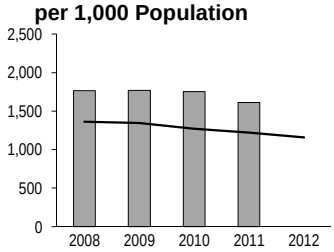
Workload Measures

Total Calls Answered per 1,000 Population



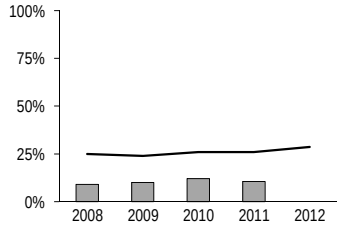
	2008	2009	2010	2011	2012
Hickory	3,726	3,411	2,670	2,947	
Average	2,612	2,288	2,138	1,935	1,785

Calls Dispatched per 1,000 Population



	2008	2009	2010	2011	2012
Hickory	1,765	1,768	1,752	1,613	
Average	1,363	1,345	1,272	1,222	1,160

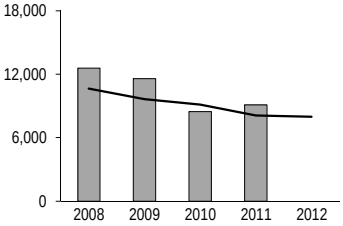
E-911 Calls as a Percentage of All Incoming Calls



	2008	2009	2010	2011	2012
Hickory	9.0%	10.0%	12.0%	10.4%	
Average	25.0%	23.9%	26.0%	26.0%	28.5%

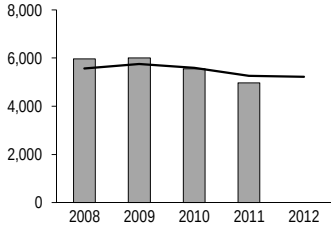
Efficiency Measures

Calls Answered per Telecommunicator



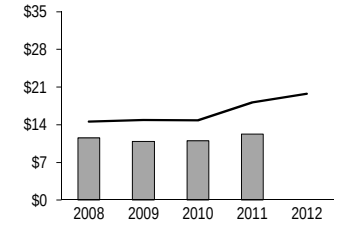
	2008	2009	2010	2011	2012
Hickory	12,583	11,587	8,450	9,086	
Average	10,636	9,632	9,119	8,098	7,986

Calls Dispatched per Telecommunicator



	2008	2009	2010	2011	2012
Hickory	5,959	6,007	5,546	4,974	
Average	5,569	5,757	5,596	5,260	5,222

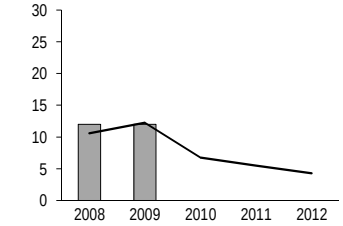
Emergency Communications Cost per Call Dispatched



	2008	2009	2010	2011	2012
Hickory	$11.54	$10.90	$11.03	$12.25	
Average	$14.60	$14.91	$14.83	$18.13	$19.76

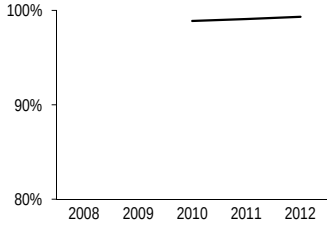
Effectiveness Measures

Number of Seconds from Initial Ring to Answer



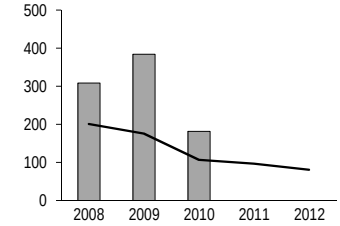
	2008	2009	2010	2011	2012
Hickory	12	12			
Average	11	12	7	5	4

Percent of E-911 Calls Answered within Twenty Seconds



	2008	2009	2010	2011	2012
Hickory					
Average			99%	99%	99%

Average Time in Seconds from CAD Entry to Dispatch for Priority One Calls



	2008	2009	2010	2011	2012
Hickory	308	384	182		
Average	201	176	107	97	81

High Point Emergency Communications

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

High Point's emergency communications center is a civilian-staffed and city-managed department. The center functions as a primary public safety answering point, dispatching all police and fire calls within the city; medical calls are routed to Guilford County EMS.

The center has ten consoles, seven of which are dispatch positions. Operations are conducted by four teams of five telecommunicators and a supervisor. All telecommunicators are cross-trained in fire and police dispatch and function as call-takers and dispatchers. Personnel assigned to the center work rotating twelve-hour shifts.

The city of High Point owns its communications infrastructure. Communications utilizes an 800 MHz radio system that implements analog and digital talk groups. The city uses a Motorola SmartNet system with three towers.

High Point's center handled a total of 274,649 calls in the fiscal year, dispatching 137,693 calls. The city defines highest priority emergency calls as situations likely to result in loss of life, injury, or property damage and crimes in progress.

High Point received $443,675 in E-911 revenues to support system operations.

Conditions Affecting Service, Performance, and Costs

The measure "percent of E-911 calls answered within twenty seconds" is a new measure added for FY 2009–10.

High Point was unable to provide data on certain measures, given a change in technology.

High Point made a concentrated effort to reduce the time from the start of CAD entry to dispatch in FY 2008, including daily review of center performance at the end of each day. Additionally, there were several new employees in the prior year, so as they have become more experienced, they have become more proficient.

There was a high volume of personnel exits in the police department during FY 2010–11 due to retirements and resignations, and because of a city-wide hiring freeze many positions were left vacant. As a result, there were fewer officers on the street to respond to disptached calls, resulting in a higher dispatch response time.

Municipal Profile

Population (OSBM 2011)	105,498
Land Area (Square Miles)	53.83
Persons per Square Mile	1,960
Median Family Income U.S. Census 2010	$49,720
County	Guilford

Service Profile

Primary or Secondary Answering Point	Primary
Calls Dispatched	
Police	Yes
Fire	Yes
Other	No
FTE Positions	
Telecommunicators/Call-Takers	26.0
Other	1.0
Total Positions	27.0
Average Length of Service for Call-Takers	12.0 years
Total Incoming Calls	274,649
Total 911 Calls	88,617
Total Calls Dispatched	137,693
Outgoing Calls Other than Dispatch	86,103
Revenue from E-911 Fees	$443,675

Full Cost Profile

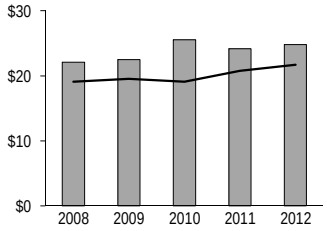
Cost Breakdown by Percentage	
Personal Services	78.8%
Operating Costs	20.9%
Capital Costs	0.3%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$2,062,440
Operating Costs	$546,932
Capital Costs	$8,263
TOTAL	$2,617,635

High Point — Emergency Communications

Key: High Point ■ Benchmarking Average — Fiscal Years 2008 through 2012

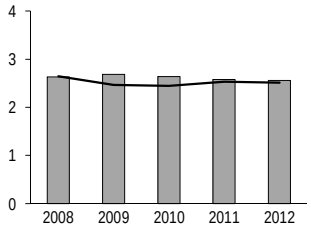
Resource Measures

Emergency Communications Services Costs per Capita



	2008	2009	2010	2011	2012
High Point	$22.08	$22.51	$25.53	$24.18	$24.81
Average	$19.09	$19.54	$19.09	$20.75	$21.73

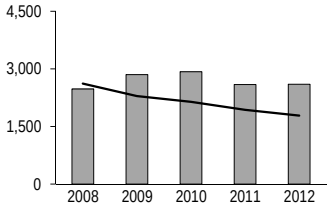
Emergency Communications FTEs per 10,000 Population



	2008	2009	2010	2011	2012
High Point	2.63	2.68	2.64	2.58	2.56
Average	2.64	2.46	2.45	2.53	2.51

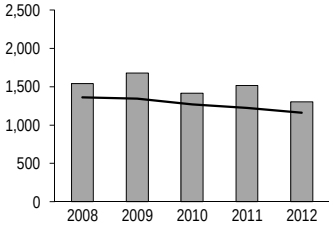
Workload Measures

Total Calls Answered per 1,000 Population



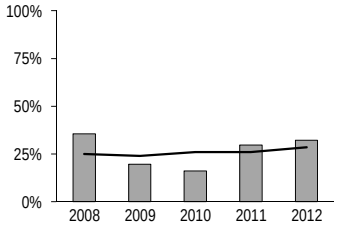
	2008	2009	2010	2011	2012
High Point	2,471	2,847	2,925	2,589	2,603
Average	2,612	2,288	2,138	1,935	1,785

Calls Dispatched per 1,000 Population



	2008	2009	2010	2011	2012
High Point	1,543	1,677	1,415	1,517	1,305
Average	1,363	1,345	1,272	1,222	1,160

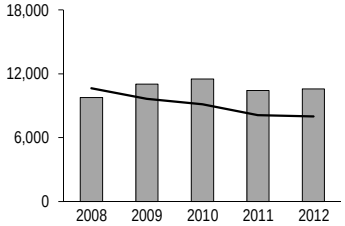
E-911 Calls as a Percentage of All Incoming Calls



	2008	2009	2010	2011	2012
High Point	35.6%	19.6%	16.2%	29.7%	32.3%
Average	25.0%	23.9%	26.0%	26.0%	28.5%

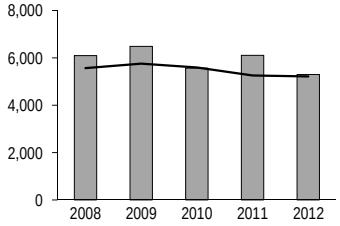
Efficiency Measures

Calls Answered per Telecommunicator



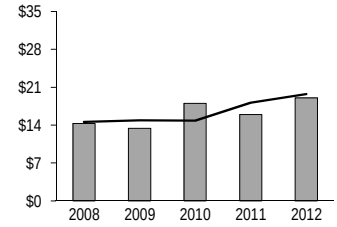
	2008	2009	2010	2011	2012
High Point	9,764	11,020	11,501	10,434	10,563
Average	10,636	9,632	9,119	8,098	7,986

Calls Dispatched per Telecommunicator



	2008	2009	2010	2011	2012
High Point	6,099	6,491	5,563	6,114	5,296
Average	5,569	5,757	5,596	5,260	5,222

Emergency Communications Cost per Call Dispatched



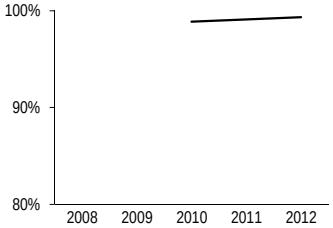
	2008	2009	2010	2011	2012
High Point	$14.31	$13.42	$18.04	$15.94	$19.01
Average	$14.60	$14.91	$14.83	$18.13	$19.76

Effectiveness Measures

Number of Seconds from Initial Ring to Answer

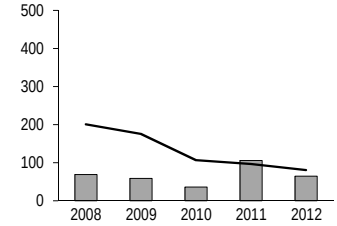
	2008	2009	2010	2011	2012
High Point	5	5			
Average	11	12	7	5	4

Percent of E-911 Calls Answered within Twenty Seconds



	2008	2009	2010	2011	2012
High Point					
Average			99%	99%	99%

Average Time in Seconds from CAD Entry to Dispatch for Priority One Calls



	2008	2009	2010	2011	2012
High Point	69	59	36	106	65
Average	201	176	107	97	81

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

The emergency communications center is located in the police department and processes 911 emergency and non-emergency calls. Fire and EMS calls are handled by Rowan County. Many of the calls come directly to the center. Others from city residents go initially to the Rowan County communications center and are then immediately switched to the city's police communications center. The city's center operates twenty-four hours a day, seven days a week.

The city owns its communications equipment, including infrastructure. The system is a Motorola 800 MHz trunked SmartNet system with a single, twenty-channel analog site and two GHz microwave sites.

Salisbury's communication center reported total incoming calls of 68,897 for the fiscal year, dispatching 32,174 calls. The city defines highest priority emergency calls as those involving crimes in progress and calls involving injury or imminent injury to a person.

Conditions Affecting Service, Performance, and Costs

The measure "percent of E-911 calls answered within twenty seconds" is a new measure added for FY 2009–10.

Salisbury was unable to provide data for some of the effectiveness measures, given the structure of its database.

The money collected from the E-911 fee in Salisbury all goes to Rowan County.

Municipal Profile

Population (OSBM 2011)	33,704
Land Area (Square Miles)	22.18
Persons per Square Mile	1,519
Median Family Income U.S. Census 2010	$40,192
County	Rowan

Service Profile

Primary or Secondary Answering Point	Secondary
Calls Dispatched	
Police	Yes
Fire	No
Other	No
FTE Positions	
Telecommunicators/Call-Takers	10.0
Other	0.0
Total Positions	10.0
Average Length of Service for Call-Takers	7.3 years
Total Incoming Calls	68,897
Total 911 Calls	12,364
Total Calls Dispatched	32,174
Outgoing Calls Other than Dispatch	NA
Revenue from E-911 Fees	None

Full Cost Profile

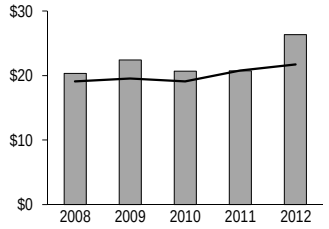
Cost Breakdown by Percentage	
Personal Services	54.8%
Operating Costs	40.2%
Capital Costs	4.9%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$486,873
Operating Costs	$357,212
Capital Costs	$43,609
TOTAL	$887,694

Salisbury Emergency Communications

Key: Salisbury ■ Benchmarking Average — Fiscal Years 2008 through 2012

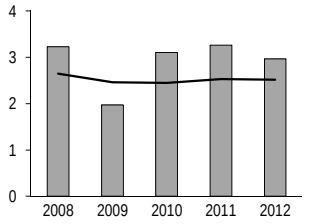
Resource Measures

Emergency Communications Services Costs per Capita



	2008	2009	2010	2011	2012
Salisbury	$20.33	$22.40	$20.69	$20.72	$26.34
Average	$19.09	$19.54	$19.09	$20.75	$21.73

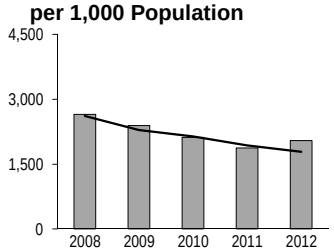
Emergency Communications FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Salisbury	3.22	1.97	3.10	3.26	2.97
Average	2.64	2.46	2.45	2.53	2.51

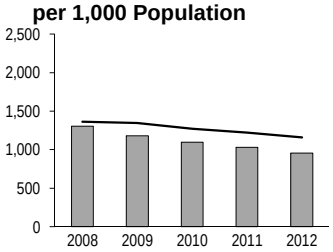
Workload Measures

Total Calls Answered per 1,000 Population



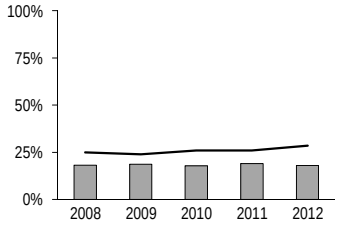
	2008	2009	2010	2011	2012
Salisbury	2,649	2,396	2,120	1,872	2,044
Average	2,612	2,288	2,138	1,935	1,785

Calls Dispatched per 1,000 Population



	2008	2009	2010	2011	2012
Salisbury	1,303	1,179	1,099	1,028	955
Average	1,363	1,345	1,272	1,222	1,160

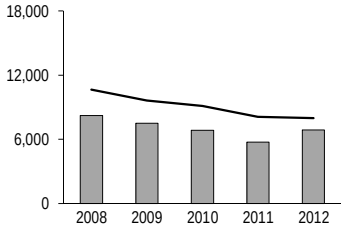
E-911 Calls as a Percentage of All Incoming Calls



	2008	2009	2010	2011	2012
Salisbury	18.1%	18.6%	17.8%	19.1%	17.9%
Average	25.0%	23.9%	26.0%	26.0%	28.5%

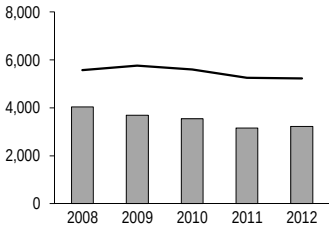
Efficiency Measures

Calls Answered per Telecommunicator



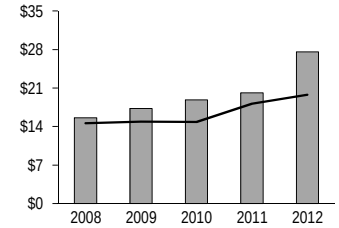
	2008	2009	2010	2011	2012
Salisbury	8,219	7,502	6,838	5,739	6,890
Average	10,636	9,632	9,119	8,098	7,986

Calls Dispatched per Telecommunicator



	2008	2009	2010	2011	2012
Salisbury	4,042	3,693	3,545	3,152	3,217
Average	5,569	5,757	5,596	5,260	5,222

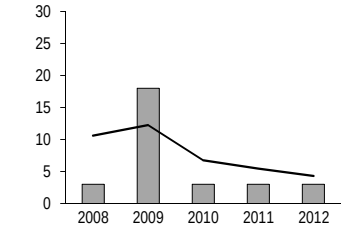
Emergency Communications Cost per Call Dispatched



	2008	2009	2010	2011	2012
Salisbury	$15.61	$17.29	$18.83	$20.15	$27.59
Average	$14.60	$14.91	$14.83	$18.13	$19.76

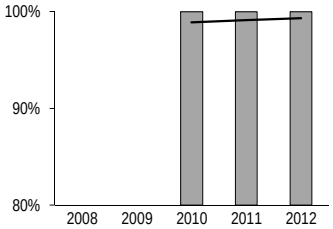
Effectiveness Measures

Number of Seconds from Initial Ring to Answer



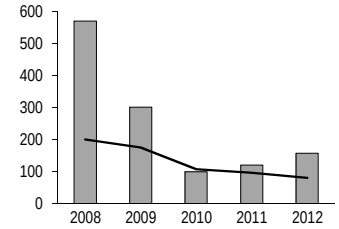
	2008	2009	2010	2011	2012
Salisbury	3	18	3	3	3
Average	11	12	7	5	4

Percent of E-911 Calls Answered within Twenty Seconds



	2008	2009	2010	2011	2012
Salisbury			100%	100%	100%
Average			99%	99%	99%

Average Time in Seconds from CAD Entry to Dispatch for Priority One Calls



	2008	2009	2010	2011	2012
Salisbury	570	301	99	120	157
Average	201	176	107	97	81

Winston-Salem Emergency Communications

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

Winston-Salem's emergency communications center is part of the police department and handles 911 and non-emergency calls for police and fire. Calls received for EMS, the Sheriff's Office, county fire, and the highway patrol are transferred to the appropriate agency. All telecommunicators are hired and trained as call-takers and dispatchers.

The city owns the infrastructure but contracts with local vendors to provide telecommunications services. The City of Winston-Salem and Forsyth County implemented a voice radio system in October 2004. The Motoroloa ASTRO 800 MHz Trunked Simulcast system is made up of eight tower sites utilizing fifteen channels. The Winston-Salem Police Department uses a non-trunked 800 MHz system for the mobile data system, with one transmitter site using three channels.

Winston-Salem's center handled a total of 505,745 calls in the fiscal year, dispatching 280,119 calls. The city defines highest priority emergency calls as calls with a significant threat of imminent injury to persons or calls for crimes against persons that are in progress or just occurred and the suspect is still there.

Conditions Affecting Service, Performance, and Costs

The measure "percent of E-911 calls answered within twenty seconds" is a new measure added for FY 2009–10.

Municipal Profile

Population (OSBM 2011)	232,143
Land Area (Square Miles)	132.45
Persons per Square Mile	1,753
Median Family Income U.S. Census 2010	$51,491
County	Forsyth

Service Profile

Primary or Secondary Answering Point	Primary
Calls Dispatched	
Police	Yes
Fire	Yes
Other	No
FTE Positions	
Telecommunicators/Call-Takers	48.0
Other	1.0
Total Positions	49.0
Average Length of Service for Call-Takers	8.3 years
Total Incoming Calls	505,745
Total 911 Calls	220,438
Total Calls Dispatched	280,119
Outgoing Calls Other than Dispatch	NA
Revenue from E-911 Fees	$575,323

Full Cost Profile

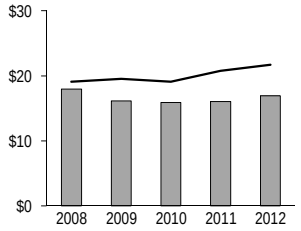
Cost Breakdown by Percentage	
Personal Services	69.2%
Operating Costs	26.6%
Capital Costs	4.2%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$2,724,017
Operating Costs	$1,048,194
Capital Costs	$165,315
TOTAL	$3,937,526

Winston-Salem Emergency Communications

Key: Winston-Salem ■ Benchmarking Average — Fiscal Years 2008 through 2012

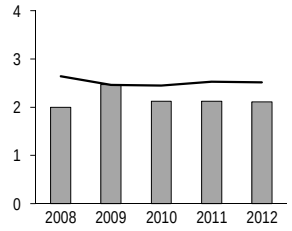
Resource Measures

Emergency Communications Services Costs per Capita



	2008	2009	2010	2011	2012
Winston-Salem	$17.97	$16.16	$15.93	$16.07	$16.96
Average	$19.09	$19.54	$19.09	$20.75	$21.73

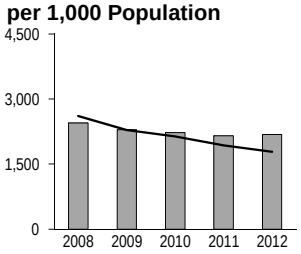
Emergency Communications FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Winston-Salem	2.00	2.47	2.13	2.13	2.11
Average	2.64	2.46	2.45	2.53	2.51

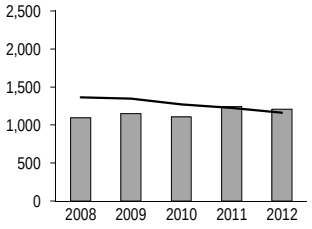
Workload Measures

Total Calls Answered per 1,000 Population



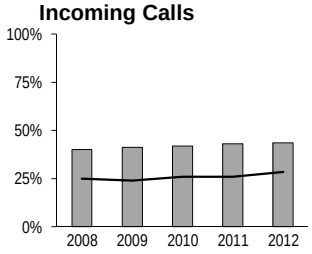
	2008	2009	2010	2011	2012
Winston-Salem	2,450	2,295	2,225	2,152	2,179
Average	2,612	2,288	2,138	1,935	1,785

Calls Dispatched per 1,000 Population



	2008	2009	2010	2011	2012
Winston-Salem	1,094	1,147	1,108	1,240	1,207
Average	1,363	1,345	1,272	1,222	1,160

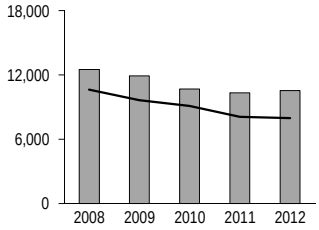
E-911 Calls as a Percentage of All Incoming Calls



	2008	2009	2010	2011	2012
Winston-Salem	40.1%	41.3%	41.9%	43.0%	43.6%
Average	25.0%	23.9%	26.0%	26.0%	28.5%

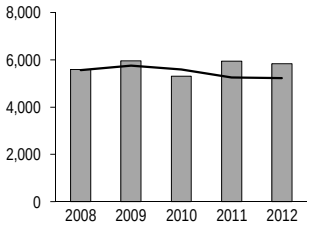
Efficiency Measures

Calls Answered per Telecommunicator



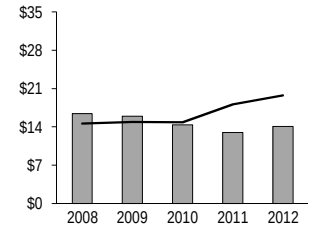
	2008	2009	2010	2011	2012
Winston-Salem	12,523	11,915	10,677	10,327	10,536
Average	10,636	9,632	9,119	8,098	7,986

Calls Dispatched per Telecommunicator



	2008	2009	2010	2011	2012
Winston-Salem	5,590	5,956	5,314	5,951	5,836
Average	5,569	5,757	5,596	5,260	5,222

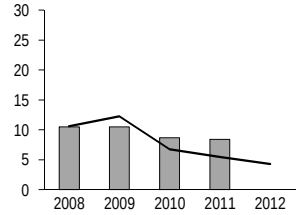
Emergency Communications Cost per Call Dispatched



	2008	2009	2010	2011	2012
Winston-Salem	$16.43	$15.97	$14.38	$12.96	$14.06
Average	$14.60	$14.91	$14.83	$18.13	$19.76

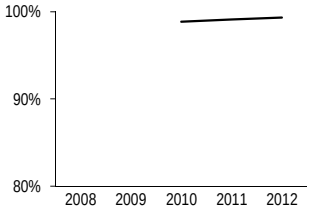
Effectiveness Measures

Number of Seconds from Initial Ring to Answer



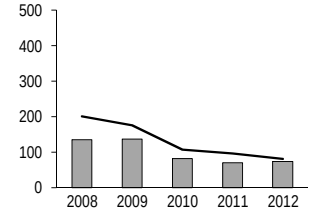
	2008	2009	2010	2011	2012
Winston-Salem	11	11	9	8	
Average	11	12	7	5	4

Percent of E-911 Calls Answered within Twenty Seconds



	2008	2009	2010	2011	2012
Winston-Salem					
Average			99%	99%	99%

Average Time in Seconds from CAD Entry to Dispatch for Priority One Calls



	2008	2009	2010	2011	2012
Winston-Salem	135	137	82	70	74
Average	201	176	107	97	81

UNC
SCHOOL OF
GOVERNMENT

Performance and Cost Data

ASPHALT MAINTENANCE AND REPAIR

PERFORMANCE MEASURES FOR ASPHALT MAINTENANCE AND REPAIR

SERVICE DEFINITION

Asphalt Maintenance and Repair includes the activities of pothole repair, repaving, surface treatment, structure adjustments, milling, and utility cuts. It does not include reconstruction, handicap ramps, storm drainage, sidewalks, curb and gutter, right of way maintenance, street cleaning and sweeping, pavement marking, lane widening, unpaved street maintenance, or snow and ice removal.

NOTES ON PERFORMANCE MEASURES

1. Lane Miles Maintained

This measure refers to total lane miles that a municipality maintains, including state streets and municipal streets. The standard lane mile is 12 feet in width and 5,280 feet in length. Some jurisdictions do not track lane miles. Therefore, a methodology must be employed to calculate lane miles for participation.

2. Potholes and Utility Cuts per Lane Mile

Breaks in pavement due to potholes or to intentional utility cuts affects asphalt maintenance workload in the short term and long term because of breaks in the pavement integrity.

3. Cost of Road Treatment per Lane Mile

This is the cost of different types of asphalt treatment that a municipality may use to maintain or repair roads. Treatments include preservation work such as crack or slurry sealing, resurfacing, which is typically one to two inches of new asphalt, and rehabilitation, which combines resurfacing with milling work to repair more damaged roads.

4. Cost of Asphalt Maintenance and Repair

Total cost of asphalt maintenance and repair represents the total direct, indirect, and capital costs taken from the accounting form. “Cost of maintenance” represents total cost from the accounting form minus cost of any treatment efforts by contract and municipal crews.

5. Percentage of Street Segments Rated 85 or Better and Below 45

Many municipalities use standard rating systems for assessing street pavement condition. These systems apply professionally determined criteria and embody scales that provide relatively objective ratings. These measures indicate the proportion of street segments that are rated 85 or better, which is good condition, and those rated below 45, which is poor condition, on the most recent street pavement assessment.

6. Percentage of Potholes Repaired Within Twenty-Four Hours

Repair of potholes in a timely manner is important for maintaining pavement integrity and minimizing further damage to the street and vehicle traffic.

Asphalt Maintenance and Repair

Summary of Key Dimensions of Service

			Total Lane Miles Treated by Type			Percent Treated			
City or Town	**Lane Miles Maintained**	**Number of Registered Motor Vehicles**	**Preservation**	**Resurfacing**	**Rehabilitation**	**Preservation**	**Resurfacing**	**Rehabilitation**	**FTE Positions for City Staff**
Apex	254.2	30,408	0.0	0.0	7.7	0.0%	0.0%	3.0%	8.0
Asheville	711.6	65,419	1.0	5.4	1.9	0.1%	0.8%	0.3%	23.1
Burlington	533.4	NA	18.6	8.1	0.0	3.5%	1.5%	0.0%	6.0
Cary	935.8	111,120	0.0	10.8	0.2	0.0%	1.2%	0.0%	14.5
Charlotte	5245.8	537,535	26.2	75.9	157.7	0.5%	1.4%	3.0%	121.0
Concord	670.3	60,675	8.6	11.6	5.1	1.3%	1.7%	0.8%	10.0
Greensboro	3630.0	NA	41.5	39.7	1.5	1.1%	1.1%	0.0%	51.0
Greenville	611.0	53,289	7.3	0.0	6.3	1.2%	0.0%	1.0%	10.0
Hickory	719.2	31,472	0.0	10.0	0.0	0.0%	1.4%	0.0%	7.0
High Point	1476.0	60,084	0.0	6.4	4.7	0.0%	0.4%	0.3%	15.3
Salisbury	343.9	21,964	0.0	0.0	2.3	0.0%	0.0%	0.7%	3.3
Wilmington	796.8	120,832	2.0	0.9	1.3	0.3%	0.1%	0.2%	14.0
Wilson	687.7	38,023	5.0	0.0	0.0	0.7%	0.0%	0.0%	5.5
Winston-Salem	2180.6	169,337	38.2	16.6	23.0	1.8%	0.8%	1.1%	43.3

EXPLANATORY FACTORS

These are factors that the project found affected asphalt maintenance and repair performance and cost in one or more of the municipalities:

Costs of materials in different cities
Weather conditions and terrain
Vehicle burden placed on streets
Age of street infrastructure
Depth of materials applied in repaving
Extent of contracting

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The Town of Apex's Streets Department was responsible for maintaining 254 lane miles during FY 2011–12. The Streets Department is part of the Public Works and Utilites Division for the town.

The town treated 7.7 lane miles during the fiscal year, equating to approximately 3.0 percent of total lane miles. All of this work was rehabilitation work, meaning both milling and resurfacing. The work was done by a contractor, with the average depth used at 1.2 inches. The contractor used 8,928 tons of asphalt for the resurfacing.

The city reported that 79 percent of its lane miles were rated 85 or better on the pavement condition rating. The rating was performed by US Infrastructure using windshield survey in 2011.
The number of potholes reported for FY 2011–12 was thirty-one.

The percentage of potholes repaired within twenty-four hours was approximately 85 percent. The town only repairs within one day those potholes which are considered large and dangerous. Smaller potholes are repaired when the streets crews can get to them.

The Steets Department also repaired eighty-five utility cuts and made a large number of maintenance patches requiring 4,723 tons of asphalt.

Conditions Affecting Service, Performance, and Costs
Apex began participation in the benchmarking project in July 2011, with FY 2010–11 being the first reporting year.

Beginning with the FY 2010–11 reporting year, new performance measures were added to this service area. These include "cost per lane mile for preservation treatment," "cost per lane mile for resurfacing treatment," "cost per lane mile for rehabilitation treatment," and "percent of lane miles rated below 45." In addition, the measure "cost of maintenance per lane mile maintained" has been altered to back out some treatment costs that were formerly counted as maintenance. This means that for some jurisdictions, the "cost of maintenance per lane mile maintained" has dropped in FY 2010–11 due to changes in the definition rather than actual drops in maintenance.

Municipal Profile

Population (OSBM 2011)	38,696
Land Area (Square Miles)	15.63
Persons per Square Mile	2,477
Topography	Flat; gently rolling
Climate	Temperate; little ice and snow

Service Profile

FTE Positions—Crews	5.00
FTE Positions—Other	3.00
Lane Miles Maintained	254.2
Lane Miles Treated	
Preservation	0.0
Resurfacing	0.0
Rehabilitation	7.7
TOTAL	7.7
Total Costs for All Treatment Types	$757,653
Potholes Repaired	31
Number of Utility Cuts	85
Number of Maintenance Patches (exclusive of potholes and utility cuts)	NA
Registered Vehicles	30,408
Registered Vehicles/Square Mile	1,946
Average Cost per Ton of Hot Asphalt during Year	$72.84

Full Cost Profile

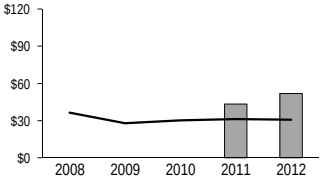
Cost Breakdown by Percentage	
Personal Services	19.7%
Operating Costs	71.5%
Capital Costs	8.8%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$395,701
Operating Costs	$1,438,568
Capital Costs	$177,807
TOTAL	$2,012,076

Apex — Asphalt Maintenance and Repair

Key: Apex ■ Benchmarking Average — Fiscal Years 2008 through 2012

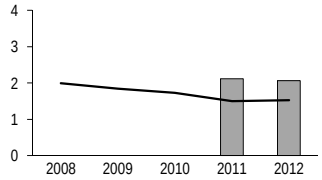
Resource Measures

Asphalt Maintenance and Repair Services Costs per Capita



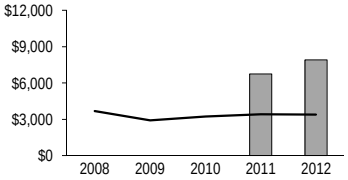
	2008	2009	2010	2011	2012
Apex				$43.49	$52.00
Average	$36.55	$27.91	$30.16	$31.21	$30.88

Asphalt Maintenance and Repair FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Apex				2.12	2.07
Average	2.00	1.84	1.73	1.50	1.52

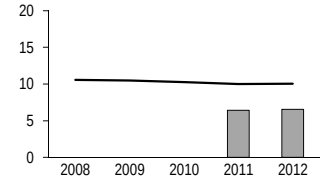
Service Costs per Lane Mile of Road Maintained



	2008	2009	2010	2011	2012
Apex				$6,758	$7,916
Average	$3,686	$2,911	$3,228	$3,424	$3,383

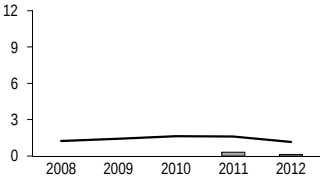
Workload Measures

Number of Lane Miles Maintained per 1,000 Population



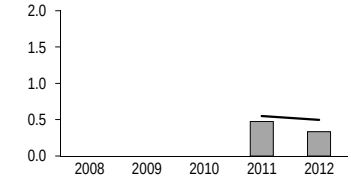
	2008	2009	2010	2011	2012
Apex				6.4	6.6
Average	10.6	10.5	10.3	10.0	10.1

Reported Potholes per Lane Mile Maintained



	2008	2009	2010	2011	2012
Apex				0.31	0.12
Average	1.22	1.43	1.63	1.59	1.15

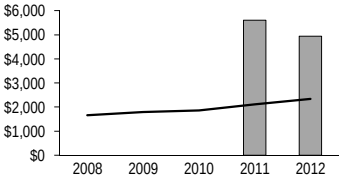
Repaired Utility Cuts per Lane Mile Maintained



	2008	2009	2010	2011	2012
Apex				0.47	0.33
Average				0.55	0.50

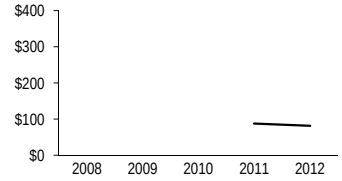
Efficiency Measures

Cost of Maintenance per Lane Mile Maintained



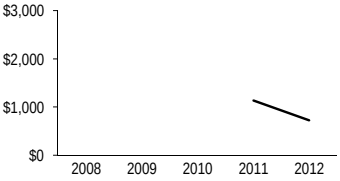
	2008	2009	2010	2011	2012
Apex				$5,607	$4,935
Average	$1,665	$1,787	$1,854	$2,110	$2,333

Cost per Lane Mile for Preservation Treatment



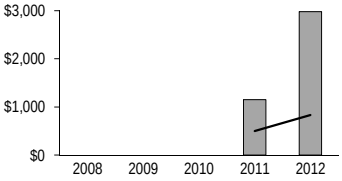
	2008	2009	2010	2011	2012
Apex					
Average				$87	$82

Cost per Lane Mile for Resurfacing Treatment



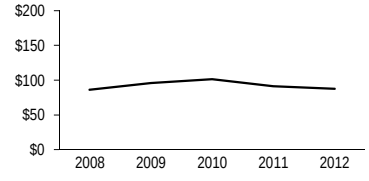
	2008	2009	2010	2011	2012
Apex					
Average				$1,133	$726

Cost per Lane Mile for Rehabilitation Treatment



	2008	2009	2010	2011	2012
Apex				$1,150	$2,981
Average				$501	$836

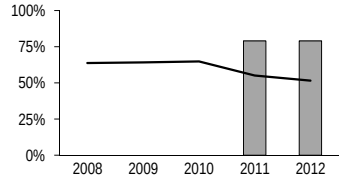
Cost per Ton for Contract Resurfacing



	2008	2009	2010	2011	2012
Apex					
Average	$86	$96	$102	$91	$88

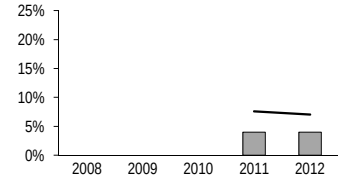
Effectiveness Measures

Percent of Lane Miles Rated 85 or Better



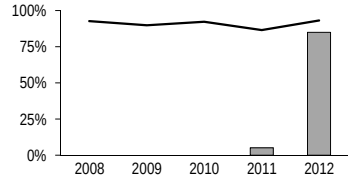
	2008	2009	2010	2011	2012
Apex				79%	79%
Average	64%	64%	65%	55%	52%

Percent of Lane Miles Rated Below 45



	2008	2009	2010	2011	2012
Apex				4.0%	4.0%
Average				7.6%	7.0%

Percentage of Potholes Repaired within 24 hours



	2008	2009	2010	2011	2012
Apex				5%	85%
Average	93%	90%	92%	87%	93%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The City of Asheville was responsible for maintaining 712 lane miles during FY 2011–12. The city treated 8.3 lane miles during the year, equating to approximately 1.2 percent of total lane miles.

Most of the repair work done was resurfacing. All of the work completed was done by city crews. A total of 10,477 tons of asphalt was used, with an average depth laid of 2.5 inches.

The city reported that 2.7 percent of its lane miles were rated 85 or above on its most recent street pavement condition rating. This rating was done by in-house staff using ITRE in 2009.

The number of potholes reported for FY 2011–12 was 2,732. The percentage of potholes repaired within twenty-four hours was approximately 99 percent.

The city has a permitting system for any utility cuts that must be made either by city or contractor crews. A total of 986 utility cuts were repaired during the year.

Conditions Affecting Service, Performance, and Costs
Due to the somewhat harsher mountain weather in Asheville compared to the other benchmarking partners, problems with pavement, such as potholes, tend to be more common. there

Beginning with the FY 2010–11 reporting year, new performance measures were added to this service area. These include "cost per lane mile for preservation treatment," "cost per lane mile for resurfacing treatment," "cost per lane mile for rehabilitation treatment," and "percent of lane miles rated below 45." In addition, the measure "cost of maintenance per lane mile maintained" has been altered to back out some treatment costs that were formerly counted as maintenance. This means that for some jurisdictions, the "cost of maintenance per lane mile maintained" has dropped in FY 2010–11 due to changes in the definition rather than actual drops in maintenance.

The large number of construction utility cuts reduced the amount of preventive maintenance work that the street crews were able to manage during the year.

Municipal Profile

Population (OSBM 2011)	85,646
Land Area (Square Miles)	45.40
Persons per Square Mile	1,886
Topography	Hill, Mountains
Climate	Moderate; ice and snow

Service Profile

FTE Positions—Crews	21.00
FTE Positions—Other	2.10
Lane Miles Maintained	711.6
Lane Miles Treated	
Preservation	1.0
Resurfacing	5.4
Rehabilitation	1.9
TOTAL	8.3
Total Costs for All Treatment Types	NA
Potholes Repaired	2,732
Number of Utility Cuts	966
Number of Maintenance Patches (exclusive of potholes and utility cuts)	NA
Registered Vehicles	65,419
Registered Vehicles/Square Mile	1,441
Average Cost per Ton of Hot Asphalt during Year	$90.50

Full Cost Profile

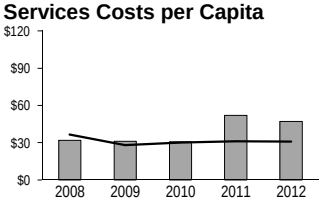
Cost Breakdown by Percentage	
Personal Services	34.1%
Operating Costs	57.0%
Capital Costs	8.9%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,377,565
Operating Costs	$2,305,770
Capital Costs	$361,589
TOTAL	$4,044,924

Asheville — Asphalt Maintenance and Repair

Key: Asheville ■ Benchmarking Average — Fiscal Years 2008 through 2012

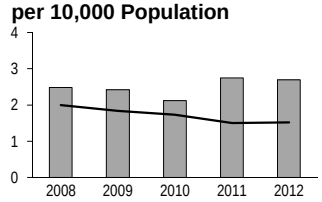
Resource Measures

Asphalt Maintenance and Repair Services Costs per Capita



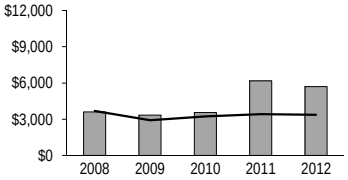
	2008	2009	2010	2011	2012
Asheville	$31.92	$31.14	$30.50	$51.90	$47.23
Average	$36.55	$27.91	$30.16	$31.21	$30.88

Asphalt Maintenance and Repair FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Asheville	2.48	2.42	2.12	2.75	2.70
Average	2.00	1.84	1.73	1.50	1.52

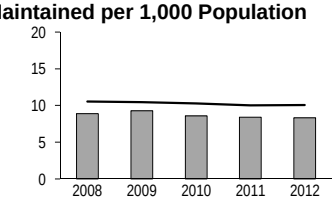
Service Costs per Lane Mile of Road Maintained



	2008	2009	2010	2011	2012
Asheville	$3,600	$3,354	$3,556	$6,183	$5,684
Average	$3,686	$2,911	$3,228	$3,424	$3,383

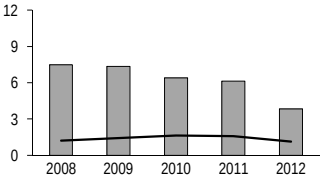
Workload Measures

Number of Lane Miles Maintained per 1,000 Population



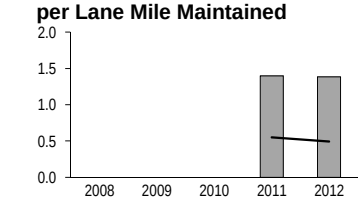
	2008	2009	2010	2011	2012
Asheville	8.9	9.3	8.6	8.4	8.3
Average	10.6	10.5	10.3	10.0	10.1

Reported Potholes per Lane Mile Maintained



	2008	2009	2010	2011	2012
Asheville	7.48	7.36	6.41	6.13	3.84
Average	1.22	1.43	1.63	1.59	1.15

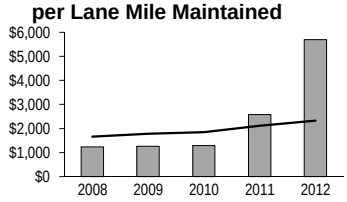
Repaired Utility Cuts per Lane Mile Maintained



	2008	2009	2010	2011	2012
Asheville				1.40	1.39
Average				0.55	0.50

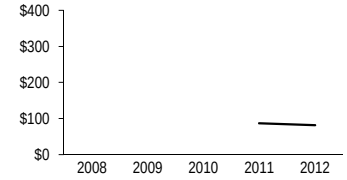
Efficiency Measures

Cost of Maintenance per Lane Mile Maintained



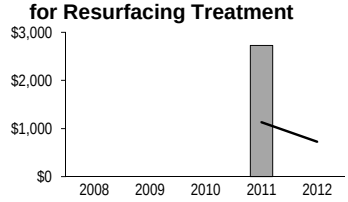
	2008	2009	2010	2011	2012
Asheville	$1,235	$1,268	$1,295	$2,582	$5,684
Average	$1,665	$1,787	$1,854	$2,110	$2,333

Cost per Lane Mile for Preservation Treatment



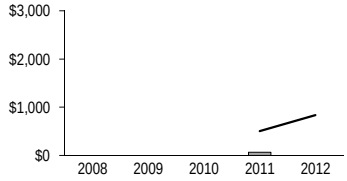
	2008	2009	2010	2011	2012
Asheville					
Average				$87	$82

Cost per Lane Mile for Resurfacing Treatment



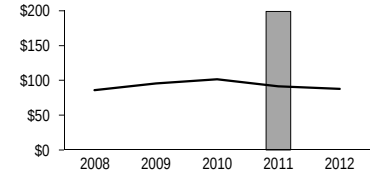
	2008	2009	2010	2011	2012
Asheville				$2,728	
Average				$1,133	$726

Cost per Lane Mile for Rehabilitation Treatment



	2008	2009	2010	2011	2012
Asheville				$62	
Average				$501	$836

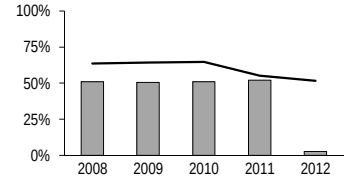
Cost per Ton for Contract Resurfacing



	2008	2009	2010	2011	2012
Asheville				$199	
Average	$86	$96	$102	$91	$88

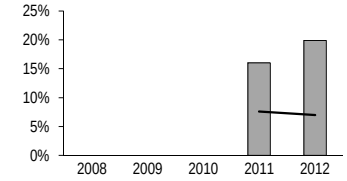
Effectiveness Measures

Percent of Lane Miles Rated 85 or Better



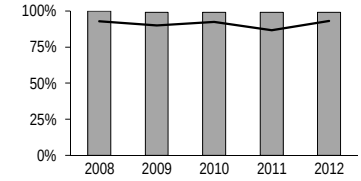
	2008	2009	2010	2011	2012
Asheville	51%	51%	51%	52%	3%
Average	64%	64%	65%	55%	52%

Percent of Lane Miles Rated Below 45



	2008	2009	2010	2011	2012
Asheville				16.0%	19.9%
Average				7.6%	7.0%

Percentage of Potholes Repaired within 24 hours



	2008	2009	2010	2011	2012
Asheville	100%	99%	99%	99%	99%
Average	93%	90%	92%	87%	93%

Burlington Asphalt Maintenance

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

The City of Burlington was responsible for maintaining 533 lane miles during FY 2011–12. The city treated a total of 26.7 lane miles, equating to approximately 5.0 percent of total lane miles.

Of the street work done, 18.6 miles were given preservation treatment such as crack sealing or thin overlays. Resurfacing work was done on 8.1 miles. All of the work involving resurfacing was done by contractors ,who used 5,663 tons of asphalt and laid an average 1.5 inch thickness on repaired pavement. The preservation work was done by contractors and city crews.

The city reported that 73 percent of its street lane miles rated 85 or above on its most recent rating. The most recent study relied on USI-ITRE and was conducted in 2012.

The city reported a total of sixty-three potholes ,with 100 percent of them repaired within twenty-four hours. The city takes a proactive approach and eliminates many potential potholes before they form. The city covers one-sixth of the city each month looking for potential problems. There were 115 utility cuts in roads repaired during the year, with the repairs being done by the city after private utilities got a permit.

Conditions Affecting Service, Performance, and Costs

Beginning with the FY 2010–11 reporting year, new performance measures were added to this service area. These include "cost per lane mile for preservation treatment," "cost per lane mile for resurfacing treatment," "cost per lane mile for rehabilitation treatment," and "percent of lane miles rated below 45." In addition, the measure "cost of maintenance per lane mile maintained" has been altered to back out some treatment costs that were formerly counted as maintenance. This means that for some jurisdictions, the "cost of maintenance per lane mile maintained" has dropped in FY 2010–11 due to changes in the definition rather than actual drops in maintenance.

Municipal Profile

Population (OSBM 2011)	51,263
Land Area (Square Miles)	25.21
Persons per Square Mile	2,034
Topography	Flat; gently rolling
Climate	Temperate; little ice and snow

Service Profile

FTE Positions—Crews	5.00
FTE Positions—Other	1.00
Lane Miles Maintained	533.4
Lane Miles Treated	
Preservation	18.6
Resurfacing	8.1
Rehabilitation	0.0
TOTAL	26.7
Total Costs for All Treatment Types	$627,470
Potholes Repaired	63
Number of Utility Cuts	115
Number of Maintenance Patches (exclusive of potholes and utility cuts)	NA
Registered Vehicles	NA
Registered Vehicles/Square Mile	NA
Average Cost per Ton of Hot Asphalt during Year	$80.10

Full Cost Profile

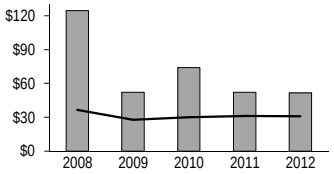
Cost Breakdown by Percentage	
Personal Services	9.9%
Operating Costs	71.5%
Capital Costs	18.6%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$263,449
Operating Costs	$1,895,606
Capital Costs	$493,394
TOTAL	$2,652,449

Burlington — Asphalt Maintenance and Repair

Key: Burlington ■ Benchmarking Average — Fiscal Years 2008 through 2012

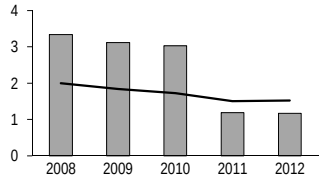
Resource Measures

Asphalt Maintenance and Repair Services Costs per Capita



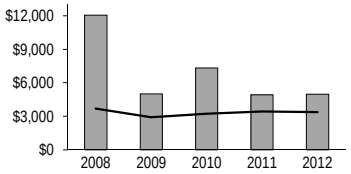
	2008	2009	2010	2011	2012
Burlington	$124.65	$52.22	$74.10	$52.07	$51.74
Average	$36.55	$27.91	$30.16	$31.21	$30.88

Asphalt Maintenance and Repair FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Burlington	3.34	3.12	3.03	1.19	1.17
Average	2.00	1.84	1.73	1.50	1.52

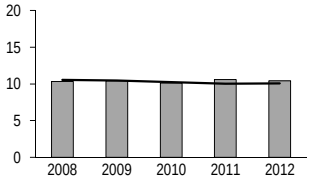
Service Costs per Lane Mile of Road Maintained



	2008	2009	2010	2011	2012
Burlington	$12,045	$5,008	$7,325	$4,922	$4,973
Average	$3,686	$2,911	$3,228	$3,424	$3,383

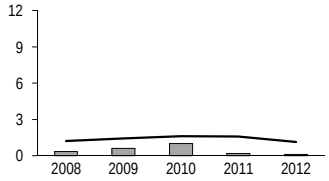
Workload Measures

Number of Lane Miles Maintained per 1,000 Population



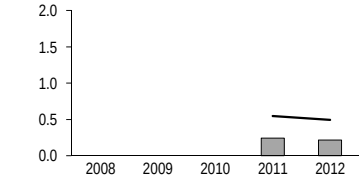
	2008	2009	2010	2011	2012
Burlington	10.4	10.4	10.1	10.6	10.4
Average	10.6	10.5	10.3	10.0	10.1

Reported Potholes per Lane Mile Maintained



	2008	2009	2010	2011	2012
Burlington	0.34	0.63	1.01	0.18	0.12
Average	1.22	1.43	1.63	1.59	1.15

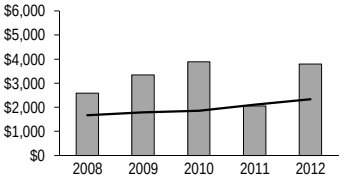
Repaired Utility Cuts per Lane Mile Maintained



	2008	2009	2010	2011	2012
Burlington				0.24	0.22
Average				0.55	0.50

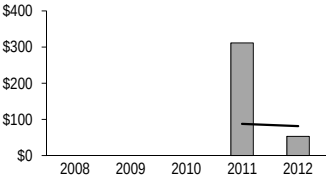
Efficiency Measures

Cost of Maintenance per Lane Mile Maintained



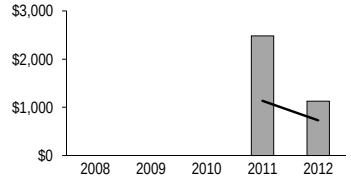
	2008	2009	2010	2011	2012
Burlington	$2,590	$3,338	$3,881	$2,060	$3,796
Average	$1,665	$1,787	$1,854	$2,110	$2,333

Cost per Lane Mile for Preservation Treatment



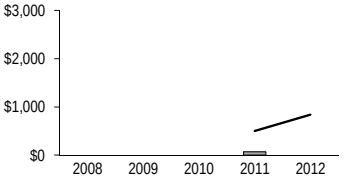
	2008	2009	2010	2011	2012
Burlington				$311	$53
Average				$87	$82

Cost per Lane Mile for Resurfacing Treatment



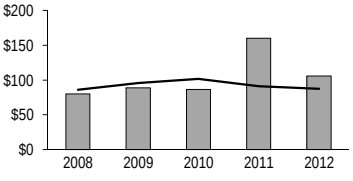
	2008	2009	2010	2011	2012
Burlington				$2,485	$1,124
Average				$1,133	$726

Cost per Lane Mile for Rehabilitation Treatment



	2008	2009	2010	2011	2012
Burlington				$66	
Average				$501	$836

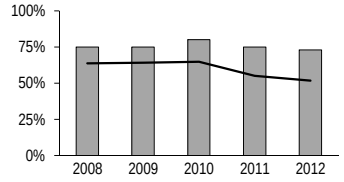
Cost per Ton for Contract Resurfacing



	2008	2009	2010	2011	2012
Burlington	$80	$89	$86	$160	$106
Average	$86	$96	$102	$91	$88

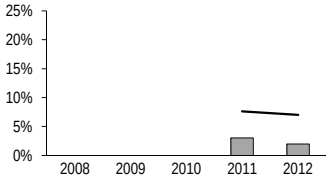
Effectiveness Measures

Percent of Lane Miles Rated 85 or Better



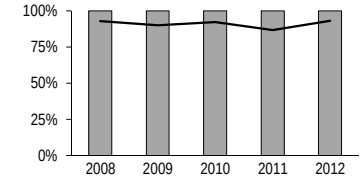
	2008	2009	2010	2011	2012
Burlington	75%	75%	80%	75%	73%
Average	64%	64%	65%	55%	52%

Percent of Lane Miles Rated Below 45



	2008	2009	2010	2011	2012
Burlington				3.0%	2.0%
Average				7.6%	7.0%

Percentage of Potholes Repaired within 24 hours



	2008	2009	2010	2011	2012
Burlington	100%	100%	100%	100%	100%
Average	93%	90%	92%	87%	93%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

The Town of Cary was responsible for maintaining 936 lane miles during FY 2011–12. A total of 11.0 lane miles received some form of repair work, equating to approximately 1.2 percent of total lane miles.

For repair work done, 10.8 lane miles were resurfaced by contract crews and an additional 0.2 lane miles were rehabilitated by contractors with milling followed by resurfacing. A total of 5,631 tons of asphalt was used during the fiscal year by contractors for these resurfacing projects. The average resurfacing depth used was 1.32 inches by contractor crews.

The town reported that 38 percent of its street segments rated 85 or above on its most recent pavement condition rating. The most recent study relied on US Infrastructure of Carolinas using ITRE and was conducted in 2011.

The number of potholes reported for FY 2011–12 was sixty-seven. The percentage of potholes repaired within twenty-four hours was 93 percent.

A total of 204 utility cuts were made and repaired during the year. The town repairs its own cuts within five days. Other planned utility cuts require a permit before breaking pavement.

A total of 117 maintenance patches were also made during the year to fix problems other than utility cuts and potholes.

Conditions Affecting Service, Performance, and Costs

Beginning with the FY 2010–11 reporting year, new performance measures were added to this service area. These include "cost per lane mile for preservation treatment," "cost per lane mile for resurfacing treatment," "cost per lane mile for rehabilitation treatment," and "percent of lane miles rated below 45." In addition, the measure "cost of maintenance per lane mile maintained" has been altered to back out some treatment costs that were formerly counted as maintenance. This means that for some jurisdictions, the "cost of maintenance per lane mile maintained" has dropped in FY 2010–11 due to changes in the definition rather than actual drops in maintenance.

Municipal Profile

Population (OSBM 2011)	139,172
Land Area (Square Miles)	54.56
Persons per Square Mile	2,551
Topography	Flat; gently rolling
Climate	Temperate; little ice and snow

Service Profile

FTE Positions—Crews	12.50
FTE Positions—Other	2.00
Lane Miles Maintained	935.8
Lane Miles Treated	
Preservation	0.0
Resurfacing	10.8
Rehabilitation	0.2
TOTAL	11.0
Total Costs for All Treatment Types	$1,002,500
Potholes Repaired	67
Number of Utility Cuts	204
Number of Maintenance Patches (exclusive of potholes and utility cuts)	117
Registered Vehicles	111,120
Registered Vehicles/Square Mile	2,037
Average Cost per Ton of Hot Asphalt during Year	$81.73

Full Cost Profile

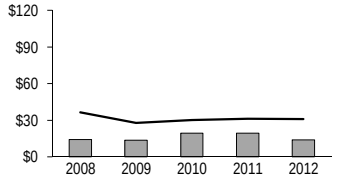
Cost Breakdown by Percentage	
Personal Services	12.7%
Operating Costs	79.9%
Capital Costs	7.4%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$244,960
Operating Costs	$1,537,770
Capital Costs	$143,085
TOTAL	$1,925,815

Cary — Asphalt Maintenance and Repair

Key: Cary ■ Benchmarking Average — Fiscal Years 2008 through 2012

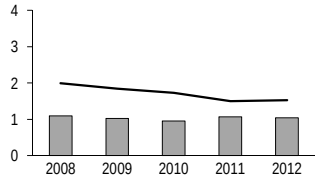
Resource Measures

Asphalt Maintenance and Repair Services Costs per Capita



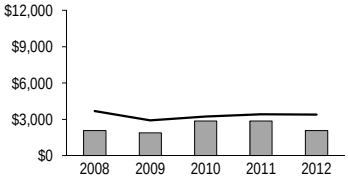
	2008	2009	2010	2011	2012
Cary	$14.31	$13.56	$19.39	$19.46	$13.84
Average	$36.55	$27.91	$30.16	$31.21	$30.88

Asphalt Maintenance and Repair FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Cary	1.09	1.02	0.95	1.06	1.04
Average	2.00	1.84	1.73	1.50	1.52

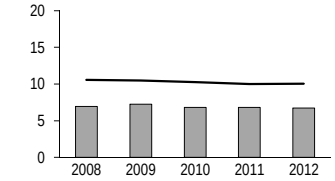
Service Costs per Lane Mile of Road Maintained



	2008	2009	2010	2011	2012
Cary	$2,065	$1,875	$2,848	$2,860	$2,058
Average	$3,686	$2,911	$3,228	$3,424	$3,383

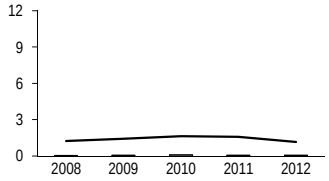
Workload Measures

Number of Lane Miles Maintained per 1,000 Population



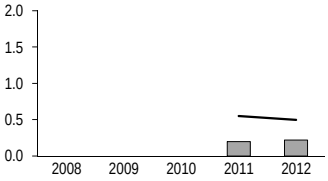
	2008	2009	2010	2011	2012
Cary	6.9	7.2	6.8	6.8	6.7
Average	10.6	10.5	10.3	10.0	10.1

Reported Potholes per Lane Mile Maintained



	2008	2009	2010	2011	2012
Cary	0.06	0.07	0.09	0.07	0.07
Average	1.22	1.43	1.63	1.59	1.15

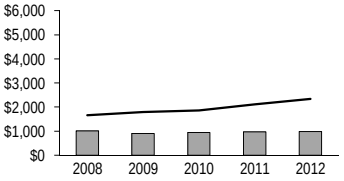
Repaired Utility Cuts per Lane Mile Maintained



	2008	2009	2010	2011	2012
Cary				0.20	0.22
Average				0.55	0.50

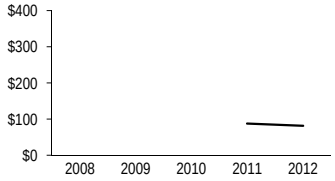
Efficiency Measures

Cost of Maintenance per Lane Mile Maintained



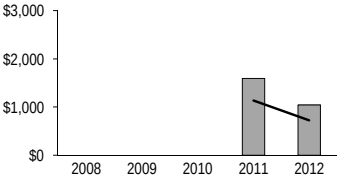
	2008	2009	2010	2011	2012
Cary	$1,013	$897	$947	$967	$987
Average	$1,665	$1,787	$1,854	$2,110	$2,333

Cost per Lane Mile for Preservation Treatment



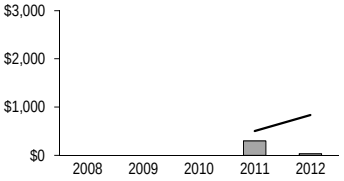
	2008	2009	2010	2011	2012
Cary					
Average				$87	$82

Cost per Lane Mile for Resurfacing Treatment



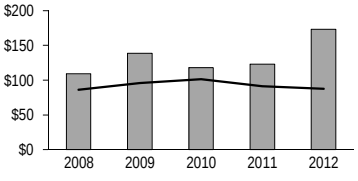
	2008	2009	2010	2011	2012
Cary				$1,596	$1,042
Average				$1,133	$726

Cost per Lane Mile for Rehabilitation Treatment



	2008	2009	2010	2011	2012
Cary				$297	$29
Average				$501	$836

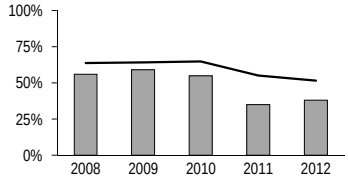
Cost per Ton for Contract Resurfacing



	2008	2009	2010	2011	2012
Cary	$109	$139	$118	$123	$173
Average	$86	$96	$102	$91	$88

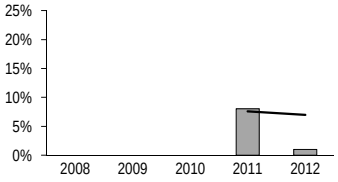
Effectiveness Measures

Percent of Lane Miles Rated 85 or Better



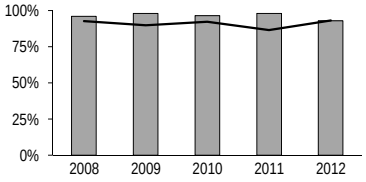
	2008	2009	2010	2011	2012
Cary	56%	59%	55%	35%	38%
Average	64%	64%	65%	55%	52%

Percent of Lane Miles Rated Below 45



	2008	2009	2010	2011	2012
Cary				8.0%	1.0%
Average				7.6%	7.0%

Percentage of Potholes Repaired within 24 hours



	2008	2009	2010	2011	2012
Cary	96%	98%	97%	98%	93%
Average	93%	90%	92%	87%	93%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

The City of Charlotte Street Maintenance Division provides service in the areas of maintenance and repair of street drainage structures; sidewalks; storm debris clean-up; and speciality repair items such as brick walls, decorative pavers, fences, and guardrails. During FY 2011–12, the city was responsible for maintaining 5,245 lane miles and treated 259.8 lane miles, equating to approximately 5.0 percent of total lane miles.

Of the treatement work done during the year, 26.2 lane miles received preservation work, completed by city crews, such as crack sealing or thin overlays. Resurfacing work covered 75.9 lane miles and done by contractors and city crews. Additionally, 157.7 lane miles were rehabilitated by contractors with milling followed by resurfacing. A total of 134,515 tons of asphalt was used during the fiscal year for resurfacing by contractors and city crews. The average resurfacing depth used was 1.14 inches by contractors and one inch by city crews.

The city reported that 65 percent of its lane miles rated 85 or above on its most recent pavement condition rating conducted in the year 2012. The roads were rated using the Hansen Pavement Management system relying on ITRE degradation curves.

The number of potholes reported for FY 2011–12 was 768. The percentage of potholes repaired within twenty-four hours was 90 percent. A total of 3,368 utility cuts were also repaired duirng the year by contractors and the Street Maintenance Division.

Conditions Affecting Service, Performance, and Costs

Beginning with the FY 2010–11 reporting year, new performance measures were added to this service area. These include "cost per lane mile for preservation treatment," "cost per lane mile for resurfacing treatment," "cost per lane mile for rehabilitation treatment," and "percent of lane miles rated below 45." In addition, the measure "cost of maintenance per lane mile maintained" has been altered to back out some treatment costs that were formerly counted as maintenance. This means that for some jurisdictions, the "cost of maintenance per lane mile maintained" has dropped in FY 2010–11 due to changes in the definition rather than actual drops in maintenance.

Municipal Profile

Population (OSBM 2011)	751,999
Land Area (Square Miles)	301.48
Persons per Square Mile	2,494
Topography	Flat; gently rolling
Climate	Temperate; little ice and snow

Service Profile

FTE Positions—Crews	103.00
FTE Positions—Other	18.00
Lane Miles Maintained	5,245.8
Lane Miles Treated	
Preservation	26.2
Resurfacing	75.9
Rehabilitation	157.7
TOTAL	259.8
Total Costs for All Treatment Types	$13,701,293
Potholes Repaired	768
Number of Utility Cuts	3388
Number of Maintenance Patches (exclusive of potholes and utility cuts)	NA
Registered Vehicles	537,535
Registered Vehicles/Square Mile	1,783
Average Cost per Ton of Hot Asphalt during Year	$64.97

Full Cost Profile

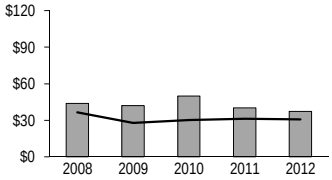
Cost Breakdown by Percentage	
Personal Services	25.6%
Operating Costs	61.0%
Capital Costs	13.4%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$7,201,151
Operating Costs	$17,177,639
Capital Costs	$3,786,927
TOTAL	$28,165,717

Charlotte — Asphalt Maintenance and Repair

Key: Charlotte ■ Benchmarking Average — Fiscal Years 2008 through 2012

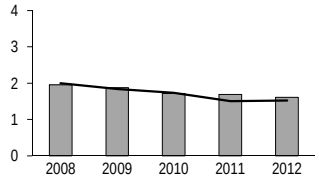
Resource Measures

Asphalt Maintenance and Repair Services Costs per Capita



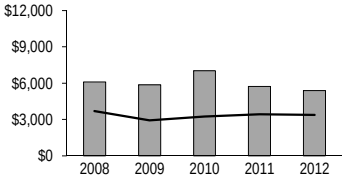
	2008	2009	2010	2011	2012
Charlotte	$44.00	$41.95	$49.95	$40.12	$37.45
Average	$36.55	$27.91	$30.16	$31.21	$30.88

Asphalt Maintenance and Repair FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Charlotte	1.95	1.87	1.71	1.69	1.61
Average	2.00	1.84	1.73	1.50	1.52

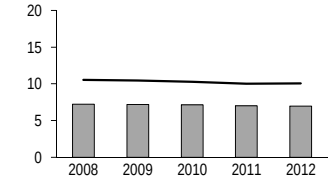
Service Costs per Lane Mile of Road Maintained



	2008	2009	2010	2011	2012
Charlotte	$6,097	$5,848	$7,007	$5,718	$5,369
Average	$3,686	$2,911	$3,228	$3,424	$3,383

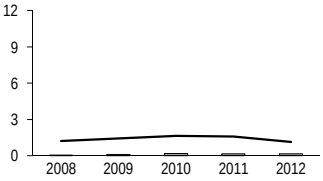
Workload Measures

Number of Lane Miles Maintained per 1,000 Population



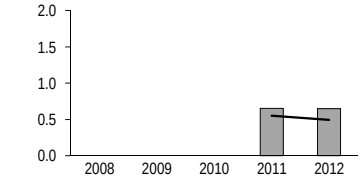
	2008	2009	2010	2011	2012
Charlotte	7.2	7.2	7.1	7.0	7.0
Average	10.6	10.5	10.3	10.0	10.1

Reported Potholes per Lane Mile Maintained



	2008	2009	2010	2011	2012
Charlotte	0.06	0.11	0.17	0.15	0.15
Average	1.22	1.43	1.63	1.59	1.15

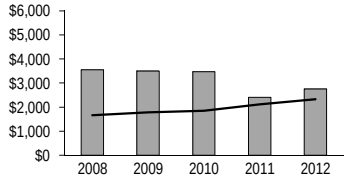
Repaired Utility Cuts per Lane Mile Maintained



	2008	2009	2010	2011	2012
Charlotte				0.65	0.65
Average				0.55	0.50

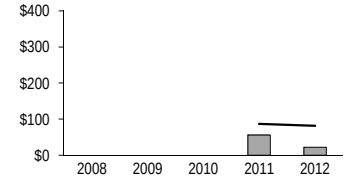
Efficiency Measures

Cost of Maintenance per Lane Mile Maintained



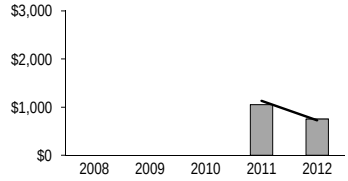
	2008	2009	2010	2011	2012
Charlotte	$3,555	$3,492	$3,477	$2,412	$2,757
Average	$1,665	$1,787	$1,854	$2,110	$2,333

Cost per Lane Mile for Preservation Treatment



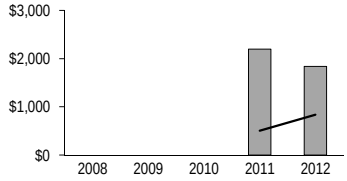
	2008	2009	2010	2011	2012
Charlotte				$56	$23
Average				$87	$82

Cost per Lane Mile for Resurfacing Treatment



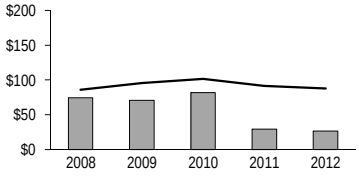
	2008	2009	2010	2011	2012
Charlotte				$1,053	$753
Average				$1,133	$726

Cost per Lane Mile for Rehabilitation Treatment



	2008	2009	2010	2011	2012
Charlotte				$2,197	$1,836
Average				$501	$836

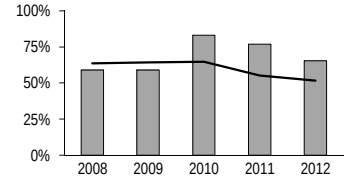
Cost per Ton for Contract Resurfacing



	2008	2009	2010	2011	2012
Charlotte	$74	$71	$82	$29	$26
Average	$86	$96	$102	$91	$88

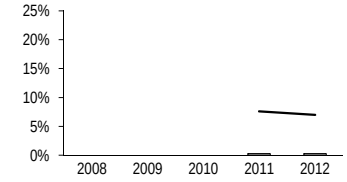
Effectiveness Measures

Percent of Lane Miles Rated 85 or Better



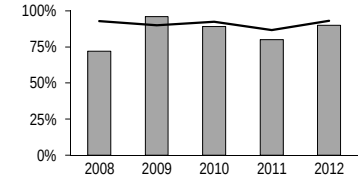
	2008	2009	2010	2011	2012
Charlotte	59%	59%	83%	77%	65%
Average	64%	64%	65%	55%	52%

Percent of Lane Miles Rated Below 45



	2008	2009	2010	2011	2012
Charlotte				0.3%	0.3%
Average				7.6%	7.0%

Percentage of Potholes Repaired within 24 hours



	2008	2009	2010	2011	2012
Charlotte	72%	96%	89%	80%	90%
Average	93%	90%	92%	87%	93%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

The City of Concord was responsible for maintaining 670.3 lane miles during FY 2011–12. The city treated a total of 25.3 lane miles during the year, equating to 3.8 percent of total lane miles.

All of the treatment work, 8.6 lane miles, was for preservation work such as crack sealing and thin surface overlays. Resurfacing was completed on 11.6 lane miles. Additionally, another 5.1 lane miles was treated which included milling work done before resurfacing. All of this treatment work was done by contractors. The resurfacing work done by contract crews used 10,996 tons of asphalt and used an average resurfacing depth of 1.50 inches.

The city reported that 58 percent of its lane miles rated 85 or above on its most recent pavement condition rating conducted in the year 2012 using a city system based on North Carolina Department of Transportation ratings.

The number of potholes reported for FY 2011–12 was seventy-four, including those reported by citizens and the city. The percentage of potholes repaired within twenty-four hours was 96 percent. Concord also reported 253 utility cuts that were repaired and 225 maintenance patches for work other than potholes or utility cuts.

Conditions Affecting Service, Performance, and Costs

The costs associated with asphalt maintenance and resurfacing are influenced by competition among providers due to the location of three asphalt plants within the city limits.

Beginning with the FY 2010–11 reporting year, new performance measures were added to this service area. These include "cost per lane mile for preservation treatment," "cost per lane mile for resurfacing treatment," "cost per lane mile for rehabilitation treatment," and "percent of lane miles rated below 45." In addition, the measure "cost of maintenance per lane mile maintained" has been altered to back out some treatment costs that were formerly counted as maintenance. This means that for some jurisdictions, the "cost of maintenance per lane mile maintained" has dropped in FY 2010–11 due to changes in the definition rather than actual drops in maintenance.

Municipal Profile

Population (OSBM 2011)	80,386
Land Area (Square Miles)	60.28
Persons per Square Mile	1,333
Topography	Flat; gently rolling
Climate	Temperate; little ice and snow

Service Profile

FTE Positions—Crews	7.00
FTE Positions—Other	2.95
Lane Miles Maintained	670.3
Lane Miles Treated	
Preservation	8.6
Resurfacing	11.6
Rehabilitation	5.1
TOTAL	25.3
Total Costs for All Treatment Types	$861,057
Potholes Repaired	74
Number of Utility Cuts	253
Number of Maintenance Patches (exclusive of potholes and utility cuts)	225
Registered Vehicles	60,675
Registered Vehicles/Square Mile	1,007
Average Cost per Ton of Hot Asphalt during Year	$62.50

Full Cost Profile

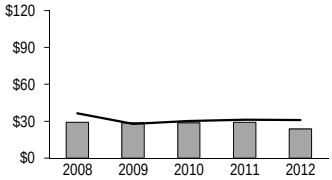
Cost Breakdown by Percentage	
Personal Services	30.8%
Operating Costs	62.2%
Capital Costs	7.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$588,423
Operating Costs	$1,186,725
Capital Costs	$132,618
TOTAL	$1,907,766

Concord — Asphalt Maintenance and Repair

Key: Concord ■ Benchmarking Average — Fiscal Years 2008 through 2012

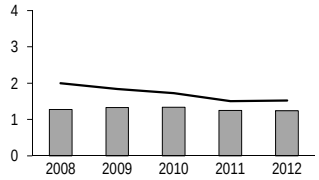
Resource Measures

Asphalt Maintenance and Repair Services Costs per Capita



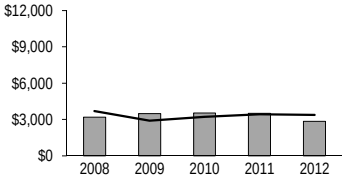
	2008	2009	2010	2011	2012
Concord	$29.19	$28.74	$28.63	$29.26	$23.73
Average	$36.55	$27.91	$30.16	$31.21	$30.88

Asphalt Maintenance and Repair FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Concord	1.28	1.33	1.34	1.25	1.24
Average	2.00	1.84	1.73	1.50	1.52

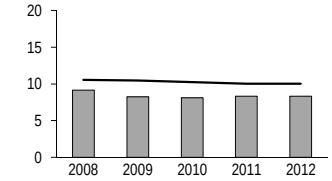
Service Costs per Lane Mile of Road Maintained



	2008	2009	2010	2011	2012
Concord	$3,188	$3,478	$3,529	$3,511	$2,846
Average	$3,686	$2,911	$3,228	$3,424	$3,383

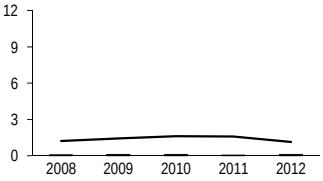
Workload Measures

Number of Lane Miles Maintained per 1,000 Population



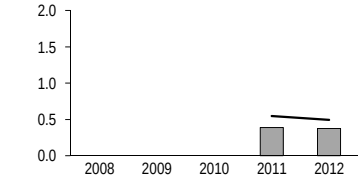
	2008	2009	2010	2011	2012
Concord	9.2	8.3	8.1	8.3	8.3
Average	10.6	10.5	10.3	10.0	10.1

Reported Potholes per Lane Mile Maintained



	2008	2009	2010	2011	2012
Concord	0.09	0.12	0.11	0.06	0.11
Average	1.22	1.43	1.63	1.59	1.15

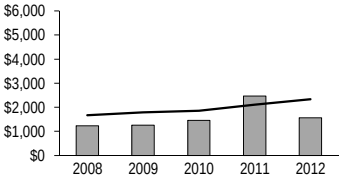
Repaired Utility Cuts per Lane Mile Maintained



	2008	2009	2010	2011	2012
Concord				0.39	0.38
Average				0.55	0.50

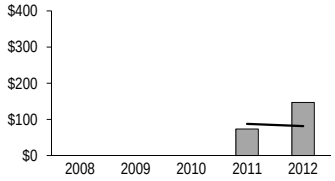
Efficiency Measures

Cost of Maintenance per Lane Mile Maintained



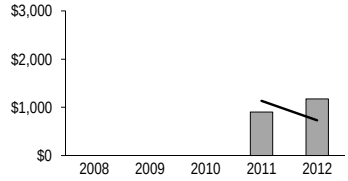
	2008	2009	2010	2011	2012
Concord	$1,226	$1,259	$1,453	$2,462	$1,562
Average	$1,665	$1,787	$1,854	$2,110	$2,333

Cost per Lane Mile for Preservation Treatment



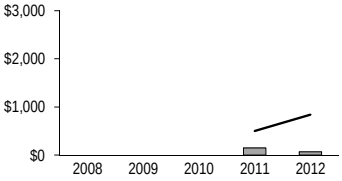
	2008	2009	2010	2011	2012
Concord				$73	$147
Average				$87	$82

Cost per Lane Mile for Resurfacing Treatment



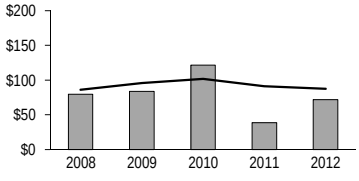
	2008	2009	2010	2011	2012
Concord				$898	$1,175
Average				$1,133	$726

Cost per Lane Mile for Rehabilitation Treatment



	2008	2009	2010	2011	2012
Concord				$151	$65
Average				$501	$836

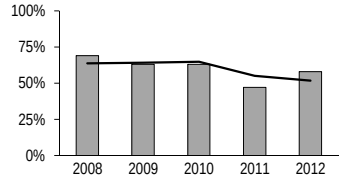
Cost per Ton for Contract Resurfacing



	2008	2009	2010	2011	2012
Concord	$80	$84	$122	$39	$72
Average	$86	$96	$102	$91	$88

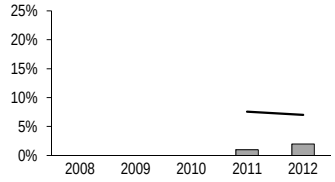
Effectiveness Measures

Percent of Lane Miles Rated 85 or Better



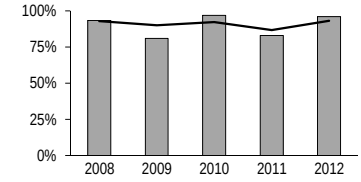
	2008	2009	2010	2011	2012
Concord	69%	63%	63%	47%	58%
Average	64%	64%	65%	55%	52%

Percent of Lane Miles Rated Below 45



	2008	2009	2010	2011	2012
Concord				1.0%	2.0%
Average				7.6%	7.0%

Percentage of Potholes Repaired within 24 hours



	2008	2009	2010	2011	2012
Concord	93%	81%	97%	83%	96%
Average	93%	90%	92%	87%	93%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The City of Greensboro was responsible for maintaining 3,630 lane miles during FY 2011–12. This includes 925 lane miles of state roads. Greensboro treated a total of 82.7 lane miles during the year, equating to about 2.3 percent of total lane miles.

Of the treatment work done on Greensboro's streets, 41.5 of the lane miles had preservation work such as crack sealing or thin overlays. Most of this preservation work was done by city crews. Resurfacing work was done on 41.2 lane miles w ith 1.5 of this work also including milling before resurfacing This resurfacing work was all done by contractors, who used a total of 27,300 tons of asphalt and used an average resurfacing depth of 1.25 inches.

The city reported that 33 percent of its lane miles rated 85 or above on its most recent pavement condition rating conducted in the year 2010 by a consultant using the ITRE system.

The number of potholes reported for FY 2011–12 was 1,937. The percentage of potholes repaired within twenty-four hours was 70 percent. A total of 494 utility cuts were also repaired, with city crews repairing water and sewer cuts but private contractors repairing others after getting permits from the city. A further 125 maintenance patches were completed beyond potholes and utility cuts.

Conditions Affecting Service, Performance, and Costs
Changes in tracking software have improved the accuracy of potholes reported and asphalt used.

Beginning with the FY 2010–11 reporting year, new performance measures were added to this service area. These include "cost per lane mile for preservation treatment," "cost per lane mile for resurfacing treatment," "cost per lane mile for rehabilitation treatment," and "percent of lane miles rated below 45." In addition, the measure "cost of maintenance per lane mile maintained" has been altered to back out some treatment costs that were formerly counted as maintenance. This means that for some jurisdictions, the "cost of maintenance per lane mile maintained" has dropped in FY 2010–11 due to changes in the definition rather than actual drops in maintenance.

Municipal Profile

Population (OSBM 2011)	272,196
Land Area (Square Miles)	127.14
Persons per Square Mile	2,141
Topography	Flat; gently rolling
Climate	Temperate; little ice and snow

Service Profile

FTE Positions—Crews	45.00
FTE Positions—Other	6.00
Lane Miles Maintained	3,630.0
Lane Miles Treated	
Preservation	41.5
Resurfacing	39.7
Rehabilitation	1.5
TOTAL	82.7
Total Costs for All Treatment Types	$4,363,000
Potholes Repaired	1,937
Number of Utility Cuts	494
Number of Maintenance Patches (exclusive of potholes and utility cuts)	125
Registered Vehicles	NA
Registered Vehicles/Square Mile	NA
Average Cost per Ton of Hot Asphalt during Year	$70.00

Full Cost Profile

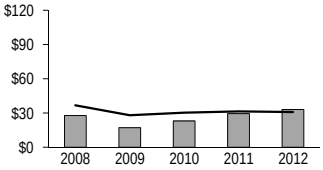
Cost Breakdown by Percentage	
Personal Services	21.8%
Operating Costs	78.2%
Capital Costs	0.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,964,984
Operating Costs	$7,043,303
Capital Costs	$0
TOTAL	$9,008,287

Greensboro — Asphalt Maintenance and Repair

Key: Greensboro ■ Benchmarking Average — Fiscal Years 2008 through 2012

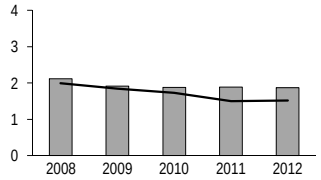
Resource Measures

Asphalt Maintenance and Repair Services Costs per Capita



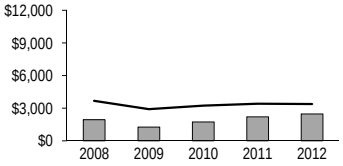
	2008	2009	2010	2011	2012
Greensboro	$27.60	$17.07	$22.90	$29.43	$33.09
Average	$36.55	$27.91	$30.16	$31.21	$30.88

Asphalt Maintenance and Repair FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Greensboro	2.12	1.91	1.88	1.89	1.87
Average	2.00	1.84	1.73	1.50	1.52

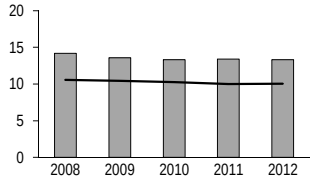
Service Costs per Lane Mile of Road Maintained



	2008	2009	2010	2011	2012
Greensboro	$1,948	$1,259	$1,719	$2,193	$2,482
Average	$3,686	$2,911	$3,228	$3,424	$3,383

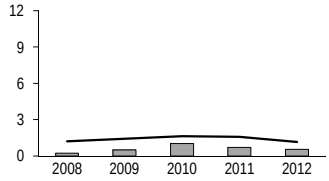
Workload Measures

Number of Lane Miles Maintained per 1,000 Population



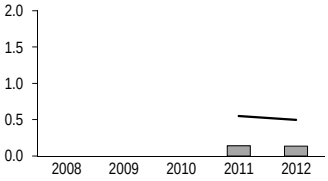
	2008	2009	2010	2011	2012
Greensboro	14.2	13.6	13.3	13.4	13.3
Average	10.6	10.5	10.3	10.0	10.1

Reported Potholes per Lane Mile Maintained



	2008	2009	2010	2011	2012
Greensboro	0.23	0.50	1.02	0.69	0.53
Average	1.22	1.43	1.63	1.59	1.15

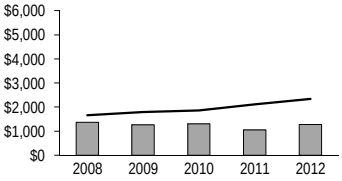
Repaired Utility Cuts per Lane Mile Maintained



	2008	2009	2010	2011	2012
Greensboro				0.14	0.14
Average				0.55	0.50

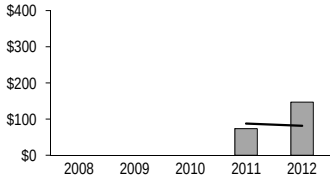
Efficiency Measures

Cost of Maintenance per Lane Mile Maintained



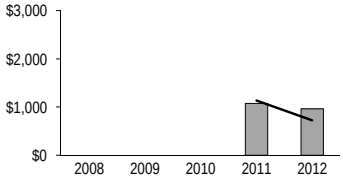
	2008	2009	2010	2011	2012
Greensboro	$1,365	$1,259	$1,305	$1,044	$1,280
Average	$1,665	$1,787	$1,854	$2,110	$2,333

Cost per Lane Mile for Preservation Treatment



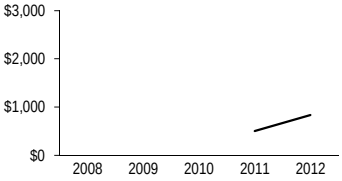
	2008	2009	2010	2011	2012
Greensboro				$73	$147
Average				$87	$82

Cost per Lane Mile for Resurfacing Treatment



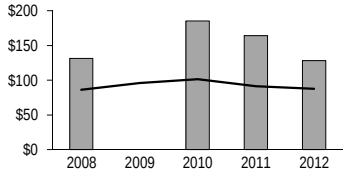
	2008	2009	2010	2011	2012
Greensboro				$1,076	$964
Average				$1,133	$726

Cost per Lane Mile for Rehabilitation Treatment



	2008	2009	2010	2011	2012
Greensboro					
Average				$501	$836

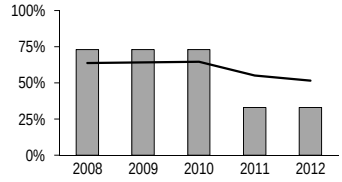
Cost per Ton for Contract Resurfacing



	2008	2009	2010	2011	2012
Greensboro	$131		$185	$164	$128
Average	$86	$96	$102	$91	$88

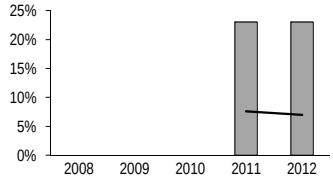
Effectiveness Measures

Percent of Lane Miles Rated 85 or Better



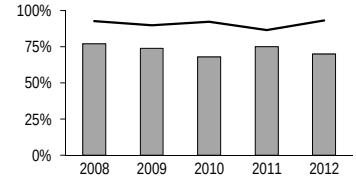
	2008	2009	2010	2011	2012
Greensboro	73%	73%	73%	33%	33%
Average	64%	64%	65%	55%	52%

Percent of Lane Miles Rated Below 45



	2008	2009	2010	2011	2012
Greensboro				23.0%	23.0%
Average				7.6%	7.0%

Percentage of Potholes Repaired within 24 hours



	2008	2009	2010	2011	2012
Greensboro	77%	74%	68%	75%	70%
Average	93%	90%	92%	87%	93%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The City of Greenville was responsible for maintaining 611 lane miles during FY 2011–12, all city streets. During the year, Greenville reported that 13.6 lane miles were given some form of treatment, equating to 2.2 percent of total lane miles.

City crews treated 7.3 lane miles with preservation techniques such as crack sealing and thin layer overlays. Contract crews used rehabilitation on 6.3 lane miles, which includes resurfacing after first milling the treated roads. The contractors used a total of 3,170 tons of asphalt with an average depth of 1.5 inches.

The number of potholes reported for FY 2011–12 was 389, including self-reported and citizen-reported potholes. The percentage of potholes repaired within twenty-four hours was reported as 100 percent. The streets division also repaired 318 utility cuts during the year. Finally, city crews also made sixty-six maintenance patches beyond potholes and utility cuts using a total of 939 tons of asphalt.

Conditions Affecting Service, Performance, and Costs
Greenville joined the project in 2009, with the first year of reporting being for FY 2008–09.

Greenville was not able to provide pavement condition ratings for FY 2010–11.

Beginning with the FY 2010–11 reporting year, new performance measures were added to this service area. These include "cost per lane mile for preservation treatment," "cost per lane mile for resurfacing treatment," "cost per lane mile for rehabilitation treatment," and "percent of lane miles rated below 45." In addition, the measure "cost of maintenance per lane mile maintained" has been altered to back out some treatment costs that were formerly counted as maintenance. This means that for some jurisdictions, the "cost of maintenance per lane mile maintained" has dropped in FY 2010–11 due to changes in the definition rather than actual drops in maintenance.

Municipal Profile

Population (OSBM 2011)	85,059
Land Area (Square Miles)	34.70
Persons per Square Mile	2,451
Topography	Flat
Climate	Temperate; little ice and snow

Service Profile

FTE Positions—Crews	9.00
FTE Positions—Other	1.00
Lane Miles Maintained	611.0
Lane Miles Treated	
Preservation	7.3
Resurfacing	0.0
Rehabilitation	6.3
TOTAL	13.6
Total Costs for All Treatment Types	$468,132
Potholes Repaired	389
Number of Utility Cuts	318
Number of Maintenance Patches (exclusive of potholes and utility cuts)	66
Registered Vehicles	53,289
Registered Vehicles/Square Mile	1,536
Average Cost per Ton of Hot Asphalt during Year	$82.00

Full Cost Profile

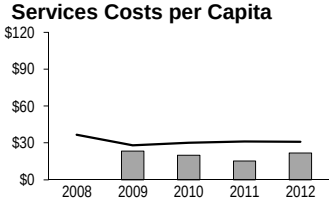
Cost Breakdown by Percentage	
Personal Services	31.7%
Operating Costs	31.9%
Capital Costs	36.4%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$589,159
Operating Costs	$592,984
Capital Costs	$676,495
TOTAL	$1,858,638

Greenville — Asphalt Maintenance and Repair

Key: Greenville ■ Benchmarking Average — Fiscal Years 2008 through 2012

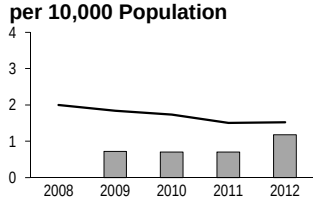
Resource Measures

Asphalt Maintenance and Repair Services Costs per Capita



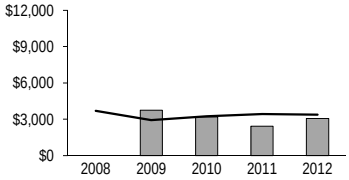
	2008	2009	2010	2011	2012
Greenville		$23.38	$19.85	$15.30	$21.85
Average	$36.55	$27.91	$30.16	$31.21	$30.88

Asphalt Maintenance and Repair FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Greenville		0.72	0.70	0.70	1.18
Average	2.00	1.84	1.73	1.50	1.52

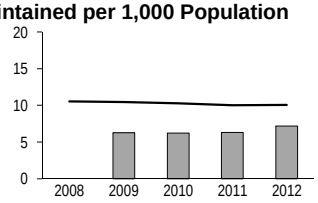
Service Costs per Lane Mile of Road Maintained



	2008	2009	2010	2011	2012
Greenville		$3,731	$3,179	$2,431	$3,042
Average	$3,686	$2,911	$3,228	$3,424	$3,383

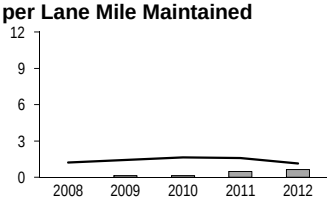
Workload Measures

Number of Lane Miles Maintained per 1,000 Population



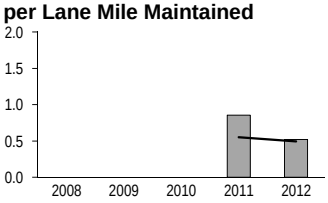
	2008	2009	2010	2011	2012
Greenville		6.3	6.2	6.3	7.2
Average	10.6	10.5	10.3	10.0	10.1

Reported Potholes per Lane Mile Maintained



	2008	2009	2010	2011	2012
Greenville		0.14	0.14	0.47	0.64
Average	1.22	1.43	1.63	1.59	1.15

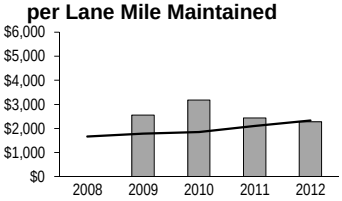
Repaired Utility Cuts per Lane Mile Maintained



	2008	2009	2010	2011	2012
Greenville				0.86	0.52
Average				0.55	0.50

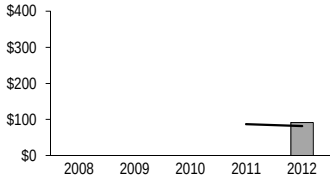
Efficiency Measures

Cost of Maintenance per Lane Mile Maintained



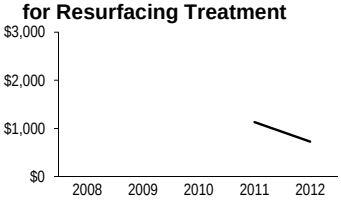
	2008	2009	2010	2011	2012
Greenville		$2,551	$3,179	$2,431	$2,276
Average	$1,665	$1,787	$1,854	$2,110	$2,333

Cost per Lane Mile for Preservation Treatment



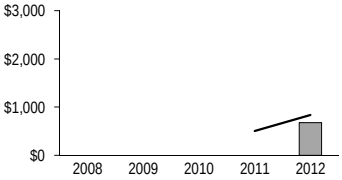
	2008	2009	2010	2011	2012
Greenville					$91
Average				$87	$82

Cost per Lane Mile for Resurfacing Treatment



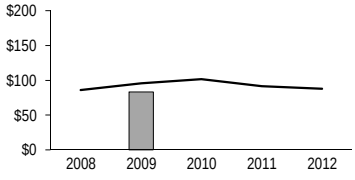
	2008	2009	2010	2011	2012
Greenville					
Average				$1,133	$726

Cost per Lane Mile for Rehabilitation Treatment



	2008	2009	2010	2011	2012
Greenville					$675
Average				$501	$836

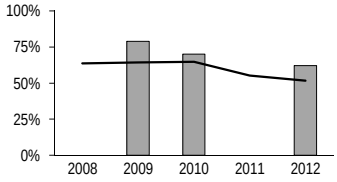
Cost per Ton for Contract Resurfacing



	2008	2009	2010	2011	2012
Greenville		$83			
Average	$86	$96	$102	$91	$88

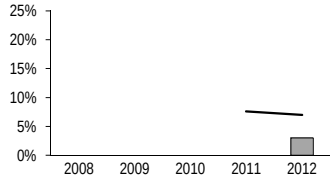
Effectiveness Measures

Percent of Lane Miles Rated 85 or Better



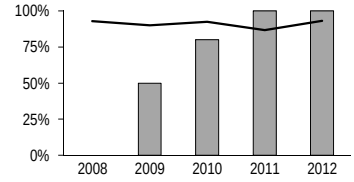
	2008	2009	2010	2011	2012
Greenville		79%	70%		62%
Average	64%	64%	65%	55%	52%

Percent of Lane Miles Rated Below 45



	2008	2009	2010	2011	2012
Greenville					3.0%
Average				7.6%	7.0%

Percentage of Potholes Repaired within 24 hours



	2008	2009	2010	2011	2012
Greenville		50%	80%	100%	100%
Average	93%	90%	92%	87%	93%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

The City of Hickory was responsible for maintaining 719.2 lane miles during FY 2011–12, including 238.8 lane miles of state roads. The city treated a total of ten lane miles with resurfacing, equating to 1.4 percent of total lane miles.

The city resurfaced 10.0 lane miles using contractors. A total of 5,506 tons of asphalt was used by the contractors. The average resurfacing depth used by the city was 1.5 inches.

The city reported that 39 percent of its lane miles rated 85 or above on its most recent pavement condition rating conducted in the year 2007. The city used ITRE to conduct its rating system.

The number of potholes reported for FY 2011–12 was 197, including self-reported and citizen-reported potholes. The percentage of potholes repaired within twenty-four hours was 94 percent.

Conditions Affecting Service, Performance, and Costs

Beginning with the FY 2010–11 reporting year, new performance measures were added to this service area. These include "cost per lane mile for preservation treatment," "cost per lane mile for resurfacing treatment," "cost per lane mile for rehabilitation treatment," and "percent of lane miles rated below 45." In addition, the measure "cost of maintenance per lane mile maintained" has been altered to back out some treatment costs that were formerly counted as maintenance. This means that for some jurisdictions, the "cost of maintenance per lane mile maintained" has dropped in FY 2010–11 due to changes in the definition rather than actual drops in maintenance.

During FY 2011–2012, there were no snow events but a rainy winter led to an above average number of potholes and a smaller amount of crack sealing.

Municipal Profile

Population (OSBM 2011)	40,086
Land Area (Square Miles)	29.72
Persons per Square Mile	1,349
Topography	Gently rolling
Climate	Temperate; some ice and snow

Service Profile

FTE Positions—Crews	6.00
FTE Positions—Other	1.00
Lane Miles Maintained	719.2
Lane Miles Treated	
Preservation	0.0
Resurfacing	10.0
Rehabilitation	0.0
TOTAL	10.0
Total Costs for All Treatment Types	$457,000
Potholes Repaired	197
Number of Utility Cuts	NA
Number of Maintenance Patches (exclusive of potholes and utility cuts)	NA
Registered Vehicles	31,472
Registered Vehicles/Square Mile	1,059
Average Cost per Ton of Hot Asphalt during Year	$83.00

Full Cost Profile

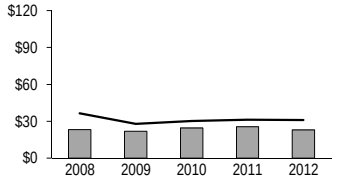
Cost Breakdown by Percentage	
Personal Services	31.2%
Operating Costs	65.9%
Capital Costs	2.9%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$287,208
Operating Costs	$605,899
Capital Costs	$26,467
TOTAL	$919,574

Hickory — Asphalt Maintenance and Repair

Key: Hickory ■ Benchmarking Average — Fiscal Years 2008 through 2012

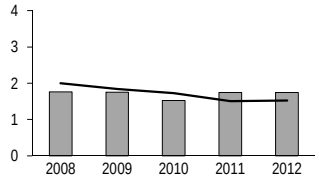
Resource Measures

Asphalt Maintenance and Repair Services Costs per Capita



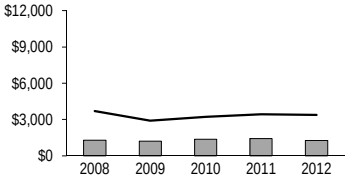
	2008	2009	2010	2011	2012
Hickory	$23.13	$21.84	$24.58	$25.44	$22.94
Average	$36.55	$27.91	$30.16	$31.21	$30.88

Asphalt Maintenance and Repair FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Hickory	1.76	1.75	1.52	1.75	1.75
Average	2.00	1.84	1.73	1.50	1.52

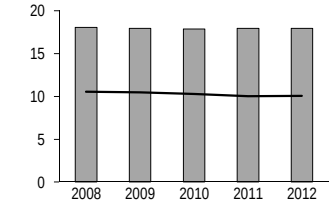
Service Costs per Lane Mile of Road Maintained



	2008	2009	2010	2011	2012
Hickory	$1,280	$1,217	$1,375	$1,418	$1,279
Average	$3,686	$2,911	$3,228	$3,424	$3,383

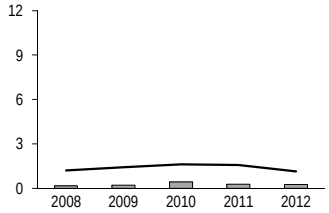
Workload Measures

Number of Lane Miles Maintained per 1,000 Population



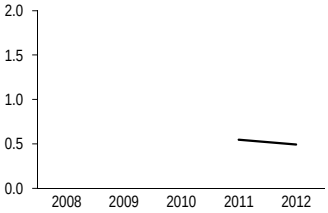
	2008	2009	2010	2011	2012
Hickory	18.1	17.9	17.9	17.9	17.9
Average	10.6	10.5	10.3	10.0	10.1

Reported Potholes per Lane Mile Maintained



	2008	2009	2010	2011	2012
Hickory	0.19	0.23	0.44	0.29	0.27
Average	1.22	1.43	1.63	1.59	1.15

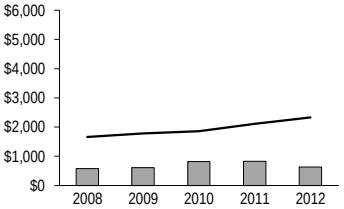
Repaired Utility Cuts per Lane Mile Maintained



	2008	2009	2010	2011	2012
Hickory					
Average				0.55	0.50

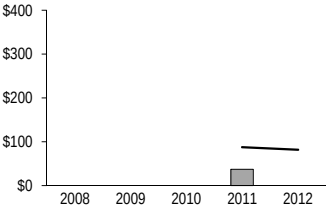
Efficiency Measures

Cost of Maintenance per Lane Mile Maintained



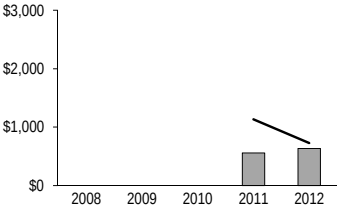
	2008	2009	2010	2011	2012
Hickory	$575	$610	$819	$824	$629
Average	$1,665	$1,787	$1,854	$2,110	$2,333

Cost per Lane Mile for Preservation Treatment



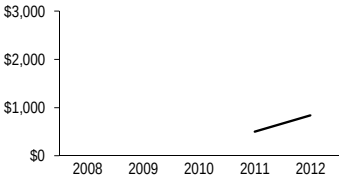
	2008	2009	2010	2011	2012
Hickory				$37	
Average				$87	$82

Cost per Lane Mile for Resurfacing Treatment



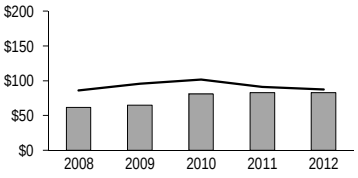
	2008	2009	2010	2011	2012
Hickory				$556	$635
Average				$1,133	$726

Cost per Lane Mile for Rehabilitation Treatment



	2008	2009	2010	2011	2012
Hickory					
Average				$501	$836

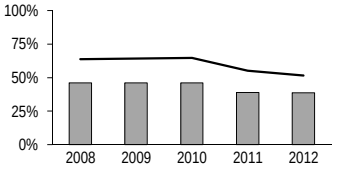
Cost per Ton for Contract Resurfacing



	2008	2009	2010	2011	2012
Hickory	$62	$65	$81	$83	$83
Average	$86	$96	$102	$91	$88

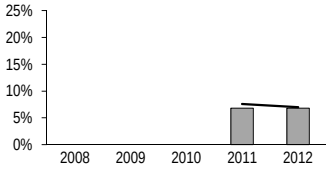
Effectiveness Measures

Percent of Lane Miles Rated 85 or Better



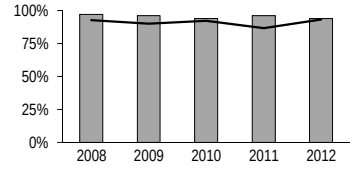
	2008	2009	2010	2011	2012
Hickory	46%	46%	46%	39%	39%
Average	64%	64%	65%	55%	52%

Percent of Lane Miles Rated Below 45



	2008	2009	2010	2011	2012
Hickory				6.8%	6.8%
Average				7.6%	7.0%

Percentage of Potholes Repaired within 24 hours



	2008	2009	2010	2011	2012
Hickory	97%	96%	94%	96%	94%
Average	93%	90%	92%	87%	93%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The City of High Point was responsible for maintaining 1,476 lane miles during FY 2011–12, which includes 340 lane miles of state roads. The city treated 11.1 lane miles by various methods, equating to 0.8 percent of total lane miles.

The city resurfaced a total of 6.4 lane miles using city crews. Additionally, 4.7 lane miles were given rehabilitation by city crews and contractors ,which includes resurfacing preceded by milling work. A total of 3,530 tons of asphalt was used for resurfacing projects. The average resurfacing depth was 1.5 inches by city crews.

The city reported that 44 percent of its street segments rated 85 or above on its most recent pavement condition rating conducted in the year 2011. The rating was done by a consultant using the ITRE rating system.

The number of potholes reported for FY 2011–12 was 1,411, including self-reported and citizen-reported potholes. The percentage of potholes repaired within twenty-four hours was 97 percent.

A total of forty-eight utility cuts were made in the streets during the year. The Water and Sewer Division tracks these cuts. For most of the year outside contractors were paid to repair utility cuts, but in May 2012 the Streets Division took over this responsibility. No permits are required.

Conditions Affecting Service, Performance, and Costs
Beginning with the FY 2010–11 reporting year, new performance measures were added to this service area. These include "cost per lane mile for preservation treatment," "cost per lane mile for resurfacing treatment," "cost per lane mile for rehabilitation treatment," and "percent of lane miles rated below 45." In addition, the measure "cost of maintenance per lane mile maintained" has been altered to back out some treatment costs that were formerly counted as maintenance. This means that for some jurisdictions, the "cost of maintenance per lane mile maintained" has dropped in FY 2010–11 due to changes in the definition rather than actual drops in maintenance.

Municipal Profile

Population (OSBM 2011)	105,498
Land Area (Square Miles)	53.83
Persons per Square Mile	1,960
Topography	Flat; gently rolling
Climate	Temperate; little ice and snow

Service Profile

FTE Positions—Crews	14.00
FTE Positions—Other	1.25
Lane Miles Maintained	1,476.0
Lane Miles Treated	
Preservation	0.0
Resurfacing	6.4
Rehabilitation	4.7
TOTAL	11.1
Total Costs for All Treatment Types	$1,119,755
Potholes Repaired	1,411
Number of Utility Cuts	48
Number of Maintenance Patches (exclusive of potholes and utility cuts)	32
Registered Vehicles	60,084
Registered Vehicles/Square Mile	1,116
Average Cost per Ton of Hot Asphalt during Year	$69.00

Full Cost Profile

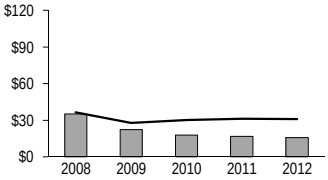
Cost Breakdown by Percentage	
Personal Services	42.6%
Operating Costs	43.0%
Capital Costs	14.4%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$707,364
Operating Costs	$714,098
Capital Costs	$239,623
TOTAL	$1,661,085

High Point — Asphalt Maintenance and Repair

Key: High Point ■ Benchmarking Average — Fiscal Years 2008 through 2012

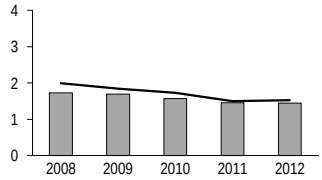
Resource Measures

Asphalt Maintenance and Repair Services Costs per Capita



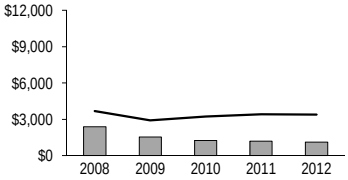
	2008	2009	2010	2011	2012
High Point	$35.04	$22.19	$17.79	$16.80	$15.75
Average	$36.55	$27.91	$30.16	$31.21	$30.88

Asphalt Maintenance and Repair FTEs per 10,000 Population



	2008	2009	2010	2011	2012
High Point	1.73	1.69	1.57	1.46	1.45
Average	2.00	1.84	1.73	1.50	1.52

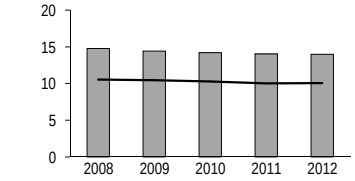
Service Costs per Lane Mile of Road Maintained



	2008	2009	2010	2011	2012
High Point	$2,372	$1,537	$1,253	$1,197	$1,125
Average	$3,686	$2,911	$3,228	$3,424	$3,383

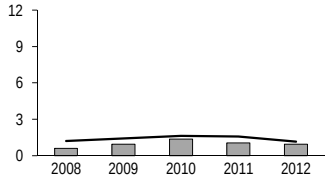
Workload Measures

Number of Lane Miles Maintained per 1,000 Population



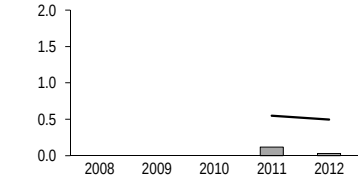
	2008	2009	2010	2011	2012
High Point	14.8	14.4	14.2	14.0	14.0
Average	10.6	10.5	10.3	10.0	10.1

Reported Potholes per Lane Mile Maintained



	2008	2009	2010	2011	2012
High Point	0.62	0.95	1.38	1.04	0.96
Average	1.22	1.43	1.63	1.59	1.15

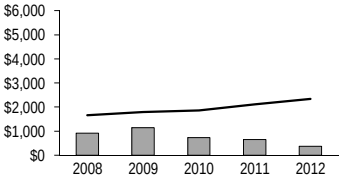
Repaired Utility Cuts per Lane Mile Maintained



	2008	2009	2010	2011	2012
High Point				0.12	0.03
Average				0.55	0.50

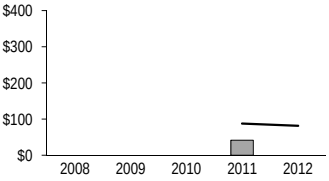
Efficiency Measures

Cost of Maintenance per Lane Mile Maintained



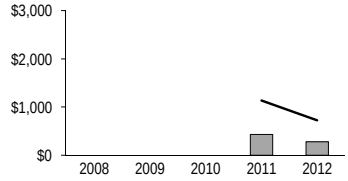
	2008	2009	2010	2011	2012
High Point	$911	$1,140	$729	$650	$367
Average	$1,665	$1,787	$1,854	$2,110	$2,333

Cost per Lane Mile for Preservation Treatment



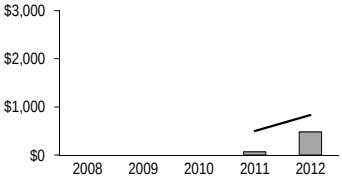
	2008	2009	2010	2011	2012
High Point				$42	
Average				$87	$82

Cost per Lane Mile for Resurfacing Treatment



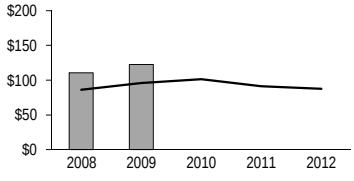
	2008	2009	2010	2011	2012
High Point				$434	$279
Average				$1,133	$726

Cost per Lane Mile for Rehabilitation Treatment



	2008	2009	2010	2011	2012
High Point				$71	$480
Average				$501	$836

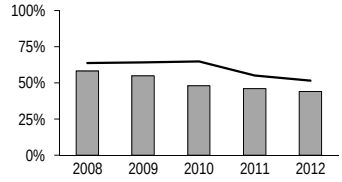
Cost per Ton for Contract Resurfacing



	2008	2009	2010	2011	2012
High Point	$110	$122			
Average	$86	$96	$102	$91	$88

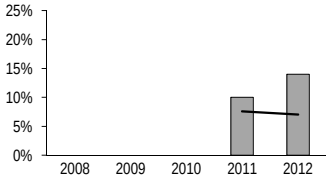
Effectiveness Measures

Percent of Lane Miles Rated 85 or Better



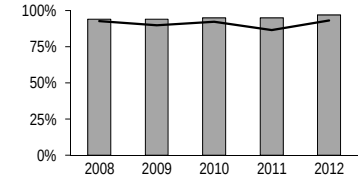
	2008	2009	2010	2011	2012
High Point	58%	55%	48%	46%	44%
Average	64%	64%	65%	55%	52%

Percent of Lane Miles Rated Below 45



	2008	2009	2010	2011	2012
High Point				10.0%	14.0%
Average				7.6%	7.0%

Percentage of Potholes Repaired within 24 hours



	2008	2009	2010	2011	2012
High Point	94%	94%	95%	95%	97%
Average	93%	90%	92%	87%	93%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The City of Salisbury was responsible for maintaining 343.9 lane miles during FY 2011–12. The city treated a total of 2.3 lane miles, or 0.7 percent of total lane miles.

The city lane miles that were treated were rehabilitated which includes resurfacing following milling. This rehabilitation work was done by contractors. The contractors used a total of 1,363 tons of asphalt, and the average resurfacing depth used by the contractor was 1.5 inches.

The city reported that 67 percent of its lane miles rated 85 or above on its most recent pavement condition rating conducted in the year 2010. The city used a consultant for the rating, who relied on the ITRE rating system.

The number of potholes reported for FY 2011–12 was 768. The percentage of potholes repaired within twenty-four hours was 100 percent. A total of 133 utility cuts were also made, with the city repairing all of these. A futher 352 maintenance patches other than potholes or utility cuts were made by city crews.

Conditions Affecting Service, Performance, and Costs
Beginning with the FY 2010–11 reporting year, new performance measures were added to this service area. These include "cost per lane mile for preservation treatment," "cost per lane mile for resurfacing treatment," "cost per lane mile for rehabilitation treatment," and "percent of lane miles rated below 45." In addition, the measure "cost of maintenance per lane mile maintained" has been altered to back out some treatment costs that were formerly counted as maintenance. This means that for some jurisdictions, the "cost of maintenance per lane mile maintained" has dropped in FY 2010–11 due to changes in the definition rather than actual drops in maintenance.

Municipal Profile

Population (OSBM 2011)	33,704
Land Area (Square Miles)	22.18
Persons per Square Mile	1,519
Topography	Flat; gently rolling
Climate	Temperate; little ice and snow

Service Profile

FTE Positions—Crews	3.00
FTE Positions—Other	0.25
Lane Miles Maintained	343.9
Lane Miles Treated	
Preservation	0.0
Resurfacing	0.0
Rehabilitation	2.3
TOTAL	2.3
Total Costs for All Treatment Types	$168,535
Potholes Repaired	768
Number of Utility Cuts	133
Number of Maintenance Patches (exclusive of potholes and utility cuts)	352
Registered Vehicles	21,964
Registered Vehicles/Square Mile	990
Average Cost per Ton of Hot Asphalt during Year	$68.00

Full Cost Profile

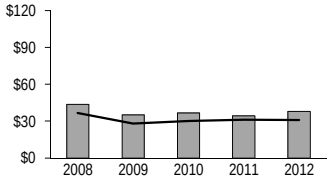
Cost Breakdown by Percentage	
Personal Services	16.6%
Operating Costs	56.2%
Capital Costs	27.1%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$212,766
Operating Costs	$718,939
Capital Costs	$346,480
TOTAL	$1,278,185

Salisbury — Asphalt Maintenance and Repair

Key: Salisbury ■ Benchmarking Average — Fiscal Years 2008 through 2012

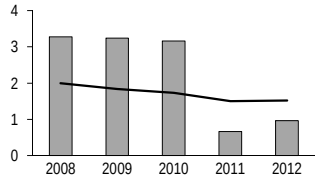
Resource Measures

Asphalt Maintenance and Repair Services Costs per Capita



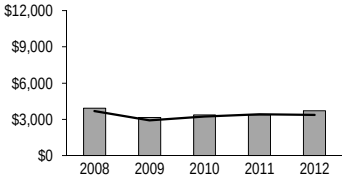
	2008	2009	2010	2011	2012
Salisbury	$43.61	$34.93	$36.72	$34.31	$37.92
Average	$36.55	$27.91	$30.16	$31.21	$30.88

Asphalt Maintenance and Repair FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Salisbury	3.27	3.24	3.16	0.67	0.96
Average	2.00	1.84	1.73	1.50	1.52

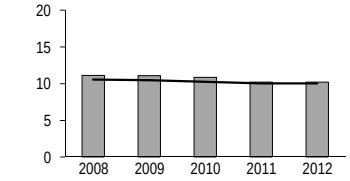
Service Costs per Lane Mile of Road Maintained



	2008	2009	2010	2011	2012
Salisbury	$3,922	$3,154	$3,378	$3,365	$3,717
Average	$3,686	$2,911	$3,228	$3,424	$3,383

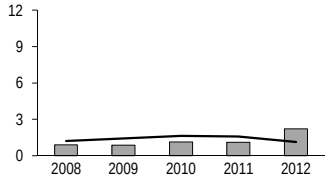
Workload Measures

Number of Lane Miles Maintained per 1,000 Population



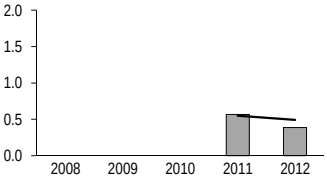
	2008	2009	2010	2011	2012
Salisbury	11.1	11.1	10.9	10.2	10.2
Average	10.6	10.5	10.3	10.0	10.1

Reported Potholes per Lane Mile Maintained



	2008	2009	2010	2011	2012
Salisbury	0.91	0.87	1.14	1.12	2.23
Average	1.22	1.43	1.63	1.59	1.15

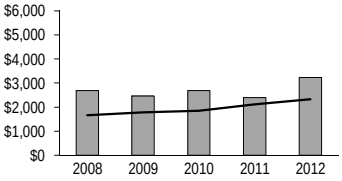
Repaired Utility Cuts per Lane Mile Maintained



	2008	2009	2010	2011	2012
Salisbury				0.57	0.39
Average				0.55	0.50

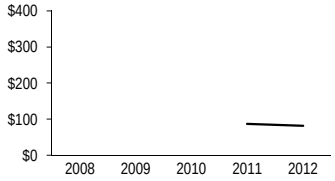
Efficiency Measures

Cost of Maintenance per Lane Mile Maintained



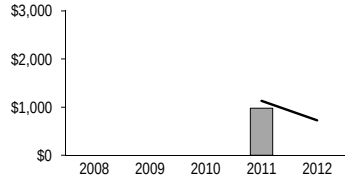
	2008	2009	2010	2011	2012
Salisbury	$2,685	$2,466	$2,686	$2,389	$3,227
Average	$1,665	$1,787	$1,854	$2,110	$2,333

Cost per Lane Mile for Preservation Treatment



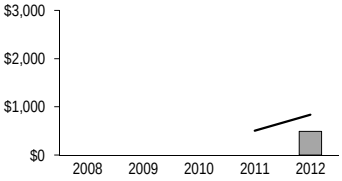
	2008	2009	2010	2011	2012
Salisbury					
Average				$87	$82

Cost per Lane Mile for Resurfacing Treatment



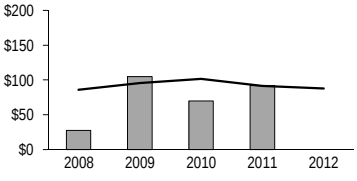
	2008	2009	2010	2011	2012
Salisbury				$975	
Average				$1,133	$726

Cost per Lane Mile for Rehabilitation Treatment



	2008	2009	2010	2011	2012
Salisbury					$490
Average				$501	$836

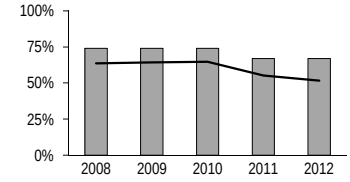
Cost per Ton for Contract Resurfacing



	2008	2009	2010	2011	2012
Salisbury	$27	$105	$70	$92	
Average	$86	$96	$102	$91	$88

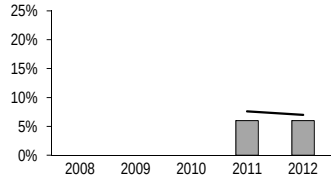
Effectiveness Measures

Percent of Lane Miles Rated 85 or Better



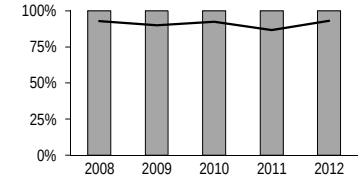
	2008	2009	2010	2011	2012
Salisbury	74%	74%	74%	67%	67%
Average	64%	64%	65%	55%	52%

Percent of Lane Miles Rated Below 45



	2008	2009	2010	2011	2012
Salisbury				6.0%	6.0%
Average				7.6%	7.0%

Percentage of Potholes Repaired within 24 hours



	2008	2009	2010	2011	2012
Salisbury	100%	100%	100%	100%	100%
Average	93%	90%	92%	87%	93%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The City of Wilmington was responsible for maintaining 796.8 lane miles during FY 2011–12. The city treated 4.2 lane miles during the year, or 0.5 percent of total lane miles.

The treatment work done on streets during the year was all done by city crews. A total of two lane miles involved preservation techniques by city crews, such as crack sealing or thin overlays. Resurfacing was done on 0.9 lane miles, and rehabilitation, involving milling followed by resurfacing was done on a further 1.3 lane miles. City crews used a total of 707 tons of asphalt for resurfacing.

The city reported that 54 percent of its lane miles rated 85 or better on its most recent pavement condition rating conducted in the year 2011. The street rating was conducted by a consultant using ASTM standards.

The number of potholes reported for FY 2010–11 was 4,497. The percentage of potholes repaired within twenty-four hours was 99 percent. City crews repaired a total of 265 utility cuts. Maintenance patches other than potholes and utility cuts were made using 1,120 tons of asphalt.

Conditions Affecting Service, Performance, and Costs
The high price of oil significantly increased the cost of asphalt used for resurfacing and repair work.

Beginning with the FY 2010–11 reporting year, new performance measures were added to this service area. These include "cost per lane mile for preservation treatment," "cost per lane mile for resurfacing treatment," "cost per lane mile for rehabilitation treatment," and "percent of lane miles rated below 45." In addition, the measure "cost of maintenance per lane mile maintained" has been altered to back out some treatment costs that were formerly counted as maintenance. This means that for some jurisdictions, the "cost of maintenance per lane mile maintained" has dropped in FY 2010–11 due to changes in the definition rather than actual drops in maintenance.

Municipal Profile

Population (OSBM 2011)	108,337
Land Area (Square Miles)	51.49
Persons per Square Mile	2,104
Topography	Flat, coastal plain
Climate	Temperate; little ice and snow

Service Profile

FTE Positions—Crews	12.00
FTE Positions—Other	2.00
Lane Miles Maintained	796.8
Lane Miles Treated	
Preservation	2.0
Resurfacing	0.9
Rehabilitation	1.3
TOTAL	4.2
Total Costs for All Treatment Types	$239,936
Potholes Repaired	4,497
Number of Utility Cuts	1075
Number of Maintenance Patches (exclusive of potholes and utility cuts)	NA
Registered Vehicles	120,832
Registered Vehicles/Square Mile	2,347
Average Cost per Ton of Hot Asphalt during Year	$84.25

Full Cost Profile

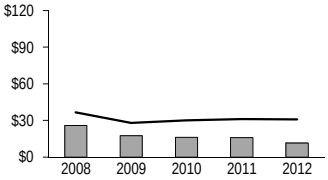
Cost Breakdown by Percentage	
Personal Services	34.0%
Operating Costs	40.5%
Capital Costs	25.5%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$422,400
Operating Costs	$503,030
Capital Costs	$316,809
TOTAL	$1,242,239

Wilmington — Asphalt Maintenance and Repair

Key: Wilmington ■ Benchmarking Average — Fiscal Years 2008 through 2012

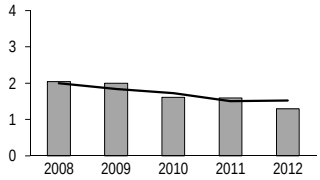
Resource Measures

Asphalt Maintenance and Repair Services Costs per Capita



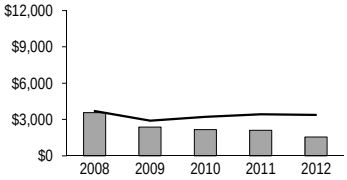
	2008	2009	2010	2011	2012
Wilmington	$25.88	$17.59	$16.20	$15.80	$11.47
Average	$36.55	$27.91	$30.16	$31.21	$30.88

Asphalt Maintenance and Repair FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Wilmington	2.04	2.00	1.61	1.59	1.29
Average	2.00	1.84	1.73	1.50	1.52

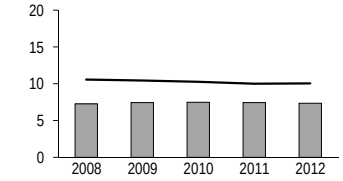
Service Costs per Lane Mile of Road Maintained



	2008	2009	2010	2011	2012
Wilmington	$3,569	$2,369	$2,165	$2,121	$1,559
Average	$3,686	$2,911	$3,228	$3,424	$3,383

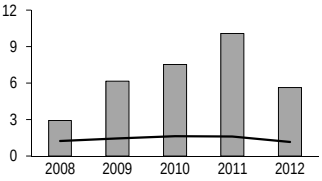
Workload Measures

Number of Lane Miles Maintained per 1,000 Population



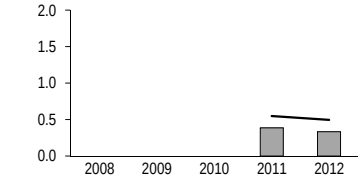
	2008	2009	2010	2011	2012
Wilmington	7.3	7.4	7.5	7.5	7.4
Average	10.6	10.5	10.3	10.0	10.1

Reported Potholes per Lane Mile Maintained



	2008	2009	2010	2011	2012
Wilmington	2.91	6.16	7.53	10.09	5.64
Average	1.22	1.43	1.63	1.59	1.15

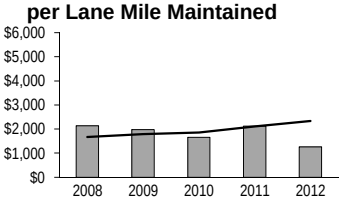
Repaired Utility Cuts per Lane Mile Maintained



	2008	2009	2010	2011	2012
Wilmington				0.38	0.33
Average				0.55	0.50

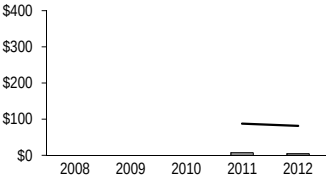
Efficiency Measures

Cost of Maintenance per Lane Mile Maintained



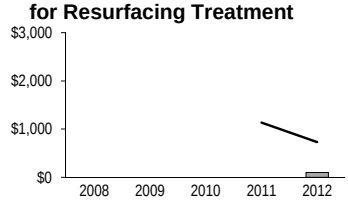
	2008	2009	2010	2011	2012
Wilmington	$2,128	$1,977	$1,653	$2,114	$1,258
Average	$1,665	$1,787	$1,854	$2,110	$2,333

Cost per Lane Mile for Preservation Treatment



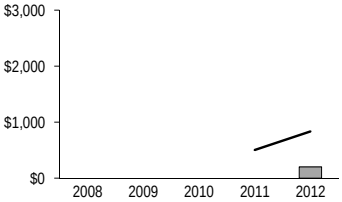
	2008	2009	2010	2011	2012
Wilmington				$7	$4
Average				$87	$82

Cost per Lane Mile for Resurfacing Treatment



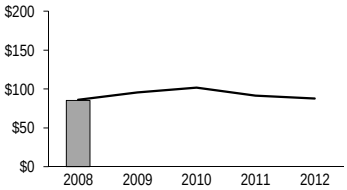
	2008	2009	2010	2011	2012
Wilmington					$97
Average				$1,133	$726

Cost per Lane Mile for Rehabilitation Treatment



	2008	2009	2010	2011	2012
Wilmington					$200
Average				$501	$836

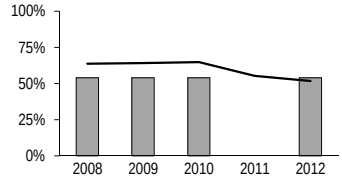
Cost per Ton for Contract Resurfacing



	2008	2009	2010	2011	2012
Wilmington	$85				
Average	$86	$96	$102	$91	$88

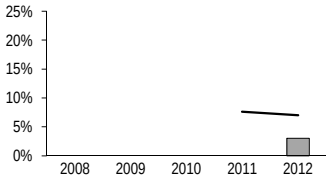
Effectiveness Measures

Percent of Lane Miles Rated 85 or Better



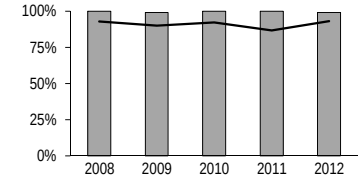
	2008	2009	2010	2011	2012
Wilmington	54%	54%	54%		54%
Average	64%	64%	65%	55%	52%

Percent of Lane Miles Rated Below 45



	2008	2009	2010	2011	2012
Wilmington					3.0%
Average				7.6%	7.0%

Percentage of Potholes Repaired within 24 hours



	2008	2009	2010	2011	2012
Wilmington	100%	99%	100%	100%	99%
Average	93%	90%	92%	87%	93%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The City of Wilson was responsible for maintaining 687.7 lane miles of city streets during FY 2011–12. The city treated a total of five lane miles during the year, or 0.7 percent of the total lane miles.

Wilson city crews treated five lane miles with preservation methods such as crack sealing or thin overlays.

The city reported that 58 percent of its lane miles rated 85 or above on its most recent pavement condition rating conducted in the year 2009. The city relied on a consultant for the rating, who used a customized rating based on ITRE.

The number of potholes reported for FY 2011–12 was 561. The percentage of potholes repaired within twenty-four hours was 100 percent.

Conditions Affecting Service, Performance, and Costs
The cost of asphalt and maintenance materials is directly related to fluctuations in the price of petroleum prices.

Beginning with the FY 2010–11 reporting year, new performance measures were added to this service area. These include "cost per lane mile for preservation treatment," "cost per lane mile for resurfacing treatment" "cost per lane mile for rehabilitation treatment," and "percent of lane miles rated below 45." In addition, the measure "cost of maintenance per lane mile maintained" has been altered to back out some treatment costs that were formerly counted as maintenance. This means that for some jurisdictions, the "cost of maintenance per lane mile maintained" has dropped in FY 2010–11 due to changes in the definition rather than actual drops in maintenance.

The winter during FY 2011–12 was milder than normal and generated few potholes. Additionally, crack sealing operations have helped reduce potholes.

Municipal Profile

Population (OSBM 2011)	49,122
Land Area (Square Miles)	28.78
Persons per Square Mile	1,707
Topography	Flat
Climate	Temperate; little ice and snow

Service Profile

FTE Positions—Crews	5.00
FTE Positions—Other	0.50
Lane Miles Maintained	687.7
Lane Miles Treated	
Preservation	5.0
Resurfacing	0.0
Rehabilitation	0.0
TOTAL	5.0
Total Costs for All Treatment Types	NA
Potholes Repaired	561
Number of Utility Cuts	1075
Number of Maintenance Patches (exclusive of potholes and utility cuts)	NA
Registered Vehicles	38,023
Registered Vehicles/Square Mile	1,321
Average Cost per Ton of Hot Asphalt during Year	$78.25

Full Cost Profile

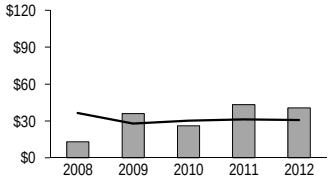
Cost Breakdown by Percentage	
Personal Services	17.1%
Operating Costs	79.5%
Capital Costs	3.3%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$343,464
Operating Costs	$1,593,166
Capital Costs	$66,531
TOTAL	$2,003,161

Wilson — Asphalt Maintenance and Repair

Key: Wilson ■ Benchmarking Average — Fiscal Years 2008 through 2012

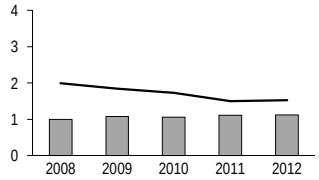
Resource Measures

Asphalt Maintenance and Repair Services Costs per Capita



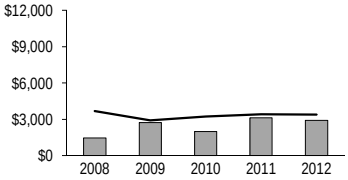
	2008	2009	2010	2011	2012
Wilson	$13.05	$36.11	$26.06	$43.36	$40.78
Average	$36.55	$27.91	$30.16	$31.21	$30.88

Asphalt Maintenance and Repair FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Wilson	1.00	1.08	1.06	1.11	1.12
Average	2.00	1.84	1.73	1.50	1.52

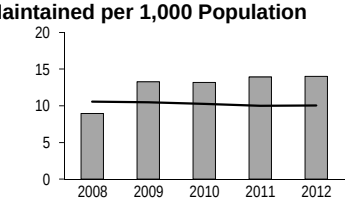
Service Costs per Lane Mile of Road Maintained



	2008	2009	2010	2011	2012
Wilson	$1,455	$2,721	$1,976	$3,116	$2,913
Average	$3,686	$2,911	$3,228	$3,424	$3,383

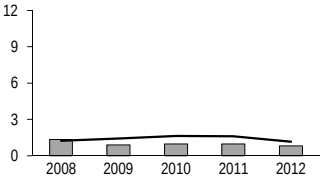
Workload Measures

Number of Lane Miles Maintained per 1,000 Population



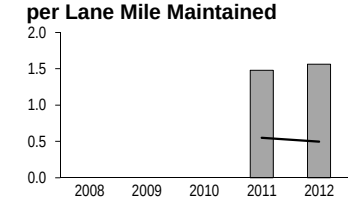
	2008	2009	2010	2011	2012
Wilson	9.0	13.3	13.2	13.9	14.0
Average	10.6	10.5	10.3	10.0	10.1

Reported Potholes per Lane Mile Maintained



	2008	2009	2010	2011	2012
Wilson	1.33	0.88	0.96	0.98	0.82
Average	1.22	1.43	1.63	1.59	1.15

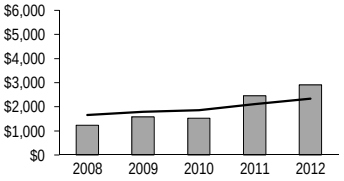
Repaired Utility Cuts per Lane Mile Maintained



	2008	2009	2010	2011	2012
Wilson				1.48	1.56
Average				0.55	0.50

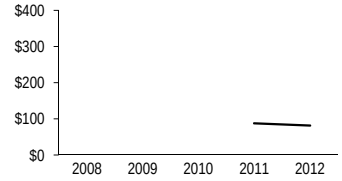
Efficiency Measures

Cost of Maintenance per Lane Mile Maintained



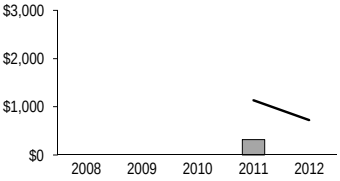
	2008	2009	2010	2011	2012
Wilson	$1,230	$1,576	$1,529	$2,450	$2,913
Average	$1,665	$1,787	$1,854	$2,110	$2,333

Cost per Lane Mile for Preservation Treatment



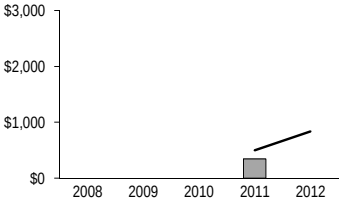
	2008	2009	2010	2011	2012
Wilson					
Average				$87	$82

Cost per Lane Mile for Resurfacing Treatment



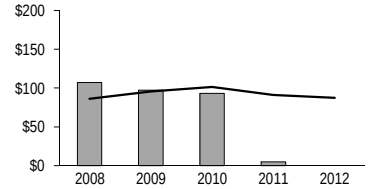
	2008	2009	2010	2011	2012
Wilson				$319	
Average				$1,133	$726

Cost per Lane Mile for Rehabilitation Treatment



	2008	2009	2010	2011	2012
Wilson				$347	
Average				$501	$836

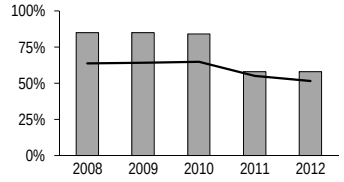
Cost per Ton for Contract Resurfacing



	2008	2009	2010	2011	2012
Wilson	$107	$97	$93	$5	
Average	$86	$96	$102	$91	$88

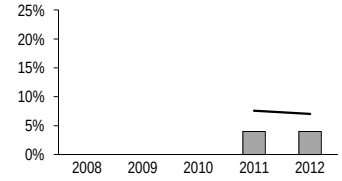
Effectiveness Measures

Percent of Lane Miles Rated 85 or Better



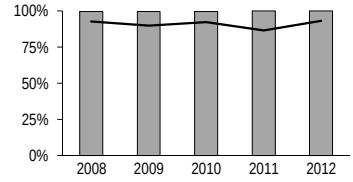
	2008	2009	2010	2011	2012
Wilson	85%	85%	84%	58%	58%
Average	64%	64%	65%	55%	52%

Percent of Lane Miles Rated Below 45



	2008	2009	2010	2011	2012
Wilson				4.0%	4.0%
Average				7.6%	7.0%

Percentage of Potholes Repaired within 24 hours



	2008	2009	2010	2011	2012
Wilson	100%	100%	100%	100%	100%
Average	93%	90%	92%	87%	93%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

The City of Winston-Salem was responsible for maintaining 2,180.6 lane miles of city streets during FY 2011–12. Additional funding was added during the fiscal year to support additional resurfacing of roads. The city treated 77.8 lane miles, or 3.6 percent of the total lane miles.

The city used a variety of treatment methods for repair of roads. A total of 38.2 lane miles were treated by city and contracted crews with preservation methods such as crack sealing or thin overlays. A total of 16.6 lane miles had basic resurfacing done by contract and city crews. Finally, 23.0 lane miles were rehabilitated by contract crews with milling followed by resurfacing. A total of 28,174 tons of asphalt was used by contracted and city crews for resurfacing.

The city reported that 50 percent of its lane miles rated 85 or above on its most recent pavement condition rating conducted in the year 2012. The city used Pavement Tracking System (PTS) as its rating system.

The city reported 1,282 potholes in FY 2011–12. The percentage of potholes repaired within twenty-four hours was estimated at 81 percent. City policy is to repair potholes within twenty-four hours, but the lower level is a result of weekends and sick or vacation time of repair crews.

Conditions Affecting Service, Performance, and Costs

The hard winter conditions led to an increase in potholes. Snow, ice, and rain combined with the cold weather created more stress on the street paving and led to more failures. There was also a backlog of work after the winter due to the fact that most of the available asphalt plants were not operating due to inclement weather and colder temperatures.

Beginning with the FY 2010–11 reporting year, new performance measures were added to this service area. These include "cost per lane mile for preservation treatment," "cost per lane mile for resurfacing treatment," "cost per lane mile for rehabilitation treatment," and "percent of lane miles rated below 45." In addition, the measure "cost of maintenance per lane mile maintained" has been altered to back out some treatment costs that were formerly counted as maintenance. This means that for some jurisdictions, the "cost of maintenance per lane mile maintained" has dropped in FY 2010–11 due to changes in the definition rather than actual drops in maintenance.

Municipal Profile

Population (OSBM 2011)	232,143
Land Area (Square Miles)	132.45
Persons per Square Mile	1,753
Topography	Gently rolling
Climate	Temperate; some ice and snow

Service Profile

FTE Positions—Crews	39.50
FTE Positions—Other	3.80
Lane Miles Maintained	2,180.6
Lane Miles Treated	
Preservation	38.2
Resurfacing	16.6
Rehabilitation	23.0
TOTAL	77.8
Total Costs for All Treatment Types	$3,071,612
Potholes Repaired	1,282
Number of Utility Cuts	631
Number of Maintenance Patches (exclusive of potholes and utility cuts)	111
Registered Vehicles	169,337
Registered Vehicles/Square Mile	1,279
Average Cost per Ton of Hot Asphalt during Year	$66.08

Full Cost Profile

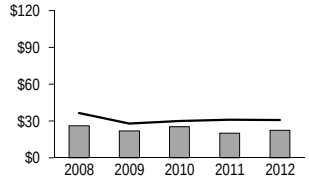
Cost Breakdown by Percentage	
Personal Services	22.4%
Operating Costs	72.1%
Capital Costs	5.6%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,168,070
Operating Costs	$3,763,116
Capital Costs	$290,168
TOTAL	$5,221,354

Winston-Salem — Asphalt Maintenance and Repair

Key: Winston-Salem ■ Benchmarking Average — Fiscal Years 2008 through 2012

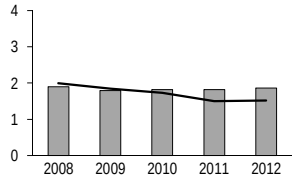
Resource Measures

Asphalt Maintenance and Repair Services Costs per Capita



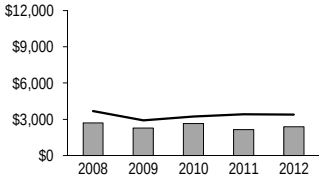
	2008	2009	2010	2011	2012
Winston-Salem	$26.21	$22.05	$25.35	$20.14	$22.49
Average	$36.55	$27.91	$30.16	$31.21	$30.88

Asphalt Maintenance and Repair FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Winston-Salem	1.90	1.79	1.82	1.81	1.87
Average	2.00	1.84	1.73	1.50	1.52

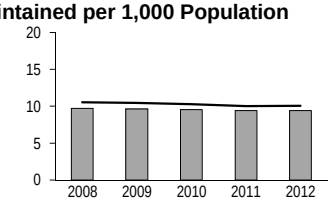
Service Costs per Lane Mile of Road Maintained



	2008	2009	2010	2011	2012
Winston-Salem	$2,695	$2,295	$2,657	$2,143	$2,394
Average	$3,686	$2,911	$3,228	$3,424	$3,383

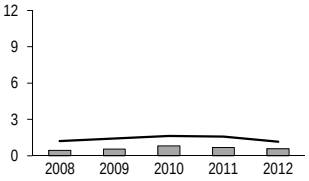
Workload Measures

Number of Lane Miles Maintained per 1,000 Population



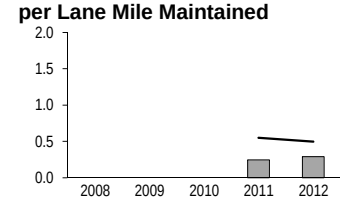
	2008	2009	2010	2011	2012
Winston-Salem	9.7	9.6	9.5	9.4	9.4
Average	10.6	10.5	10.3	10.0	10.1

Reported Potholes per Lane Mile Maintained



	2008	2009	2010	2011	2012
Winston-Salem	0.44	0.54	0.82	0.67	0.58
Average	1.22	1.43	1.63	1.59	1.15

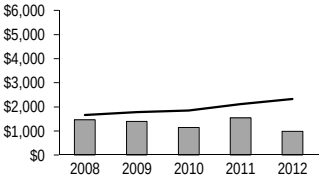
Repaired Utility Cuts per Lane Mile Maintained



	2008	2009	2010	2011	2012
Winston-Salem				0.25	0.29
Average				0.55	0.50

Efficiency Measures

Cost of Maintenance per Lane Mile Maintained

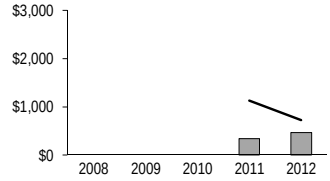


	2008	2009	2010	2011	2012
Winston-Salem	$1,468	$1,403	$1,150	$1,546	$986
Average	$1,665	$1,787	$1,854	$2,110	$2,333

Cost per Lane Mile for Preservation Treatment

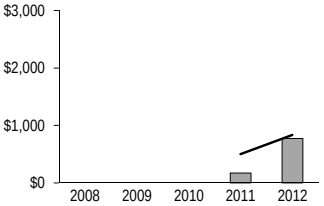
	2008	2009	2010	2011	2012
Winston-Salem				$85	$172
Average				$87	$82

Cost per Lane Mile for Resurfacing Treatment



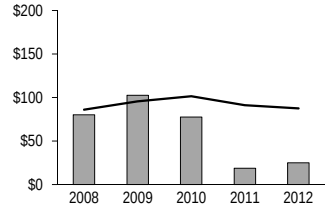
	2008	2009	2010	2011	2012
Winston-Salem				$343	$464
Average				$1,133	$726

Cost per Lane Mile for Rehabilitation Treatment



	2008	2009	2010	2011	2012
Winston-Salem				$169	$773
Average				$501	$836

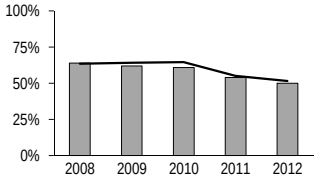
Cost per Ton for Contract Resurfacing



	2008	2009	2010	2011	2012
Winston-Salem	$80	$103	$78	$19	$25
Average	$86	$96	$102	$91	$88

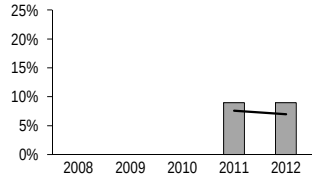
Effectiveness Measures

Percent of Lane Miles Rated 85 or Better



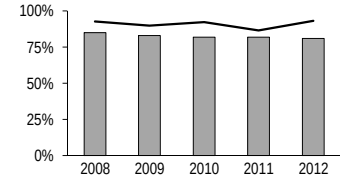
	2008	2009	2010	2011	2012
Winston-Salem	64%	62%	61%	54%	50%
Average	64%	64%	65%	55%	52%

Percent of Lane Miles Rated Below 45



	2008	2009	2010	2011	2012
Winston-Salem				9.0%	9.0%
Average				7.6%	7.0%

Percentage of Potholes Repaired within 24 hours



	2008	2009	2010	2011	2012
Winston-Salem	85%	83%	82%	82%	81%
Average	93%	90%	92%	87%	93%

UNC
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Performance and Cost Data

FIRE SERVICES

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PERFORMANCE MEASURES FOR FIRE SERVICES

SERVICE DEFINITION

Fire Services refers to activities and programs relating to the prevention and suppression of fires, responses to calls for service, rescue service (if provided), fire inspections (if provided), responses to hazardous materials calls (if provided), and fire education services. The services provided by fire departments vary from city to city, but the common goal remains the same: to protect the lives and property of the community served.

NOTES ON PERFORMANCE MEASURES

1. Number of Actual Fires per 1,000 Population

The total number of actual fires includes all types of fires, including structural fires.

2. Fire Inspections Completed per 1,000 Population

Fire inspections include Level I, II, and III inspections.

3. Number of Fire Department Responses per 1,000 Population

Responses include those to fires, medical emergencies, false alarms, and other types of situations that result in mobilization of fire equipment and personnel.

4. Cost per Fire Department Response

The cost represents the total cost of fire services and is calculated using a full cost accounting model that captures direct, indirect, and capital costs. Response is as defined above.

5. Number of Inspections Completed per Fire Inspector FTE

One full-time equivalent (FTE) position equals 2,080 hours of work per year. Any combination of employees providing 2,080 hours of work per year is counted as one FTE.

6. Average Turnout and Travel Time for First Unit Dispatched under "Priority One" Situations

Fast response is a critical determinant in how successful fire responders will be. Response time is calculated by adding both the turnout time (the time the dispatch is received until the first unit is out the door) and the travel time (the time the first unit is out the door until the unit arrives on the scene).

7. Percentage of Full Responses within Eight Minutes

The speed of fire department responses can be judged both by the time for the first unit arriving and also by how long it takes a full complement of trucks and personnel to respond to an emergency. The percentage within eight minutes takes into account travel time.

8. Percentage of Fires Confined to Object or Room of Origin

Containment of fires to as small an area as possible limits total damages. The degree of containment depends on how quickly the fire department is called and also is an effectiveness measure that is reported to the state.

9. Percentage of Fires for Which Cause Is Determined

Investigation of the causes of fires can be an important part of prevention and suppression efforts. While the cause of all fires cannot always be determined, being able to identify causes is important if lessons are to be learned from the investigations.

10. Percentage of Fire Code Violations "Cleared" by Correction or Imposition of Penalty within Ninety Days

Fire code violations are violations of state and local laws and regulations as found through fire inspections. The violators are given time to correct the violation before a penalty is imposed. This is an effectiveness measure that provides an indication of timeliness of follow-up.

11. Percentage of Cases with Lost Pulse Where Pulse Is Recovered at Time of Transfer for Transport

Fire departments frequently are the first responders to medical calls, including cases where an individual has no pulse either at the time of arrival or during the response. This effectiveness measure reports the percentage of these cases where the patient has recovered a pulse by the time responsibility for care has been transferred to emergency responders who will transport the patient to a hospital. Many patients cannot be saved, and recovery of pulse does not guarantee survival at the hospital.

Fire Services

Summary of Key Dimensions of Service

City or Town	Population Served	Land Area Served (in Square Miles)	Value of Property in Service Area (in Billions)	Total Number of Fire Department Responses	Fire Code Violations Found	Number of Community Fire Stations	Number of Fire Services FTEs	ISO* Rating
Apex	90,150	62.3	$11.1	2,220	1,140	4	66	5—town 9—outlying
Asheville	91,073	60.0	$11.7	14,129	6,100	12	239	3
Burlington	51,263	25.2	$4.2	7,478	2,556	5	92	3
Cary	140,641	55.9	$21.3	7,149	7,496	7	211	3
Charlotte	765,871	309.2	$91.9	95,441	30,486	41	1,166	3
Concord	83,594	66.7	$10.7	8,855	3,598	10	191	3
Greensboro	280,920	138.6	$25.2	30,816	13,769	24	529	1
Greenville	111,344	66.4	$7.8	15,069	1,501	6	157	3
Hickory	45,093	42.6	$4.9	6,149	3,709	6	137	3
High Point	115,411	66.8	$10.2	11,179	2,732	14	223	2
Salisbury	33,704	22.2	$2.8	4,402	3,189	4	87	2
Wilmington	108,337	51.5	$14.2	10,574	2,045	11	220	2
Wilson	49,122	28.8	$4.0	3,832	4,903	5	97	2
Winston-Salem	232,143	132.4	$21.3	26,483	8,781	18	344	3

NOTES

*ISO—Insurance Service Office

EXPLANATORY FACTORS

These are factors that the project found affected fire services performance and cost in one or more of the municipalities:

Population and area served
Value of property area protected in service area
Number of engine companies
Number of fire department responses
Fire code violations
ISO rating
Age of housing stock

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The mission of the Apex Fire Department is to protect life, property, and the environment from fire, medical emergencies, natural disasters, and other emergencies for those who live, work, and travel in and through the town and surrounding area. In addition to the town, the fire department serves an additional sixty-two square miles in surrounding fire districts.

The fire department uses a shift schedule where they work one twenty-four-hour shift on schedule and one off every three days, followed by a four-day break. On average, shift personnel work ten to eleven days per twenty-eight day cycle.

The area within the Town of Apex has an ISO rating of 5, while the surrounding fire districts served have an ISO rating of 9. The rating was last updated in 2004.

The Apex Fire Department conducted 774 fire maintenance, construction, and reinspections during FY 20111–12. The fire department handles all inspections within town limits and coordinates with the Wake County Fire Marshal for joint inspections in the extra-territorial jurisdiction for new construction, fire alarms, and sprinkler reviews and inspections. Apex has a fire marshal and one inspector.

All fire investigations in Apex are handled by the Wake County Fire Marshal. Apex assists in investigations but does not provide the investigative reports.

Conditions Affecting Service, Performance, and Costs
Apex began participation in the benchmarking project in July 2011, with FY 2010–11 being the first reporting year.

The performance measure "percentage of lost pulse cases recovered pulse at transfer of care" is a new measure as of FY 2007–08.

Municipal Profile

Service Population	90,150
Land Area (Square Miles)	62.30
Persons per Square Mile	1,447
Median Family Income U.S. Census 2010	$97,201

Service Profile

FTE Positions—Firefighters	51.0
FTE Positions—Other	15.0
Fire Stations	4
First-Line Fire Apparatus	
Pumpers	3
Aerial Trucks	1
Quints	1
Squads	0
Rescue	1
Other	14
Fire Department Responses	2,220
Responses for Fires	85
Structural Fires Reported	33
Inspections Completed for Maintenance, Construction, and Reinspections	774
Fire Code Violations Reported	1,140
Estimated Fire Loss (millions)	$0.91
Amount of Property Protected in Service Area (millions)	$11,111
Number of Fire Education Programs or Events	100

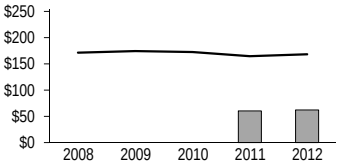
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	67.3%
Operating Costs	21.4%
Capital Costs	11.4%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$3,772,990
Operating Costs	$1,199,392
Capital Costs	$636,905
TOTAL	$5,609,287

Key: Apex ■ Benchmarking Average — Fiscal Years 2008 through 2012

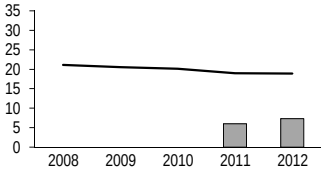
Resource Measures

Fire Services Costs per Capita



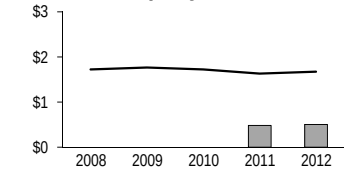
	2008	2009	2010	2011	2012
Apex				$61	$62
Average	$171	$175	$173	$165	$168

Fire Services Total FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Apex				6.0	7.3
Average	21.1	20.5	20.1	19.0	18.9

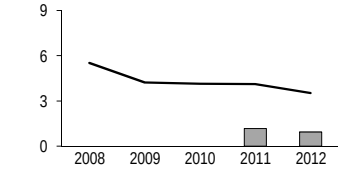
Fire Services Cost per Thousand Dollars of Property Protected



	2008	2009	2010	2011	2012
Apex				$0.49	$0.50
Average	$1.72	$1.77	$1.73	$1.63	$1.67

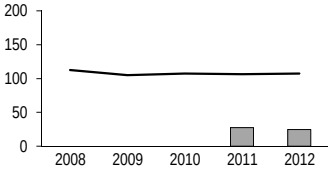
Workload Measures

Actual Fires per 1,000 Population



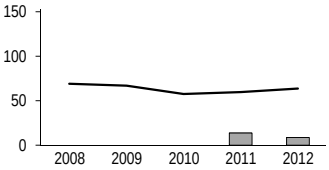
	2008	2009	2010	2011	2012
Apex				1.17	0.94
Average	5.52	4.24	4.15	4.12	3.53

Fire Department Responses per 1,000 Population



	2008	2009	2010	2011	2012
Apex				28	25
Average	113	105	108	107	108

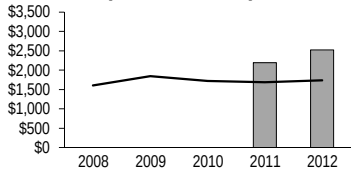
Fire Inspections Completed per 1,000 Population



	2008	2009	2010	2011	2012
Apex				14	9
Average	69	67	58	59	64

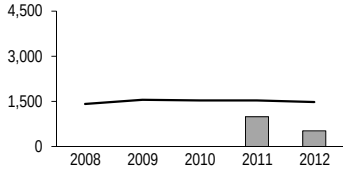
Efficiency Measures

Fire Services Cost per Fire Department Response



	2008	2009	2010	2011	2012
Apex				$2,194	$2,527
Average	$1,609	$1,849	$1,725	$1,691	$1,737

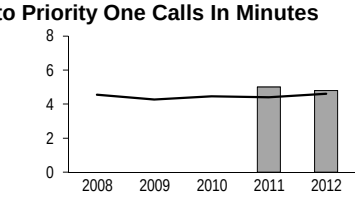
Inspections Completed per Inspector FTE



	2008	2009	2010	2011	2012
Apex				994	516
Average	1,410	1,552	1,536	1,531	1,481

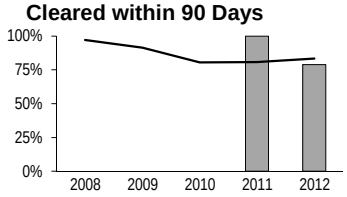
Effectiveness Measures

Average Response Time to Priority One Calls In Minutes



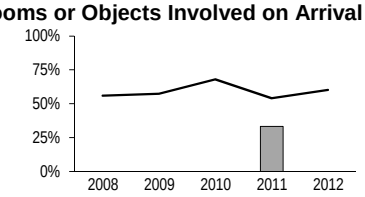
	2008	2009	2010	2011	2012
Apex				5.0	4.8
Average	4.5	4.3	4.5	4.4	4.6

Percentage of Fire Code Violations Cleared within 90 Days



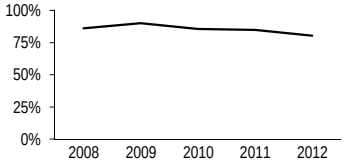
	2008	2009	2010	2011	2012
Apex				100%	79%
Average	97%	91%	81%	81%	83%

Percentage of Fires Confined to Rooms or Objects Involved on Arrival



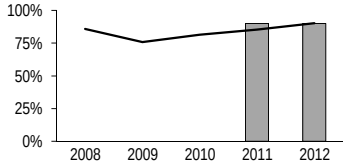
	2008	2009	2010	2011	2012
Apex				33%	0%
Average	56%	57%	68%	54%	60%

Percentage of Fires for Which Cause Was Determined



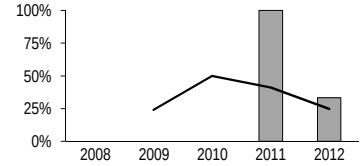
	2008	2009	2010	2011	2012
Apex					
Average	86%	90%	86%	85%	80%

Percentage of Full Response Within 8 Minutes Travel Time



	2008	2009	2010	2011	2012
Apex				90%	90%
Average	86%	76%	82%	85%	90%

Percentage of Lost Pulse Cases Recovered Pulse at Transfer of Care



	2008	2009	2010	2011	2012
Apex				100.0%	33.3%
Average		24.0%	49.9%	41.1%	24.7%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The mission of the Asheville Fire and Rescue Department is to protect the lives, property, and environment of all people within Asheville and the town of Biltmore Forest by preventing the occurrence and minimizing the adverse effects of fires, accidents, and all other emergencies.

The fire department contains the following divisions: administration, emergency response, fire marshal's office, and professional standards.

The fire department uses a modified shift schedule that includes twenty-four hours on duty and twenty-four hours off duty, averaging fifty-six hours per week. The work schedule is as follows: twenty-four hours on, twenty-four hours off; twenty-four hours on, forty-eight hours off; twenty-four hours on, twenty-four hours off; twenty-four hours on, ninety-six hours off. This works out to an average work week of fifty-six hours.

The city has an ISO rating of 3, as rated in 2007. The Asheville Fire and Rescue Department has been accredited since 2005.

The fire and rescue department conducted 9,664 fire maintenance, construction, and reinspections during FY 2011–12. The fire marshal's office is comprised of two sections. One section is responsible for existing construction and another for new construction. Deputy fire marshals (DFMs) are responsible for conducting periodic fire prevention inspections inside the corporate limits of the City of Asheville, as required by the N.C. Office of The State Fire Marshal. The Asheville city council adopted a fee schedule for periodic fire inspections. These fees are based on a cost recovery basis. Each DFM conducts fire inspections of every commercial premise located within Asheville. Most personnel work a day shift, while several work a twenty-four-hour shift. These DFMs are liaisons to the other divisions on matters regarding code enforcement, fire investigations, and pre-incident planning.

Conditions Affecting Service, Performance, and Costs
The performance measure "percentage of lost pulse cases recovered pulse at transfer of care" is a new measure as of FY 2007–08.

Fire inspections in Asheville were down in FY 2009–10 due to a drop in new construction.

Municipal Profile

Service Population	91,073
Land Area (Square Miles)	60.00
Persons per Square Mile	1,518
Median Family Income U.S. Census 2010	$53,350

Service Profile

FTE Positions—Firefighters	219.0
FTE Positions—Other	20.0
Fire Stations	12
First-Line Fire Apparatus	
Pumpers	9
Aerial Trucks	4
Quints	1
Squads	1
Rescue	1
Other	7
Fire Department Responses	14,129
Responses for Fires	503
Structural Fires Reported	65
Inspections Completed for Maintenance, Construction, and Reinspections	9,664
Fire Code Violations Reported	6,100
Estimated Fire Loss (millions)	$21.66
Amount of Property Protected in Service Area (millions)	$11,665
Number of Fire Education Programs or Events	250

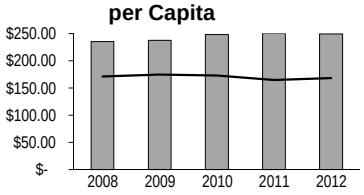
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	71.8%
Operating Costs	16.9%
Capital Costs	11.3%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$16,308,691
Operating Costs	$3,840,163
Capital Costs	$2,559,623
TOTAL	$22,708,477

Key: Asheville ■ Benchmarking Average — Fiscal Years 2008 through 2012

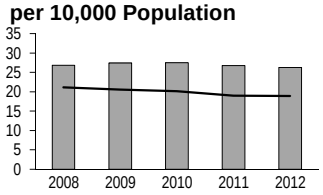
Resource Measures

Fire Services Costs per Capita



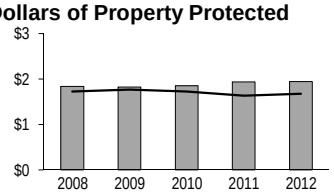
	2008	2009	2010	2011	2012
Asheville	$235.5	$237.9	$248.5	$250	$249
Average	$171	$175	$173	$165	$168

Fire Services Total FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Asheville	26.8	27.4	27.5	26.8	26.2
Average	21.1	20.5	20.1	19.0	18.9

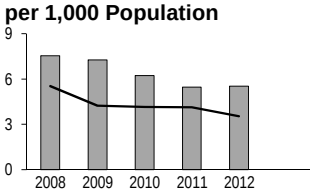
Fire Services Cost per Thousand Dollars of Property Protected



	2008	2009	2010	2011	2012
Asheville	$1.84	$1.82	$1.85	$1.94	$1.95
Average	$1.72	$1.77	$1.73	$1.63	$1.67

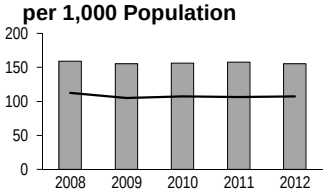
Workload Measures

Actual Fires per 1,000 Population



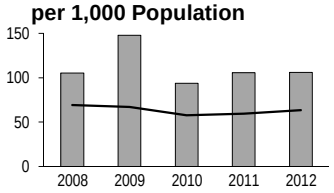
	2008	2009	2010	2011	2012
Asheville	7.54	7.27	6.23	5.46	5.52
Average	5.52	4.24	4.15	4.12	3.53

Fire Department Responses per 1,000 Population



	2008	2009	2010	2011	2012
Asheville	159	155	156	158	155
Average	113	105	108	107	108

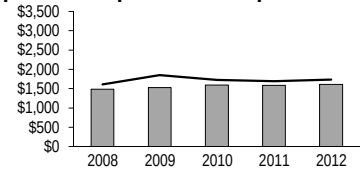
Fire Inspections Completed per 1,000 Population



	2008	2009	2010	2011	2012
Asheville	105	148	94	106	106
Average	69	67	58	59	64

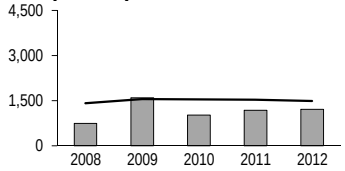
Efficiency Measures

Fire Services Cost per Fire Department Response



	2008	2009	2010	2011	2012
Asheville	$1,483	$1,530	$1,591	$1,588	$1,607
Average	$1,609	$1,849	$1,725	$1,691	$1,737

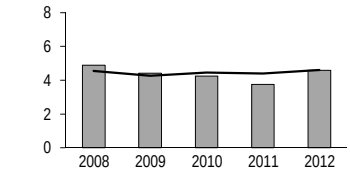
Inspections Completed per Inspector FTE



	2008	2009	2010	2011	2012
Asheville	742	1,593	1,018	1,180	1,208
Average	1,410	1,552	1,536	1,531	1,481

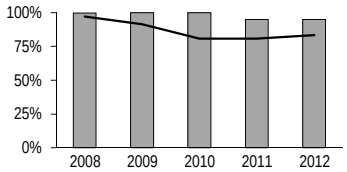
Effectiveness Measures

Average Response Time to Priority One Calls In Minutes



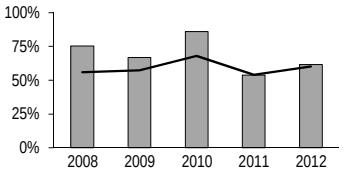
	2008	2009	2010	2011	2012
Asheville	4.9	4.4	4.3	3.8	4.6
Average	4.5	4.3	4.5	4.4	4.6

Percentage of Fire Code Violations Cleared within 90 Days



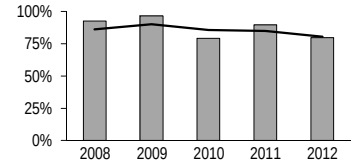
	2008	2009	2010	2011	2012
Asheville	100%	100%	100%	95%	95%
Average	97%	91%	81%	81%	83%

Percentage of Fires Confined to Rooms or Objects Involved on Arrival



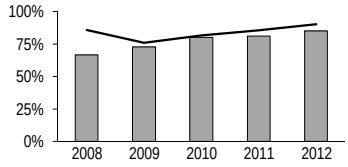
	2008	2009	2010	2011	2012
Asheville	75%	67%	86%	54%	62%
Average	56%	57%	68%	54%	60%

Percentage of Fires for Which Cause Was Determined



	2008	2009	2010	2011	2012
Asheville	93%	96%	79%	90%	80%
Average	86%	90%	86%	85%	80%

Percentage of Full Response Within 8 Minutes Travel Time



	2008	2009	2010	2011	2012
Asheville	67%	73%	80%	81%	85%
Average	86%	76%	82%	85%	90%

Percentage of Lost Pulse Cases Recovered Pulse at Transfer of Care

	2008	2009	2010	2011	2012
Asheville	27.8%	25.0%	20.0%		
Average		24.0%	49.9%	41.1%	24.7%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The mission of the City of Burlington Fire Department is to protect the lives, property, and environment of all people within Burlington by preventing the occurrence and minimizing the adverse effects of fires, accidents, and all other emergencies. The department is divided into three areas: suppression, fire prevention, and training.

Burlington uses three shifts for staffing fire houses. All shift personnel work on a rotating schedule, twenty-four hours on, followed by forty-eight hours off.

The city has an ISO rating of 3, as rated in 2005.

The fire department conducted 3,046 fire maintenance, construction, and reinspections during FY 2011–12. Fire Prevention Bureau personnel conduct general fire inspections as well as inspections for fireworks, blasting, tank installations/removals, and night inspections for overcrowding/exit obstructions for assembly occupancies. Apartment complexes generate one file.

Conditions Affecting Service, Performance, and Costs
The performance measure "percentage of lost pulse cases recovered pulse at transfer of care" is a new measure as of FY 2007–08.

Municipal Profile

Population (OSBM 2011)	51,263
Land Area (Square Miles)	25.21
Persons per Square Mile	2,034
Median Family Income U.S. Census 2010	$46,461

Service Profile

FTE Positions—Firefighters	81.0
FTE Positions—Other	10.5
Fire Stations	5
First-Line Fire Apparatus	
Pumpers	4
Aerial Trucks	1
Quints	1
Squads	1
Rescue	1
Other	1
Fire Department Responses	7,478
Responses for Fires	246
Structural Fires Reported	36
Inspections Completed for Maintenance, Construction, and Reinspections	3,046
Fire Code Violations Reported	2,556
Estimated Fire Loss (millions)	$1.27
Amount of Property Protected in Service Area (millions)	$4,165
Number of Fire Education Programs or Events	313

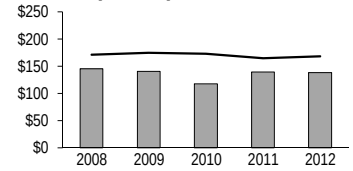
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	75.6%
Operating Costs	12.9%
Capital Costs	11.4%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$5,347,887
Operating Costs	$913,606
Capital Costs	$809,384
TOTAL	$7,070,877

Key: Burlington ■ Benchmarking Average — Fiscal Years 2008 through 2012

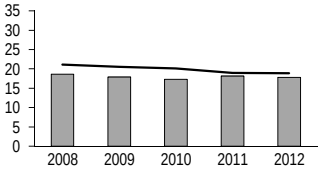
Resource Measures

Fire Services Costs per Capita



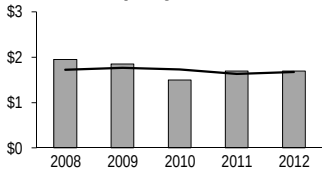
	2008	2009	2010	2011	2012
Burlington	$145	$141	$118	$139	$138
Average	$171	$175	$173	$165	$168

Fire Services Total FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Burlington	18.6	17.9	17.3	18.1	17.8
Average	21.1	20.5	20.1	19.0	18.9

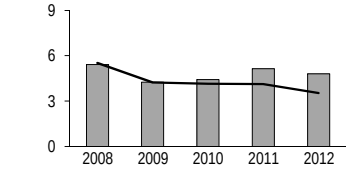
Fire Services Cost per Thousand Dollars of Property Protected



	2008	2009	2010	2011	2012
Burlington	$1.95	$1.85	$1.50	$1.69	$1.70
Average	$1.72	$1.77	$1.73	$1.63	$1.67

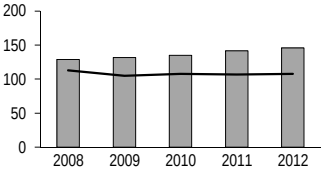
Workload Measures

Actual Fires per 1,000 Population



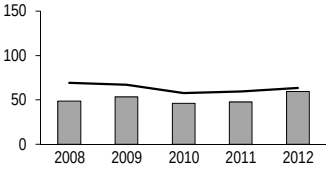
	2008	2009	2010	2011	2012
Burlington	5.42	4.26	4.43	5.13	4.80
Average	5.52	4.24	4.15	4.12	3.53

Fire Department Responses per 1,000 Population



	2008	2009	2010	2011	2012
Burlington	129	132	135	141	146
Average	113	105	108	107	108

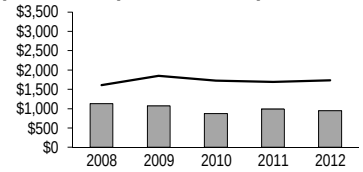
Fire Inspections Completed per 1,000 Population



	2008	2009	2010	2011	2012
Burlington	49	53	46	48	59
Average	69	67	58	59	64

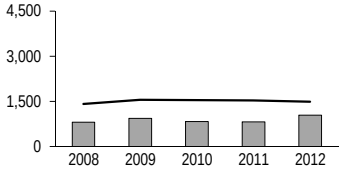
Efficiency Measures

Fire Services Cost per Fire Department Response



	2008	2009	2010	2011	2012
Burlington	$1,125	$1,068	$874	$984	$946
Average	$1,609	$1,849	$1,725	$1,691	$1,737

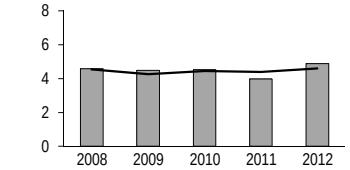
Inspections Completed per Inspector FTE



	2008	2009	2010	2011	2012
Burlington	802	926	825	815	1,033
Average	1,410	1,552	1,536	1,531	1,481

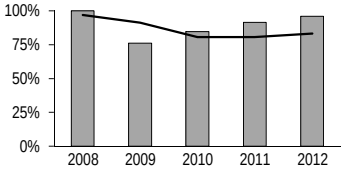
Effectiveness Measures

Average Response Time to Priority One Calls In Minutes



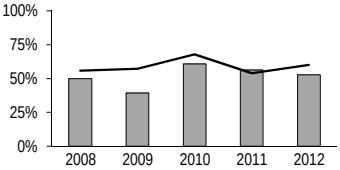
	2008	2009	2010	2011	2012
Burlington	4.6	4.5	4.5	4.0	4.9
Average	4.5	4.3	4.5	4.4	4.6

Percentage of Fire Code Violations Cleared within 90 Days



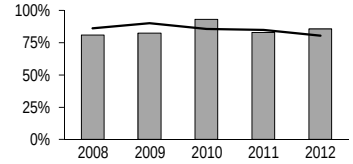
	2008	2009	2010	2011	2012
Burlington	100%	76%	85%	92%	96%
Average	97%	91%	81%	81%	83%

Percentage of Fires Confined to Rooms or Objects Involved on Arrival



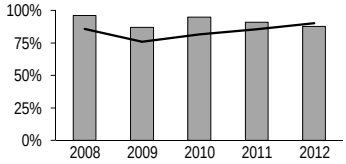
	2008	2009	2010	2011	2012
Burlington	50%	39%	61%	56%	53%
Average	56%	57%	68%	54%	60%

Percentage of Fires for Which Cause Was Determined



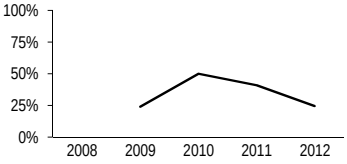
	2008	2009	2010	2011	2012
Burlington	81%	82%	93%	83%	86%
Average	86%	90%	86%	85%	80%

Percentage of Full Response Within 8 Minutes Travel Time



	2008	2009	2010	2011	2012
Burlington	96%	87%	95%	91%	88%
Average	86%	76%	82%	85%	90%

Percentage of Lost Pulse Cases Recovered Pulse at Transfer of Care



	2008	2009	2010	2011	2012
Burlington					
Average		24.0%	49.9%	41.1%	24.7%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

The Town of Cary Fire Department provides fire protection, emergency medical services (EMS), technical rescue (except hazmat technician and specialist level service), fire code enforcement services, and plans review.

All emergency services (shift) personnel are trained and certified as NC FFII, EMT–with defibrillator, and rescue technicians. Emergency services staff members work from seven fire stations on three twenty-four-hour shifts. Each shift is divided into two battalions, each supervised by a battalion chief. Currently each battalion consists of three or four fire stations, each having an engine company and either a ladder truck or light rescue company.

The town has an ISO rating of 3, as rated in 2010. The Cary Fire Department has been accredited since 1999.

The town conducted 5,761 fire maintenance, construction, and reinspections during FY 2011–12. The Cary Fire Department's Risk Management Division utilizes the state mandated one-, two-, and three-year inspection schedule as its goal for providing inspection services. It conducts inspections on all projects for which a permit is issued. For all violations found during routine inspections, follow-up inspections are used until the violation is resolved. For apartment complexes, each separate building that requires an inspection has a file for that particular building, and each building is counted as one separate inspection. The Risk Management Division also conducts follow-up inspections for all alarm malfunctions and false alarms in businesses. It issues the charges for permits outlined in the fire code and does charge a penalty/fine for alarm malfunctions and false alarms.

All risk management personnel are certified as Standard Level 3 inspectors. The fire marshal, who currently manages the division, reviews various site, building, and systems plans and serves as the direct supervisor for the inspection staff. In addition to plans review and code enforcement services, the division provides public education services through a public educator.

Conditions Affecting Service, Performance, and Costs

The performance measure "percentage of lost pulse cases recovered pulse at transfer of care" is a new measure as of FY 2007–08.

Municipal Profile

Service Population	140,641
Land Area (Square Miles)	55.88
Persons per Square Mile	2,517
Median Family Income U.S. Census 2010	$108,956

Service Profile

FTE Positions—Firefighters	189.0
FTE Positions—Other	22.2
Fire Stations	7
First-Line Fire Apparatus	
Pumpers	7
Aerial Trucks	4
Quints	0
Squads	0
Rescue	3
Other	9
Fire Department Responses	7,149
Responses for Fires	218
Structural Fires Reported	47
Inspections Completed for Maintenance, Construction, and Reinspections	5,761
Fire Code Violations Reported	7,496
Estimated Fire Loss (millions)	$1.73
Amount of Property Protected in Service Area (millions)	$21,259
Number of Fire Education Programs or Events	264

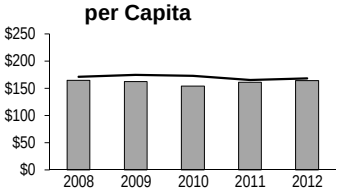
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	71.8%
Operating Costs	21.4%
Capital Costs	6.7%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$16,566,224
Operating Costs	$4,940,408
Capital Costs	$1,555,535
TOTAL	$23,062,167

Key: Cary ■ Benchmarking Average — Fiscal Years 2008 through 2012

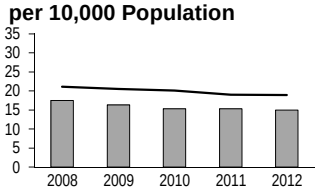
Resource Measures

Fire Services Costs per Capita



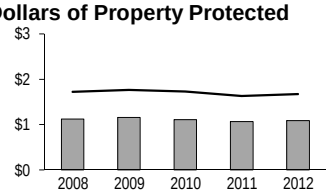
	2008	2009	2010	2011	2012
Cary	$165	$162	$154	$161	$164
Average	$171	$175	$173	$165	$168

Fire Services Total FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Cary	17.5	16.3	15.3	15.4	15.0
Average	21.1	20.5	20.1	19.0	18.9

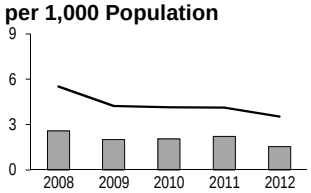
Fire Services Cost per Thousand Dollars of Property Protected



	2008	2009	2010	2011	2012
Cary	$1.12	$1.16	$1.11	$1.07	$1.08
Average	$1.72	$1.77	$1.73	$1.63	$1.67

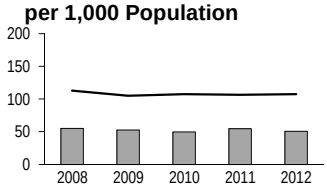
Workload Measures

Actual Fires per 1,000 Population



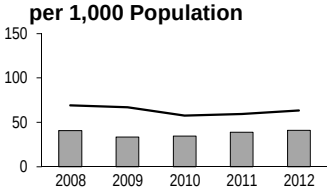
	2008	2009	2010	2011	2012
Cary	2.58	2.01	2.05	2.22	1.55
Average	5.52	4.24	4.15	4.12	3.53

Fire Department Responses per 1,000 Population



	2008	2009	2010	2011	2012
Cary	55	53	50	54	51
Average	113	105	108	107	108

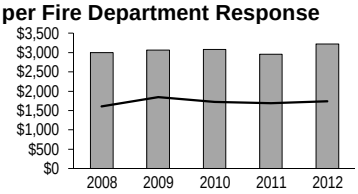
Fire Inspections Completed per 1,000 Population



	2008	2009	2010	2011	2012
Cary	41	34	35	39	41
Average	69	67	58	59	64

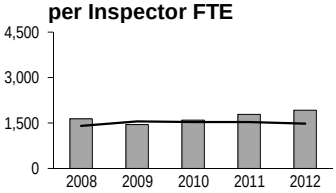
Efficiency Measures

Fire Services Cost per Fire Department Response



	2008	2009	2010	2011	2012
Cary	$2,996	$3,067	$3,079	$2,960	$3,226
Average	$1,609	$1,849	$1,725	$1,691	$1,737

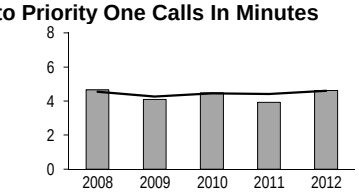
Inspections Completed per Inspector FTE



	2008	2009	2010	2011	2012
Cary	1,638	1,443	1,597	1,788	1,920
Average	1,410	1,552	1,536	1,531	1,481

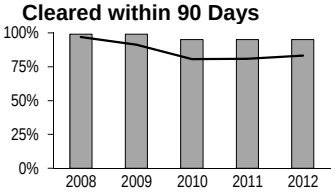
Effectiveness Measures

Average Response Time to Priority One Calls In Minutes



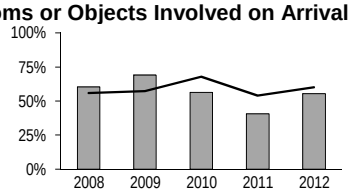
	2008	2009	2010	2011	2012
Cary	4.7	4.1	4.5	3.9	4.6
Average	4.5	4.3	4.5	4.4	4.6

Percentage of Fire Code Violations Cleared within 90 Days



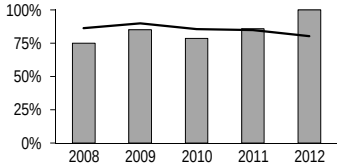
	2008	2009	2010	2011	2012
Cary	99%	99%	95%	95%	95%
Average	97%	91%	81%	81%	83%

Percentage of Fires Confined to Rooms or Objects Involved on Arrival



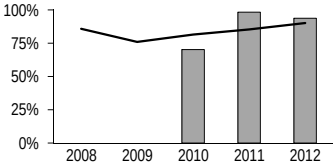
	2008	2009	2010	2011	2012
Cary	60%	69%	56%	41%	55%
Average	56%	57%	68%	54%	60%

Percentage of Fires for Which Cause Was Determined



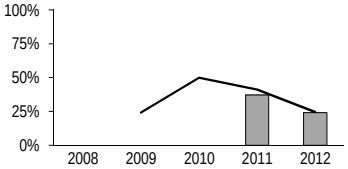
	2008	2009	2010	2011	2012
Cary	75%	85%	79%	86%	100%
Average	86%	90%	86%	85%	80%

Percentage of Full Response Within 8 Minutes Travel Time



	2008	2009	2010	2011	2012
Cary			70%	98%	94%
Average	86%	76%	82%	85%	90%

Percentage of Lost Pulse Cases Recovered Pulse at Transfer of Care



	2008	2009	2010	2011	2012
Cary				37.1%	24.1%
Average		24.0%	49.9%	41.1%	24.7%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

The mission of the Charlotte Fire Department is to minimize the risk of fire and other hazards to the life and property of the citizens of Charlotte. To accomplish this mission, the department provides response to and mitigation of fires, medical emergencies, hazardous materials incidents, aircraft emergencies, technical rescues, and other emergencies as they arise. These services are provided immediately to any person who has a need anywhere within the corporate limits of Charlotte.

The divisions of the Charlotte Fire Department are operations (A, B, C), training, administration, communications, logistics, fire prevention, and fire investigation.

The city uses a modified twenty-four-hour/forty-eight-hour shift schedule, using four twenty-four-hour shifts in a twelve-day cycle. The cycle is on one day, off one day, on one day, off two days, on one day, off one day, on one day, off four days. In addition, firefighters receive a Kelley day (ten hours) off and a Kelley night (fourteen hours) off every seven weeks to maintain the number of hours worked per week at fifty-two.

The city has an ISO rating of 3. The Charlotte Fire Department has been accredited since 2000.

The fire department conducted 27,177 fire maintenance, construction, and reinspections during FY 2011–12. All inspections are performed by certified fire inspectors who are employees of the Fire Prevention Bureau. The inspectors handle certificate of occupancy inspections, permit inspections and issuances, regular code enforcement inspections, and reinspections. The Bureau currently uses separate inspections on each building of an apartment complex.

Conditions Affecting Service, Performance, and Costs

The performance measure "percentage of lost pulse cases recovered pulse at transfer of care" is a new measure as of FY 2007–08.

Charlotte staffs an additional fire station at the airport.

Municipal Profile

Population (OSBM 2011)	765,871
Land Area (Square Miles)	309.24
Persons per Square Mile	2,477
Median Family Income U.S. Census 2010	$61,405

Service Profile

FTE Positions—Firefighters	1034.0
FTE Positions—Other	132.0
Fire Stations	41
First-Line Fire Apparatus	
Pumpers	41
Aerial Trucks	0
Quints	15
Squads	0
Rescue	2
Other	36
Fire Department Responses	95,441
Responses for Fires	1,973
Structural Fires Reported	461
Inspections Completed for Maintenance, Construction, and Reinspections	27,177
Fire Code Violations Reported	30,486
Estimated Fire Loss (millions)	$13.18
Amount of Property Protected in Service Area (millions)	$91,937
Number of Fire Education Programs or Events	1,833

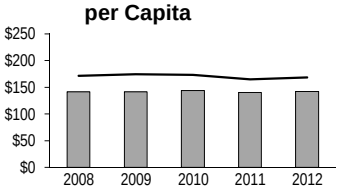
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	80.3%
Operating Costs	17.0%
Capital Costs	2.7%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$87,275,889
Operating Costs	$18,520,194
Capital Costs	$2,901,618
TOTAL	$108,697,701

Key: Charlotte ■ Benchmarking Average — Fiscal Years 2008 through 2012

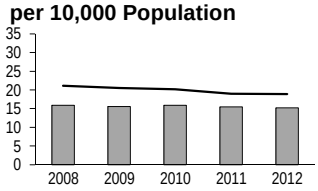
Resource Measures

Fire Services Costs per Capita



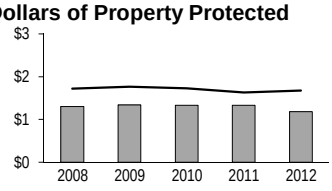
	2008	2009	2010	2011	2012
Charlotte	$142	$142	$144	$140	$142
Average	$171	$175	$173	$165	$168

Fire Services Total FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Charlotte	15.9	15.5	15.9	15.5	15.2
Average	21.1	20.5	20.1	19.0	18.9

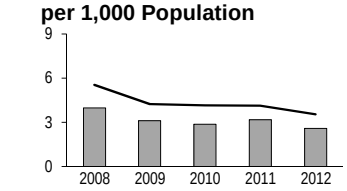
Fire Services Cost per Thousand Dollars of Property Protected



	2008	2009	2010	2011	2012
Charlotte	$1.30	$1.34	$1.33	$1.33	$1.18
Average	$1.72	$1.77	$1.73	$1.63	$1.67

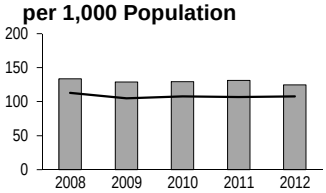
Workload Measures

Actual Fires per 1,000 Population



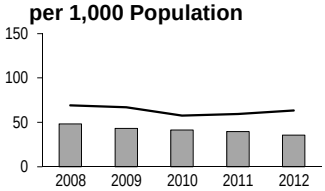
	2008	2009	2010	2011	2012
Charlotte	3.97	3.11	2.85	3.17	2.58
Average	5.52	4.24	4.15	4.12	3.53

Fire Department Responses per 1,000 Population



	2008	2009	2010	2011	2012
Charlotte	133	129	129	131	125
Average	113	105	108	107	108

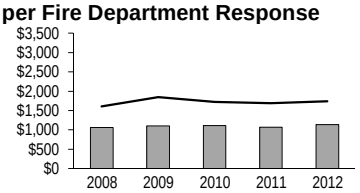
Fire Inspections Completed per 1,000 Population



	2008	2009	2010	2011	2012
Charlotte	48	43	41	40	35
Average	69	67	58	59	64

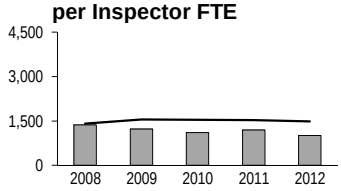
Efficiency Measures

Fire Services Cost per Fire Department Response



	2008	2009	2010	2011	2012
Charlotte	$1,061	$1,101	$1,112	$1,066	$1,139
Average	$1,609	$1,849	$1,725	$1,691	$1,737

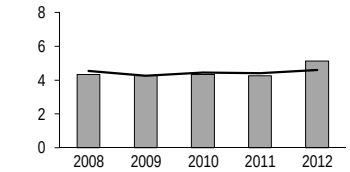
Inspections Completed per Inspector FTE



	2008	2009	2010	2011	2012
Charlotte	1,365	1,227	1,101	1,195	1,007
Average	1,410	1,552	1,536	1,531	1,481

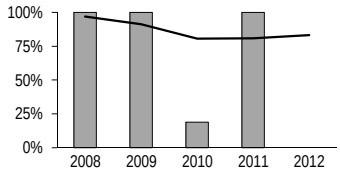
Effectiveness Measures

Average Response Time to Priority One Calls In Minutes



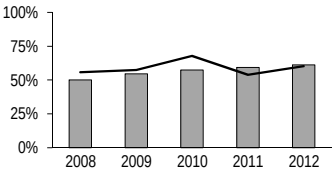
	2008	2009	2010	2011	2012
Charlotte	4.3	4.3	4.3	4.3	5.1
Average	4.5	4.3	4.5	4.4	4.6

Percentage of Fire Code Violations Cleared within 90 Days



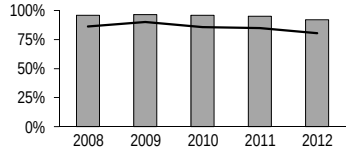
	2008	2009	2010	2011	2012
Charlotte	100%	100%	19%	100%	
Average	97%	91%	81%	81%	83%

Percentage of Fires Confined to Rooms or Objects Involved on Arrival



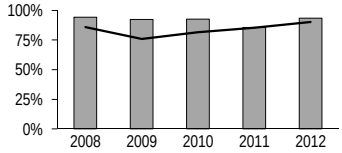
	2008	2009	2010	2011	2012
Charlotte	50%	55%	58%	59%	61%
Average	56%	57%	68%	54%	60%

Percentage of Fires for Which Cause Was Determined



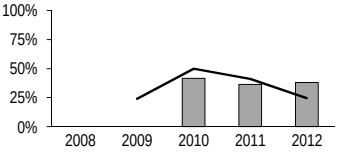
	2008	2009	2010	2011	2012
Charlotte	96%	96%	96%	95%	92%
Average	86%	90%	86%	85%	80%

Percentage of Full Response Within 8 Minutes Travel Time



	2008	2009	2010	2011	2012
Charlotte	94%	92%	93%	86%	94%
Average	86%	76%	82%	85%	90%

Percentage of Lost Pulse Cases Recovered Pulse at Transfer of Care



	2008	2009	2010	2011	2012
Charlotte			41.5%	36.5%	38.0%
Average		24.0%	49.9%	41.1%	24.7%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The City of Concord Fire Department is committed to providing a positive work environment to enable the department and its personnel to strive for and achieve excellence in fire protection services.

The department is committed to the following: providing leadership through a management/employee team organizational concept that is dedicated to modern-day management principles and practices; providing the citizens with the best possible modern-day fire protection and life safety services in a courteous, professional, and cost-effective manner; providing equal opportunity for all employees to excel in their job performance and career development; striving to continually increase the public's awareness through fire prevention activities, public education, and community-based services; maintaining and striving to improve on an open, informative flow of correct information so that all employees and employee teams reach their goals and objectives; subscribing to departmental values of honesty, professionalism, teamwork, loyalty, dedication, and commitment to serving the public; and planning for change to develop and prepare the department to always strive for excellence.

The fire department in Concord contains the following divisions: administration, suppression, operations, training and career development, fire-risk management, and emergency management.

The fire department utilizes a shift schedule that includes twenty-four hours on and forty-eight hours off.

The city has an ISO rating of 3, as rated in 2004.

The fire department conducted 6,867 fire maintenance, construction, and reinspections during FY 2011–12. Inspections are conducted by the Fire-Risk Management Division. Each inspector has an assigned area of the city and a specific number of inspections to complete. Each occupancy is counted separately in the inspections number. An apartment complex would be considered as one occupancy. Reinspections are conducted within forty-five days to confirm corrections.

Conditions Affecting Service, Performance, and Costs
The performance measure "percentage of lost pulse cases recovered pulse at transfer of care" is a new measure as of FY 2007–08.

Concord staffs an additional fire station at the airport.

Municipal Profile

Service Population	83,594
Land Area (Square Miles)	66.73
Persons per Square Mile	1,253
Median Family Income U.S. Census 2010	$63,643

Service Profile

FTE Positions—Firefighters	174.0
FTE Positions—Other	17.0
Fire Stations	10
First-Line Fire Apparatus	
Pumpers	9
Aerial Trucks	3
Quints	0
Squads	0
Rescue	1
Other	11
Fire Department Responses	8,855
Responses for Fires	315
Structural Fires Reported	92
Inspections Completed for Maintenance, Construction, and Reinspections	6,867
Fire Code Violations Reported	3,598
Estimated Fire Loss (millions)	$1.58
Amount of Property Protected in Service Area (millions)	$10,687
Number of Fire Education Programs or Events	446

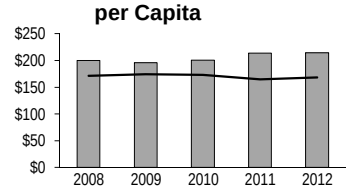
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	69.5%
Operating Costs	17.7%
Capital Costs	12.9%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$12,441,257
Operating Costs	$3,166,994
Capital Costs	$2,301,482
TOTAL	$17,909,733

Key: Concord ■ Benchmarking Average — Fiscal Years 2008 through 2012

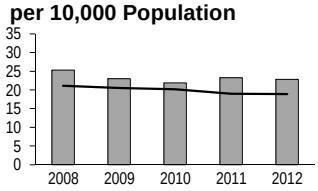
Resource Measures

Fire Services Costs per Capita



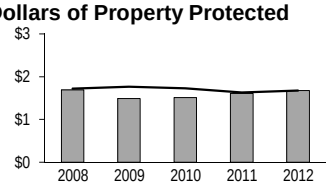
	2008	2009	2010	2011	2012
Concord	$200	$196	$201	$214	$214
Average	$171	$175	$173	$165	$168

Fire Services Total FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Concord	25.3	23.0	21.9	23.2	22.8
Average	21.1	20.5	20.1	19.0	18.9

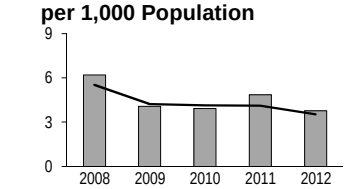
Fire Services Cost per Thousand Dollars of Property Protected



	2008	2009	2010	2011	2012
Concord	$1.69	$1.49	$1.51	$1.61	$1.68
Average	$1.72	$1.77	$1.73	$1.63	$1.67

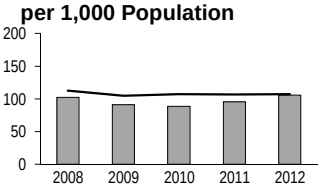
Workload Measures

Actual Fires per 1,000 Population



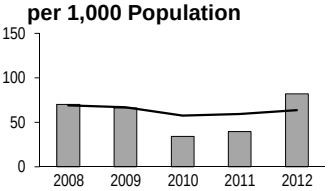
	2008	2009	2010	2011	2012
Concord	6.20	4.07	3.92	4.86	3.77
Average	5.52	4.24	4.15	4.12	3.53

Fire Department Responses per 1,000 Population



	2008	2009	2010	2011	2012
Concord	103	91	89	96	106
Average	113	105	108	107	108

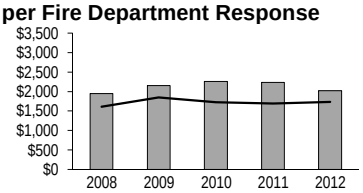
Fire Inspections Completed per 1,000 Population



	2008	2009	2010	2011	2012
Concord	70	66	34	40	82
Average	69	67	58	59	64

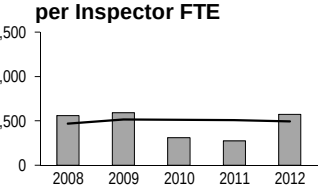
Efficiency Measures

Fire Services Cost per Fire Department Response



	2008	2009	2010	2011	2012
Concord	$1,947	$2,149	$2,261	$2,232	$2,023
Average	$1,609	$1,849	$1,725	$1,691	$1,737

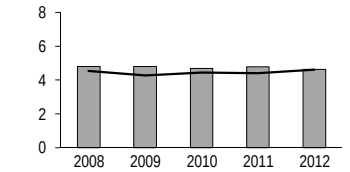
Inspections Completed per Inspector FTE



	2008	2009	2010	2011	2012
Concord	1,674	1,770	934	820	1,717
Average	1,410	1,552	1,536	1,531	1,481

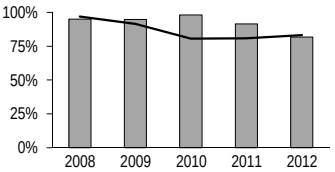
Effectiveness Measures

Average Response Time to Priority One Calls In Minutes



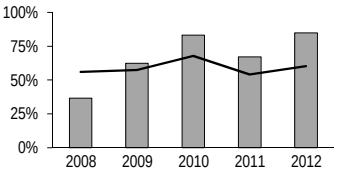
	2008	2009	2010	2011	2012
Concord	4.8	4.8	4.7	4.8	4.6
Average	4.5	4.3	4.5	4.4	4.6

Percentage of Fire Code Violations Cleared within 90 Days



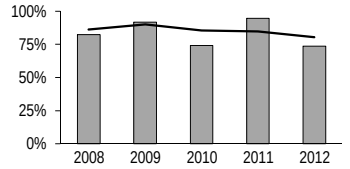
	2008	2009	2010	2011	2012
Concord	95%	95%	98%	92%	82%
Average	97%	91%	81%	81%	83%

Percentage of Fires Confined to Rooms or Objects Involved on Arrival



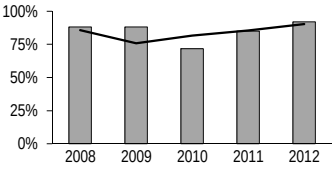
	2008	2009	2010	2011	2012
Concord	37%	62%	83%	67%	85%
Average	56%	57%	68%	54%	60%

Percentage of Fires for Which Cause Was Determined



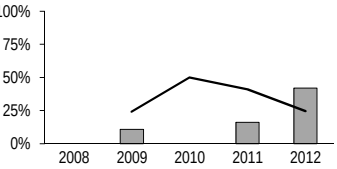
	2008	2009	2010	2011	2012
Concord	82%	92%	74%	95%	74%
Average	86%	90%	86%	85%	80%

Percentage of Full Response Within 8 Minutes Travel Time



	2008	2009	2010	2011	2012
Concord	88%	88%	72%	85%	92%
Average	86%	76%	82%	85%	90%

Percentage of Lost Pulse Cases Recovered Pulse at Transfer of Care



	2008	2009	2010	2011	2012
Concord		10.8%		16.3%	42.1%
Average		24.0%	49.9%	41.1%	24.7%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

The mission of the Greensboro Fire Department is to provide the public the best possible service in a courteous, professional, and cost-effective manner; to provide leadership through a well-defined management team committed to the departmental management philosophy; to provide equal opportunity for all employees in job performance and career development; to enhance public awareness through education, activities, and services; to maintain an open, informative flow of information so that all municipal departments may reach their goals and objectives; and to subscribe to honesty, integrity, and fairness.

The fire department contains the following divisions: administrative services, resource management, and emergency services.

The fire department utilizes a shift schedule that includes twenty-four hours on and forty-eight hours off. For Fair Labor Standards Act (FLSA) purposes, the department utilizes a twenty-seven-day cycle.

The city has an ISO rating of 1, the highest rating possible to receive, as rated in 2006. The Greensboro Fire Department has been accredited since 1997.

The fire department in Greensboro conducted 9,932 fire maintenance, construction, and reinspections during FY 2011–12. General inspections are performed according to the mandated inspection schedule, which is based on occupancy type established in the International Fire Code. Complaints are addressed within twenty-four hours and are handled twenty-four hours a day as shift personnel are available. Inspectors generally work in districts and work in specialized areas, including educational, institutional, high rise, privilege licenses, and certificates of compliance. Apartment complexes are assigned one file number for the entire complex.

Conditions Affecting Service, Performance, and Costs

The performance measure "percentage of lost pulse cases recovered pulse at transfer of care" is a new measure as of FY 2007–08.

Municipal Profile

Service Population	280,920
Land Area (Square Miles)	138.58
Persons per Square Mile	2,027
Median Family Income U.S. Census 2010	$52,752

Service Profile

FTE Positions—Firefighters	472.0
FTE Positions—Other	57.0
Fire Stations	24
First-Line Fire Apparatus	
Pumpers	23
Aerial Trucks	0
Quints	10
Squads	0
Rescue	1
Other	0
Fire Department Responses	30,816
Responses for Fires	1,128
Structural Fires Reported	265
Inspections Completed for Maintenance, Construction, and Reinspections	9,932
Fire Code Violations Reported	13,769
Estimated Fire Loss (millions)	$4.90
Amount of Property Protected in Service Area (millions)	$25,206
Number of Fire Education Programs or Events	1,033

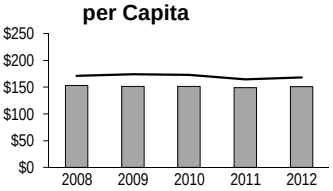
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	80.9%
Operating Costs	19.1%
Capital Costs	0.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$34,289,430
Operating Costs	$8,093,550
Capital Costs	$0
TOTAL	$42,382,980

Key: Greensboro ■ Benchmarking Average — Fiscal Years 2008 through 2012

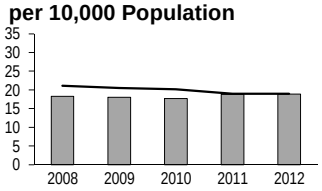
Resource Measures

Fire Services Costs per Capita



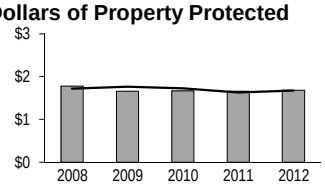
	2008	2009	2010	2011	2012
Greensboro	$153	$151	$152	$149	$151
Average	$171	$175	$173	$165	$168

Fire Services Total FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Greensboro	18.3	18.0	17.7	18.8	18.8
Average	21.1	20.5	20.1	19.0	18.9

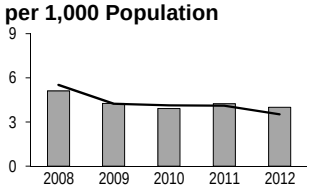
Fire Services Cost per Thousand Dollars of Property Protected



	2008	2009	2010	2011	2012
Greensboro	$1.78	$1.66	$1.67	$1.66	$1.68
Average	$1.72	$1.77	$1.73	$1.63	$1.67

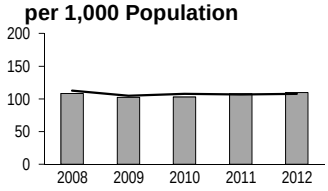
Workload Measures

Actual Fires per 1,000 Population



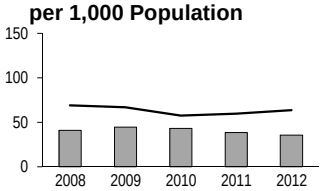
	2008	2009	2010	2011	2012
Greensboro	5.11	4.26	3.92	4.25	4.02
Average	5.52	4.24	4.15	4.12	3.53

Fire Department Responses per 1,000 Population



	2008	2009	2010	2011	2012
Greensboro	108	102	103	108	110
Average	113	105	108	107	108

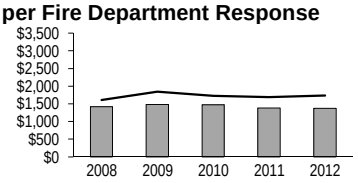
Fire Inspections Completed per 1,000 Population



	2008	2009	2010	2011	2012
Greensboro	41	45	43	38	35
Average	69	67	58	59	64

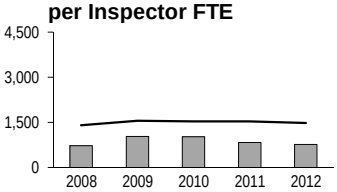
Efficiency Measures

Fire Services Cost per Fire Department Response



	2008	2009	2010	2011	2012
Greensboro	$1,417	$1,480	$1,471	$1,382	$1,375
Average	$1,609	$1,849	$1,725	$1,691	$1,737

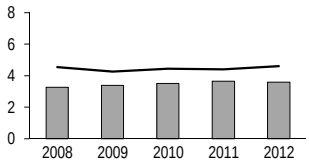
Inspections Completed per Inspector FTE



	2008	2009	2010	2011	2012
Greensboro	721	1,035	1,021	831	764
Average	1,410	1,552	1,536	1,531	1,481

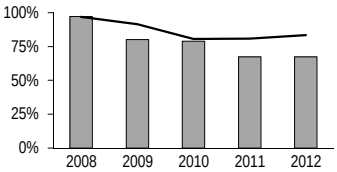
Effectiveness Measures

Average Response Time to Priority One Calls In Minutes



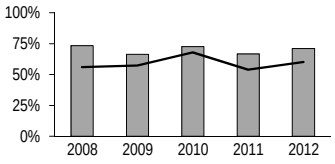
	2008	2009	2010	2011	2012
Greensboro	3.3	3.4	3.5	3.7	3.6
Average	4.5	4.3	4.5	4.4	4.6

Percentage of Fire Code Violations Cleared within 90 Days



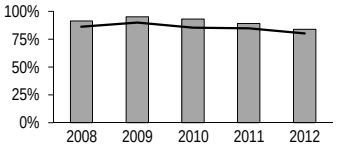
	2008	2009	2010	2011	2012
Greensboro	97%	80%	79%	67%	67%
Average	97%	91%	81%	81%	83%

Percentage of Fires Confined to Rooms or Objects Involved on Arrival



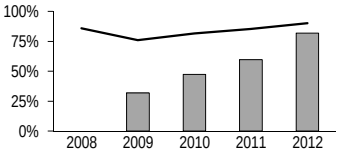
	2008	2009	2010	2011	2012
Greensboro	73%	66%	73%	67%	71%
Average	56%	57%	68%	54%	60%

Percentage of Fires for Which Cause Was Determined



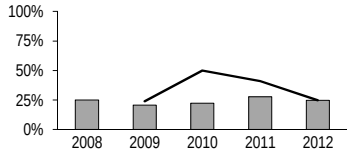
	2008	2009	2010	2011	2012
Greensboro	92%	95%	93%	89%	84%
Average	86%	90%	86%	85%	80%

Percentage of Full Response Within 8 Minutes Travel Time



	2008	2009	2010	2011	2012
Greensboro		32%	47%	60%	82%
Average	86%	76%	82%	85%	90%

Percentage of Lost Pulse Cases Recovered Pulse at Transfer of Care



	2008	2009	2010	2011	2012
Greensboro	25.0%	20.6%	22.4%	27.6%	24.8%
Average		24.0%	49.9%	41.1%	24.7%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The primary goals of the Greenville Fire and Rescue Department are to prevent fires and save lives and property by providing emergency response services for fires or medical emergencies.

Emergency personnel work a 24.25-hour shift followed by 47.75 hours off.

The city has an ISO rating of 3, as rated in 2007.

The fire department in Greenville conducted 3,169 fire maintenance, construction, and reinspections during FY 2011–12. The Life Safety Services Division handles all inspection-related matters following the International Fire Code.

Conditions Affecting Service, Performance, and Costs
Greenville joined the project in 2009, with the first year of reporting being for FY 2008–09.

The performance measure "percentage of lost pulse cases recovered pulse at transfer of care" is a new measure as of FY 2007–08.

Greenville is one of only two cities in the benchmarking project which has emergency medical services (EMS) provided through the city fire department. In the other jurisdictions, EMS is provided by county departments.

Complications with data tracking prevented Greenville from being able to submit numbers on fire incidents and several other measures for earlier fiscal years.

Municipal Profile

Service Population	111,344
Land Area (Square Miles)	66.40
Persons per Square Mile	1,677
Median Family Income U.S. Census 2010	$50,395

Service Profile

FTE Positions—Firefighters	140.0
FTE Positions—Other	17.0
Fire Stations	6
First-Line Fire Apparatus	
Pumpers	1
Aerial Trucks	0
Quints	6
Squads	0
Rescue	1
Other	6
Fire Department Responses	15,069
Responses for Fires	270
Structural Fires Reported	79
Inspections Completed for Maintenance, Construction, and Reinspections	3,169
Fire Code Violations Reported	1,501
Estimated Fire Loss (millions)	$2.27
Amount of Property Protected in Service Area (millions)	$7,807
Number of Fire Education Programs or Events	23

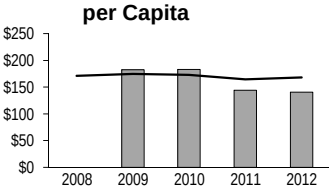
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	74.1%
Operating Costs	21.6%
Capital Costs	4.3%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$11,610,110
Operating Costs	$3,382,059
Capital Costs	$676,495
TOTAL	$15,668,664

Key: Greenville ■ Benchmarking Average — Fiscal Years 2008 through 2012

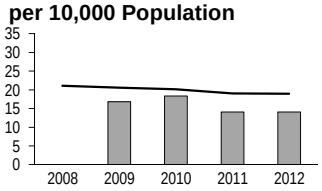
Resource Measures

Fire Services Costs per Capita



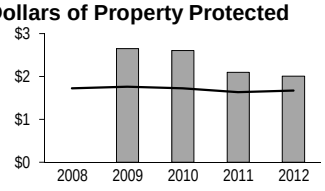
	2008	2009	2010	2011	2012
Greenville		$183	$183	$144	$141
Average	$171	$175	$173	$165	$168

Fire Services Total FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Greenville		16.8	18.3	14.1	14.1
Average	21.1	20.5	20.1	19.0	18.9

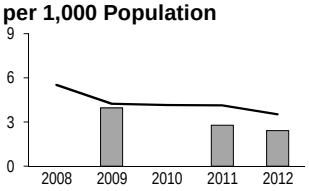
Fire Services Cost per Thousand Dollars of Property Protected



	2008	2009	2010	2011	2012
Greenville		$2.65	$2.61	$2.10	$2.01
Average	$1.72	$1.77	$1.73	$1.63	$1.67

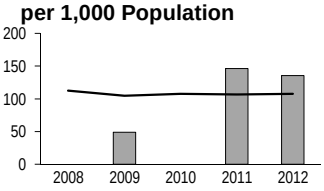
Workload Measures

Actual Fires per 1,000 Population



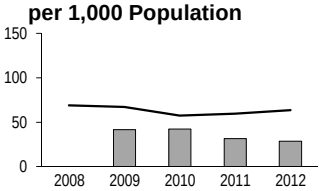
	2008	2009	2010	2011	2012
Greenville		3.96		2.79	2.42
Average	5.52	4.24	4.15	4.12	3.53

Fire Department Responses per 1,000 Population



	2008	2009	2010	2011	2012
Greenville		49		146	135
Average	113	105	108	107	108

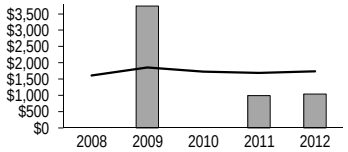
Fire Inspections Completed per 1,000 Population



	2008	2009	2010	2011	2012
Greenville		42	42	31	28
Average	69	67	58	59	64

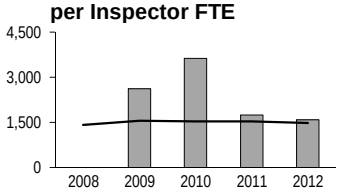
Efficiency Measures

Fire Services Cost per Fire Department Response



	2008	2009	2010	2011	2012
Greenville		$3,740		$986	$1,040
Average	$1,609	$1,849	$1,725	$1,691	$1,737

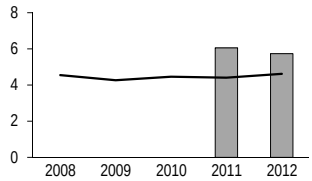
Inspections Completed per Inspector FTE



	2008	2009	2010	2011	2012
Greenville		2,616	3,625	1,745	1,585
Average	1,410	1,552	1,536	1,531	1,481

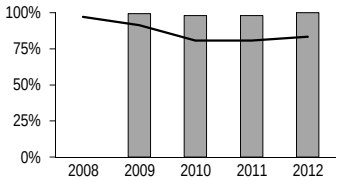
Effectiveness Measures

Average Response Time to Priority One Calls In Minutes



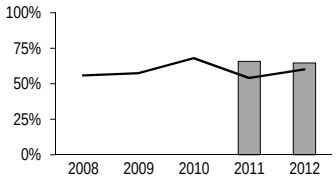
	2008	2009	2010	2011	2012
Greenville				6.1	5.7
Average	4.5	4.3	4.5	4.4	4.6

Percentage of Fire Code Violations Cleared within 90 Days



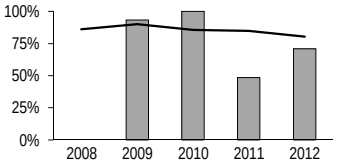
	2008	2009	2010	2011	2012
Greenville		99%	98%	98%	100%
Average	97%	91%	81%	81%	83%

Percentage of Fires Confined to Rooms or Objects Involved on Arrival



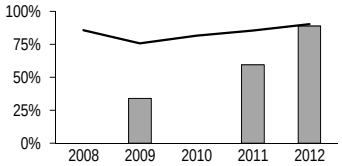
	2008	2009	2010	2011	2012
Greenville				66%	65%
Average	56%	57%	68%	54%	60%

Percentage of Fires for Which Cause Was Determined



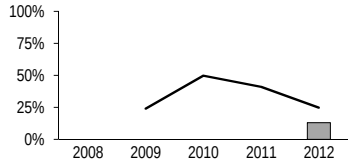
	2008	2009	2010	2011	2012
Greenville		93%	100%	49%	71%
Average	86%	90%	86%	85%	80%

Percentage of Full Response Within 8 Minutes Travel Time



	2008	2009	2010	2011	2012
Greenville		34%		60%	89%
Average	86%	76%	82%	85%	90%

Percentage of Lost Pulse Cases Recovered Pulse at Transfer of Care



	2008	2009	2010	2011	2012
Greenville					13.0%
Average		24.0%	49.9%	41.1%	24.7%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The primary goals of the Hickory Fire Department are to prevent fires, save lives and property, and protect the environment by providing vast amounts of training and planning for the formulation of a successful fire service delivery system.

The fire department contains the following divisions: administration, fire prevention, public education, training, maintenance, and fire suppression.

Fire suppression personnel work a twenty-four-hour shift with forty-eight hours off between shifts. The twenty-four-hour shift begins at 8 a.m.

The city has an ISO rating of 3, as rated in 2005

The fire department in Hickory conducted 5,538 fire maintenance, construction, and reinspections during FY 2011–12. Fire prevention inspectors are assigned Level I, Level II, and Level III inspections. They also review construction and fire protection plans and inspect the installation of fire protection systems. The inspectors also accompany building inspectors during certificate of occupancy inspections and are responsible for conducting fire investigations, fire hydrant flow tests, occupancy and site visits, and other activities as assigned.

Conditions Affecting Service, Performance, and Costs
The performance measure "percentage of lost pulse cases recovered pulse at transfer of care" is a new measure as of FY 2007–08.

Hickory has an additional fire station staffed at the regional airport.

Municipal Profile

Service Population	45,093
Land Area (Square Miles)	42.64
Persons per Square Mile	1,058
Median Family Income U.S. Census 2010	$54,093

Service Profile

FTE Positions—Firefighters	117.0
FTE Positions—Other	20.0
Fire Stations	6
First-Line Fire Apparatus	
Pumpers	6
Aerial Trucks	2
Quints	0
Squads	0
Rescue	1
Other	3
Fire Department Responses	6,149
Responses for Fires	207
Structural Fires Reported	47
Inspections Completed for Maintenance, Construction, and Reinspections	5,538
Fire Code Violations Reported	3,709
Estimated Fire Loss (millions)	$0.81
Amount of Property Protected in Service Area (millions)	$4,859
Number of Fire Education Programs or Events	443

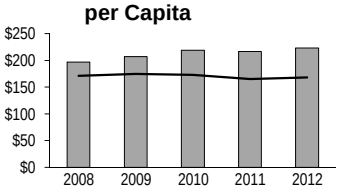
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	80.5%
Operating Costs	14.5%
Capital Costs	5.1%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$8,089,300
Operating Costs	$1,452,887
Capital Costs	$509,784
TOTAL	$10,051,971

Key: Hickory ■ Benchmarking Average — Fiscal Years 2008 through 2012

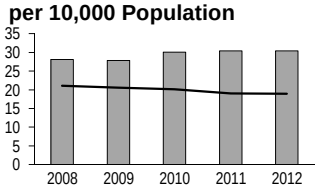
Resource Measures

Fire Services Costs per Capita



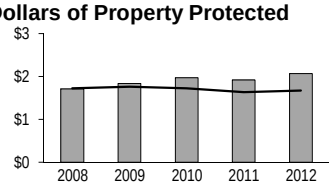
	2008	2009	2010	2011	2012
Hickory	$197	$207	$219	$216	$223
Average	$171	$175	$173	$165	$168

Fire Services Total FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Hickory	28.1	27.9	30.0	30.4	30.4
Average	21.1	20.5	20.1	19.0	18.9

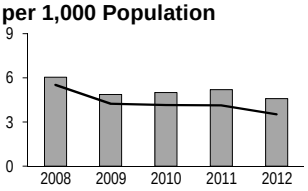
Fire Services Cost per Thousand Dollars of Property Protected



	2008	2009	2010	2011	2012
Hickory	$1.71	$1.84	$1.97	$1.91	$2.07
Average	$1.72	$1.77	$1.73	$1.63	$1.67

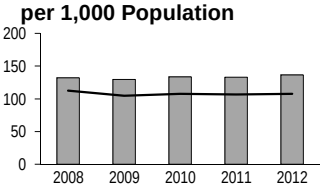
Workload Measures

Actual Fires per 1,000 Population



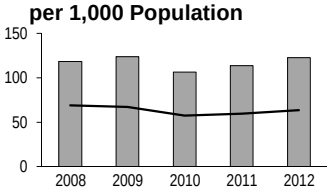
	2008	2009	2010	2011	2012
Hickory	6.04	4.88	5.01	5.19	4.59
Average	5.52	4.24	4.15	4.12	3.53

Fire Department Responses per 1,000 Population



	2008	2009	2010	2011	2012
Hickory	132	129	134	133	136
Average	113	105	108	107	108

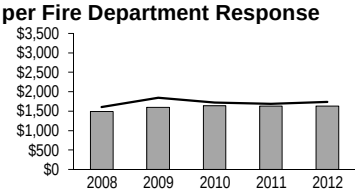
Fire Inspections Completed per 1,000 Population



	2008	2009	2010	2011	2012
Hickory	118	124	107	114	123
Average	69	67	58	59	64

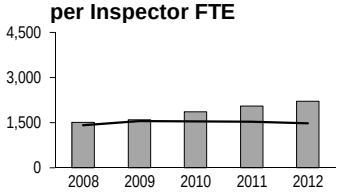
Efficiency Measures

Fire Services Cost per Fire Department Response



	2008	2009	2010	2011	2012
Hickory	$1,491	$1,597	$1,639	$1,629	$1,635
Average	$1,609	$1,849	$1,725	$1,691	$1,737

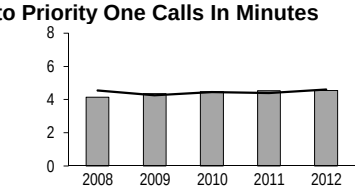
Inspections Completed per Inspector FTE



	2008	2009	2010	2011	2012
Hickory	1,512	1,593	1,863	2,052	2,215
Average	1,410	1,552	1,536	1,531	1,481

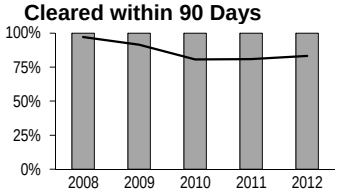
Effectiveness Measures

Average Response Time to Priority One Calls In Minutes



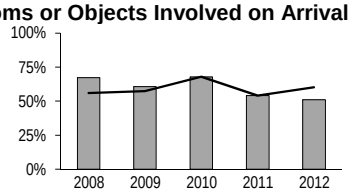
	2008	2009	2010	2011	2012
Hickory	4.2	4.4	4.5	4.5	4.6
Average	4.5	4.3	4.5	4.4	4.6

Percentage of Fire Code Violations Cleared within 90 Days



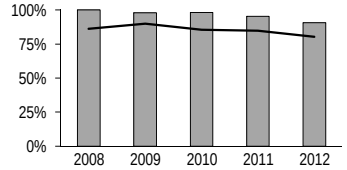
	2008	2009	2010	2011	2012
Hickory	100%	100%	100%	100%	100%
Average	97%	91%	81%	81%	83%

Percentage of Fires Confined to Rooms or Objects Involved on Arrival



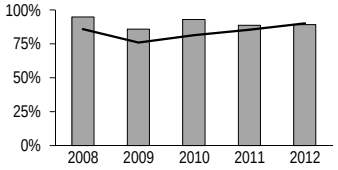
	2008	2009	2010	2011	2012
Hickory	67%	61%	68%	54%	51%
Average	56%	57%	68%	54%	60%

Percentage of Fires for Which Cause Was Determined



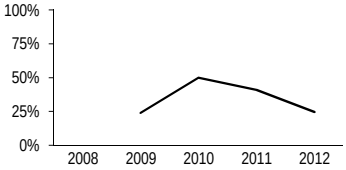
	2008	2009	2010	2011	2012
Hickory	100%	98%	98%	95%	91%
Average	86%	90%	86%	85%	80%

Percentage of Full Response Within 8 Minutes Travel Time



	2008	2009	2010	2011	2012
Hickory	95%	86%	93%	89%	89%
Average	86%	76%	82%	85%	90%

Percentage of Lost Pulse Cases Recovered Pulse at Transfer of Care



	2008	2009	2010	2011	2012
Hickory					
Average		24.0%	49.9%	41.1%	24.7%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The High Point Fire Department provides the following functions: firefighting, emergency medical response, rescue response, hazardous material technician response, inspection, fleet/vehicle maintenance, departmental technical services, and public life safety education and community relations.

The fire department contains the following divisions: administration, operations, and technical services.

Firefighters work twenty-four-hour shifts followed by forty-eight hours off. This cycle is repeated three times and is then followed by a four-day break, resulting in an average work week of fifty-six hours over a twenty-seven-day period.

The city has an ISO rating of 2, as rated in 2005.

The fire department in High Point conducted 6,522 fire maintenance, construction, and reinspections during FY 2011–12. All Level I inspections are conducted by fire suppression personnel. They are responsible for making the first inspection on an occupancy as well as conducting the first reinspection for that occupancy within thirty days. If code violations are not corrected, the case is turned over to fire prevention personnel for follow-up. All Level II and Level III inspections are conducted by fire prevention staff. All reinspections are conducted on thirty-day cycles.

Conditions Affecting Service, Performance, and Costs
The performance measure "percentage of lost pulse cases recovered pulse at transfer of care" is a new measure as of FY 2007–08.

Municipal Profile

Service Population	115,411
Land Area (Square Miles)	66.83
Persons per Square Mile	1,727
Median Family Income U.S. Census 2010	$49,720

Service Profile

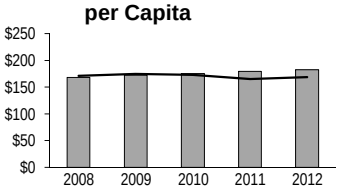
FTE Positions—Firefighters	200.0
FTE Positions—Other	23.0
Fire Stations	14
First-Line Fire Apparatus	
Pumpers	13
Aerial Trucks	3
Quints	0
Squads	3
Rescue	0
Other	9
Fire Department Responses	11,179
Responses for Fires	418
Structural Fires Reported	114
Inspections Completed for Maintenance, Construction, and Reinspections	6,522
Fire Code Violations Reported	2,732
Estimated Fire Loss (millions)	$4.18
Amount of Property Protected in Service Area (millions)	$10,172
Number of Fire Education Programs or Events	277

Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	73.7%
Operating Costs	16.8%
Capital Costs	9.5%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$15,513,445
Operating Costs	$3,544,100
Capital Costs	$1,999,349
TOTAL	$21,056,894

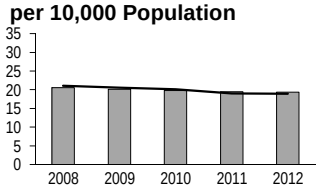
Resource Measures

Fire Services Costs per Capita



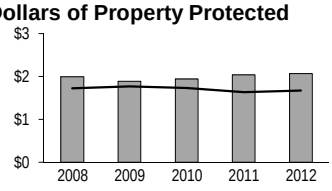
	2008	2009	2010	2011	2012
High Point	$168	$172	$175	$180	$182
Average	$171	$175	$173	$165	$168

Fire Services Total FTEs per 10,000 Population



	2008	2009	2010	2011	2012
High Point	20.6	20.1	19.8	19.5	19.3
Average	21.1	20.5	20.1	19.0	18.9

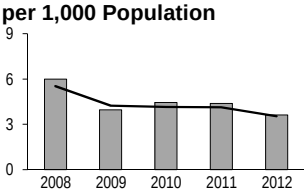
Fire Services Cost per Thousand Dollars of Property Protected



	2008	2009	2010	2011	2012
High Point	$1.99	$1.89	$1.94	$2.04	$2.07
Average	$1.72	$1.77	$1.73	$1.63	$1.67

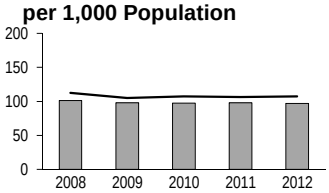
Workload Measures

Actual Fires per 1,000 Population



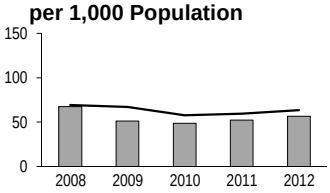
	2008	2009	2010	2011	2012
High Point	6.00	3.96	4.45	4.38	3.62
Average	5.52	4.24	4.15	4.12	3.53

Fire Department Responses per 1,000 Population



	2008	2009	2010	2011	2012
High Point	101	98	97	98	97
Average	113	105	108	107	108

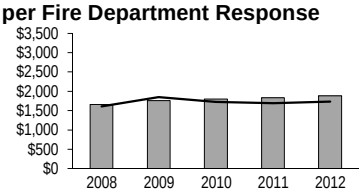
Fire Inspections Completed per 1,000 Population



	2008	2009	2010	2011	2012
High Point	67	51	49	52	57
Average	69	67	58	59	64

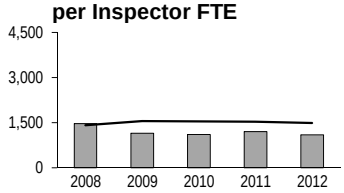
Efficiency Measures

Fire Services Cost per Fire Department Response



	2008	2009	2010	2011	2012
High Point	$1,657	$1,762	$1,797	$1,836	$1,884
Average	$1,609	$1,849	$1,725	$1,691	$1,737

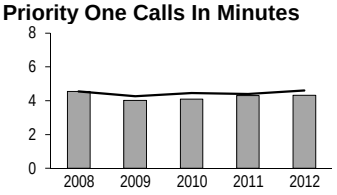
Inspections Completed per Inspector FTE



	2008	2009	2010	2011	2012
High Point	1,465	1,140	1,105	1,201	1,087
Average	1,410	1,552	1,536	1,531	1,481

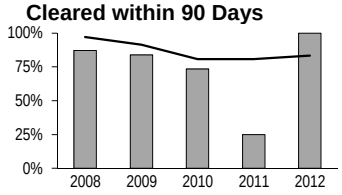
Effectiveness Measures

Average Response Time to Priority One Calls In Minutes



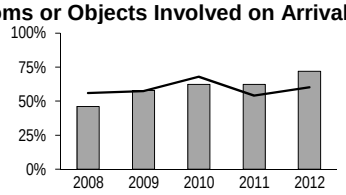
	2008	2009	2010	2011	2012
High Point	4.6	4.0	4.1	4.3	4.3
Average	4.5	4.3	4.5	4.4	4.6

Percentage of Fire Code Violations Cleared within 90 Days



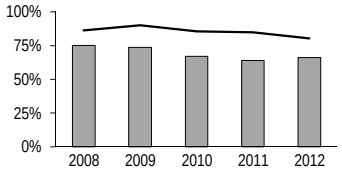
	2008	2009	2010	2011	2012
High Point	87%	84%	73%	25%	100%
Average	97%	91%	81%	81%	83%

Percentage of Fires Confined to Rooms or Objects Involved on Arrival



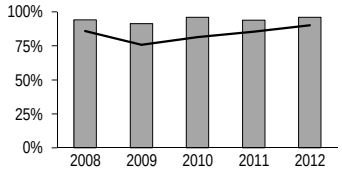
	2008	2009	2010	2011	2012
High Point	46%	58%	62%	62%	72%
Average	56%	57%	68%	54%	60%

Percentage of Fires for Which Cause Was Determined



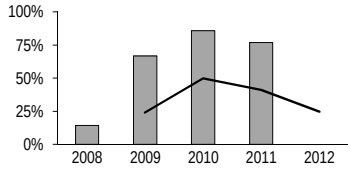
	2008	2009	2010	2011	2012
High Point	75%	74%	67%	64%	66%
Average	86%	90%	86%	85%	80%

Percentage of Full Response Within 8 Minutes Travel Time



	2008	2009	2010	2011	2012
High Point	94%	91%	96%	94%	96%
Average	86%	76%	82%	85%	90%

Percentage of Lost Pulse Cases Recovered Pulse at Transfer of Care



	2008	2009	2010	2011	2012
High Point	14.3%	66.7%	85.7%	76.9%	0.0%
Average		24.0%	49.9%	41.1%	24.7%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

The statement of purpose for the Salisbury Fire Department is to provide capable, well-trained personnel and necessary equipment to suppress fires and effectively manage hazardous chemical accidents that may occur in the community related to transportation or industry; to provide rescue services as needed and basic life support through an updated First Responder Program; and to work toward a more fire-safe community through loss prevention activities, including inspections, code enforcement, minimum housing activities, and public education programs.

The fire department contains the following divisions: fire control, loss prevention, training, and logistics.

The shift schedule for the fire department is twenty-four hours on and forty-eight hours off for three cycles. There are three shifts. Captains and firefighters get a twenty-four-hour Kelley day plus four hours off for any twenty-eight-day cycle exceeding 212 hours worked. The city has some part-time personnel working to fill vacant spots on the shifts due to Kelley days. Salisbury now is a quint system of deployment and duty. The quint trucks combine the duties of an engine and a truck company into a single company.

The city has an ISO rating of 2, as rated in 2007.

The fire department in Salisbury reported 2,402 fire maintenance, construction, and reinspections conducted in FY 2011–12. The city follows or exceeds the state guidelines for frequency of inspections for all occupancies. Apartment buildings have one file number. Reinspections are performed at thirty-day intervals. Fees are assessed at the third inspection.

Conditions Affecting Service, Performance, and Costs

The performance measure "percentage of lost pulse cases recovered pulse at transfer of care" is a new measure as of FY 2007–08.

Municipal Profile

Population (OSBM 2011)	33,704
Land Area (Square Miles)	22.18
Persons per Square Mile	1,519
Median Family Income U.S. Census 2010	$40,192

Service Profile

FTE Positions—Firefighters	71.0
FTE Positions—Other	6.0
Fire Stations	4
First-Line Fire Apparatus	
Pumpers	0
Aerial Trucks	0
Quints	4
Squads	1
Rescue	1
Other	1
Fire Department Responses	4,402
Responses for Fires	139
Structural Fires Reported	55
Inspections Completed for Maintenance, Construction, and Reinspections	2,402
Fire Code Violations Reported	3,189
Estimated Fire Loss (millions)	$1.32
Amount of Property Protected in Service Area (millions)	$2,782
Number of Fire Education Programs or Events	28

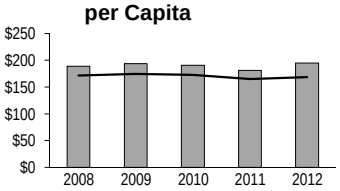
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	64.4%
Operating Costs	22.5%
Capital Costs	13.2%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$4,231,435
Operating Costs	$1,479,133
Capital Costs	$864,918
TOTAL	$6,575,486

Key: Salisbury ■ Benchmarking Average — Fiscal Years 2008 through 2012

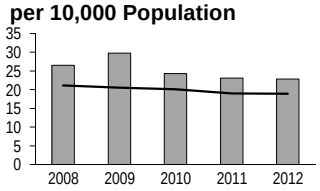
Resource Measures

Fire Services Costs per Capita



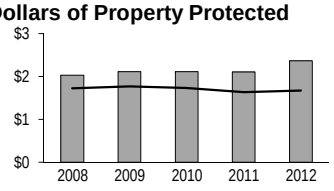
	2008	2009	2010	2011	2012
Salisbury	$189	$194	$191	$181	$195
Average	$171	$175	$173	$165	$168

Fire Services Total FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Salisbury	26.5	29.8	24.3	23.1	22.8
Average	21.1	20.5	20.1	19.0	18.9

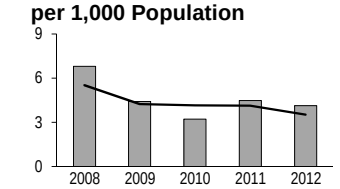
Fire Services Cost per Thousand Dollars of Property Protected



	2008	2009	2010	2011	2012
Salisbury	$2.03	$2.11	$2.11	$2.11	$2.36
Average	$1.72	$1.77	$1.73	$1.63	$1.67

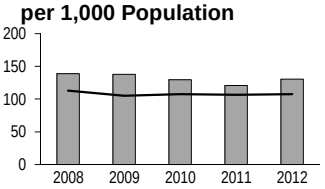
Workload Measures

Actual Fires per 1,000 Population



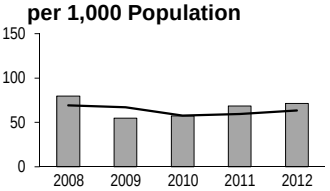
	2008	2009	2010	2011	2012
Salisbury	6.81	4.40	3.22	4.48	4.12
Average	5.52	4.24	4.15	4.12	3.53

Fire Department Responses per 1,000 Population



	2008	2009	2010	2011	2012
Salisbury	139	138	130	121	131
Average	113	105	108	107	108

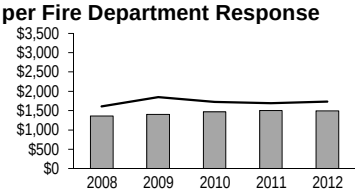
Fire Inspections Completed per 1,000 Population



	2008	2009	2010	2011	2012
Salisbury	80	55	58	68	71
Average	69	67	58	59	64

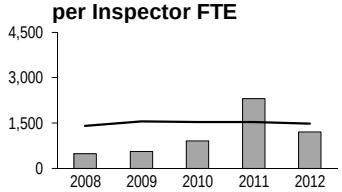
Efficiency Measures

Fire Services Cost per Fire Department Response



	2008	2009	2010	2011	2012
Salisbury	$1,363	$1,403	$1,472	$1,500	$1,494
Average	$1,609	$1,849	$1,725	$1,691	$1,737

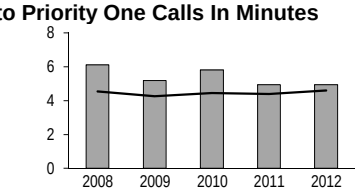
Inspections Completed per Inspector FTE



	2008	2009	2010	2011	2012
Salisbury	486	563	910	2,308	1,201
Average	1,410	1,552	1,536	1,531	1,481

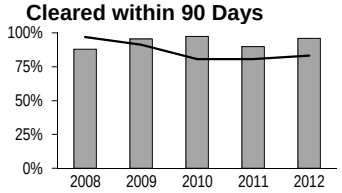
Effectiveness Measures

Average Response Time to Priority One Calls In Minutes



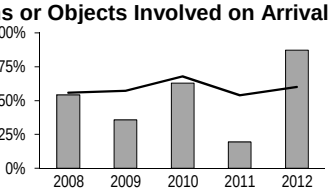
	2008	2009	2010	2011	2012
Salisbury	6.1	5.2	5.8	4.9	4.9
Average	4.5	4.3	4.5	4.4	4.6

Percentage of Fire Code Violations Cleared within 90 Days



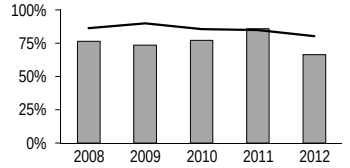
	2008	2009	2010	2011	2012
Salisbury	88%	96%	98%	90%	96%
Average	97%	91%	81%	81%	83%

Percentage of Fires Confined to Rooms or Objects Involved on Arrival



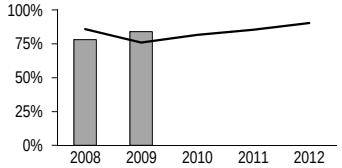
	2008	2009	2010	2011	2012
Salisbury	54%	36%	63%	19%	87%
Average	56%	57%	68%	54%	60%

Percentage of Fires for Which Cause Was Determined



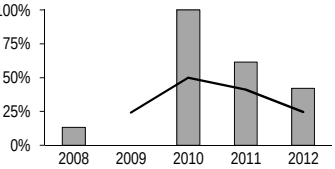
	2008	2009	2010	2011	2012
Salisbury	77%	74%	77%	86%	66%
Average	86%	90%	86%	85%	80%

Percentage of Full Response Within 8 Minutes Travel Time



	2008	2009	2010	2011	2012
Salisbury	78%	84%			
Average	86%	76%	82%	85%	90%

Percentage of Lost Pulse Cases Recovered Pulse at Transfer of Care



	2008	2009	2010	2011	2012
Salisbury	13.3%		100.0%	61.5%	42.1%
Average		24.0%	49.9%	41.1%	24.7%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The Wilmington Fire Department provides the following services in addition to fire suppression and fire prevention for the city of Wilmington: EMS/first response, hazardous materials, high angle and confined rescue, scuba diving, and fire inspection.

The fire department contains the following divisions: fire suppression, fire prevention, and support services.

The city uses a rotating shift consisting of three shifts of twenty-four hours, with a day off between shifts. This is followed by four days off before the cycle repeats itself.

The city has an ISO rating of 2, as rated in 2005.

The fire department in Wilmington conducted 5,973 fire maintenance, construction, and reinspections during FY 2011–12. The Wilmington Fire Prevention Bureau follows the required inspection schedule for all occupancies within the corporate limits of the city. Each building in an apartment complex is counted as an inspection. Reinspections also are counted as inspections for tracking purposes.

Conditions Affecting Service, Performance, and Costs
The performance measure "percentage of lost pulse cases recovered pulse at transfer of care" is a new measure as of FY 2007–08.

Municipal Profile

Population (OSBM 2011)	108,337
Land Area (Square Miles)	51.49
Persons per Square Mile	2,104
Median Family Income U.S. Census 2010	$57,892

Service Profile

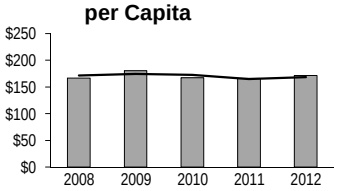
FTE Positions—Firefighters	190.0
FTE Positions—Other	30.0
Fire Stations	11
First-Line Fire Apparatus	
Pumpers	11
Aerial Trucks	2
Quints	0
Squads	0
Rescue	2
Other	12
Fire Department Responses	10,574
Responses for Fires	531
Structural Fires Reported	101
Inspections Completed for Maintenance, Construction, and Reinspections	5,973
Fire Code Violations Reported	2,045
Estimated Fire Loss (millions)	$3.47
Amount of Property Protected in Service Area (millions)	$14,215
Number of Fire Education Programs or Events	434

Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	68.0%
Operating Costs	20.4%
Capital Costs	11.5%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$12,626,644
Operating Costs	$3,790,606
Capital Costs	$2,141,736
TOTAL	$18,558,986

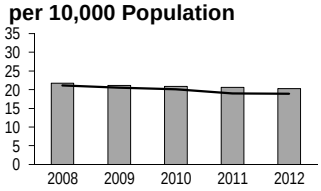
Resource Measures

Fire Services Costs per Capita



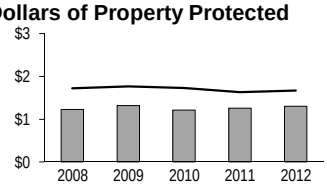
	2008	2009	2010	2011	2012
Wilmington	$167	$180	$167	$166	$171
Average	$171	$175	$173	$165	$168

Fire Services Total FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Wilmington	21.8	21.1	20.9	20.6	20.3
Average	21.1	20.5	20.1	19.0	18.9

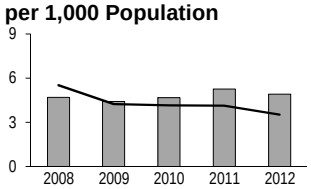
Fire Services Cost per Thousand Dollars of Property Protected



	2008	2009	2010	2011	2012
Wilmington	$1.23	$1.32	$1.21	$1.26	$1.31
Average	$1.72	$1.77	$1.73	$1.63	$1.67

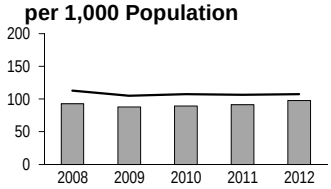
Workload Measures

Actual Fires per 1,000 Population



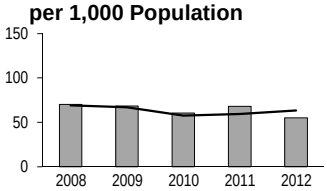
	2008	2009	2010	2011	2012
Wilmington	4.69	4.41	4.67	5.25	4.90
Average	5.52	4.24	4.15	4.12	3.53

Fire Department Responses per 1,000 Population



	2008	2009	2010	2011	2012
Wilmington	93	88	89	91	98
Average	113	105	108	107	108

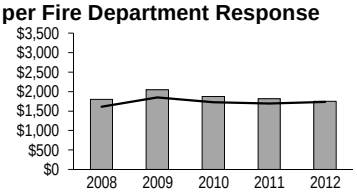
Fire Inspections Completed per 1,000 Population



	2008	2009	2010	2011	2012
Wilmington	70	69	60	68	55
Average	69	67	58	59	64

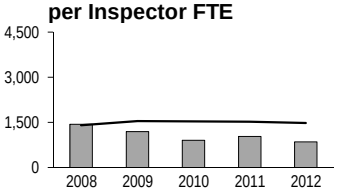
Efficiency Measures

Fire Services Cost per Fire Department Response



	2008	2009	2010	2011	2012
Wilmington	$1,797	$2,050	$1,877	$1,818	$1,755
Average	$1,609	$1,849	$1,725	$1,691	$1,737

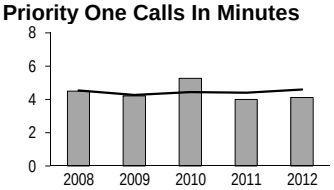
Inspections Completed per Inspector FTE



	2008	2009	2010	2011	2012
Wilmington	1,442	1,197	910	1,037	853
Average	1,410	1,552	1,536	1,531	1,481

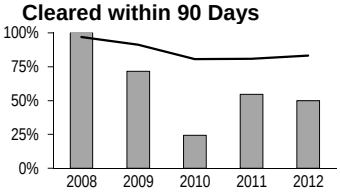
Effectiveness Measures

Average Response Time to Priority One Calls In Minutes



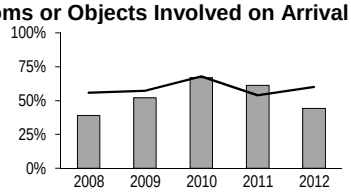
	2008	2009	2010	2011	2012
Wilmington	4.5	4.2	5.3	4.0	4.1
Average	4.5	4.3	4.5	4.4	4.6

Percentage of Fire Code Violations Cleared within 90 Days



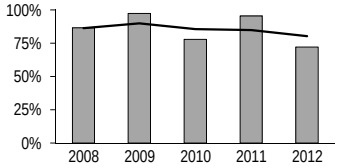
	2008	2009	2010	2011	2012
Wilmington	108%	72%	24%	55%	50%
Average	97%	91%	81%	81%	83%

Percentage of Fires Confined to Rooms or Objects Involved on Arrival



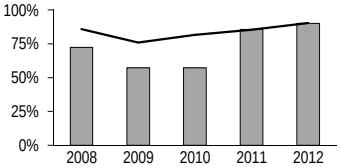
	2008	2009	2010	2011	2012
Wilmington	39%	52%	67%	61%	44%
Average	56%	57%	68%	54%	60%

Percentage of Fires for Which Cause Was Determined



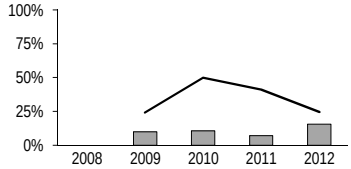
	2008	2009	2010	2011	2012
Wilmington	87%	97%	78%	95%	72%
Average	86%	90%	86%	85%	80%

Percentage of Full Response Within 8 Minutes Travel Time



	2008	2009	2010	2011	2012
Wilmington	72%	57%	57%	86%	90%
Average	86%	76%	82%	85%	90%

Percentage of Lost Pulse Cases Recovered Pulse at Transfer of Care



	2008	2009	2010	2011	2012
Wilmington		9.8%	10.5%	7.1%	15.5%
Average		24.0%	49.9%	41.1%	24.7%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Wilson Fire/Rescue Services is a public safety organization whose mission is to assist the public in the protection of life and property by minimizing the impact of fire, medical emergencies, and potential disasters or events that affect the community and the environment.

Wilson Fire/Rescue Services has two major divisions. Operations handles emergency responses and equipment maintenance. Support Services handles fire prevention and education, facility maintenance, IM/GIS, and budget.

Firefighters work twenty-four hours on and twenty-four hours off. Each work cycle consists of three twenty-four shifts with a day off between shifts. A four-day break is then provided before the cycle repeats itself.

The city has an ISO rating of 2, as rated in 2005. The Wilson Fire Department has been accredited since 2002.

The fire department in Wilson conducted 6,433 fire maintenance, construction, and reinspections during FY 2011–12. Fire inspections are conducted by the Fire Prevention Bureau on a daily basis. Inspectors are assigned a district to handle all inspections. A charge is made on the third reinspection.

Conditions Affecting Service, Performance, and Costs
The performance measure "percentage of lost pulse cases recovered pulse at transfer of care" is a new measure as of FY 2007–08.

Municipal Profile

Population (OSBM 2011)	49,122
Land Area (Square Miles)	28.78
Persons per Square Mile	1,707
Median Family Income U.S. Census 2010	$43,442

Service Profile

FTE Positions—Firefighters	84.0
FTE Positions—Other	13.0
Fire Stations	5
First-Line Fire Apparatus	
Pumpers	4
Aerial Trucks	1
Quints	1
Squads	0
Rescue	0
Other	1
Fire Department Responses	3,832
Responses for Fires	146
Structural Fires Reported	56
Inspections Completed for Maintenance, Construction, and Reinspections	6,433
Fire Code Violations Reported	4,903
Estimated Fire Loss (millions)	$1.23
Amount of Property Protected in Service Area (millions)	$3,963
Number of Fire Education Programs or Events	389

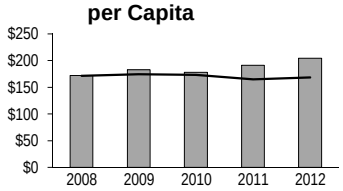
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	67.5%
Operating Costs	25.2%
Capital Costs	7.3%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$6,766,318
Operating Costs	$2,530,470
Capital Costs	$729,700
TOTAL	$10,026,488

Key: Wilson ■ Benchmarking Average — Fiscal Years 2008 through 2012

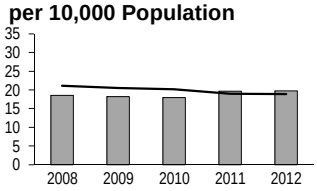
Resource Measures

Fire Services Costs per Capita



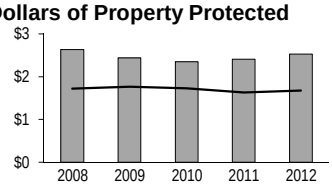
	2008	2009	2010	2011	2012
Wilson	$172	$182	$178	$191	$204
Average	$171	$175	$173	$165	$168

Fire Services Total FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Wilson	18.5	18.2	18.0	19.6	19.7
Average	21.1	20.5	20.1	19.0	18.9

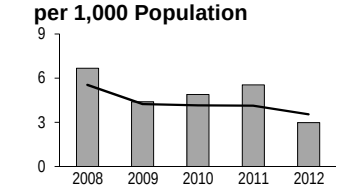
Fire Services Cost per Thousand Dollars of Property Protected



	2008	2009	2010	2011	2012
Wilson	$2.63	$2.44	$2.35	$2.41	$2.53
Average	$1.72	$1.77	$1.73	$1.63	$1.67

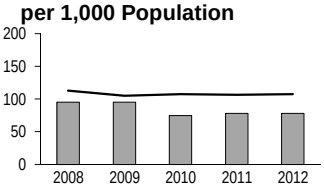
Workload Measures

Actual Fires per 1,000 Population



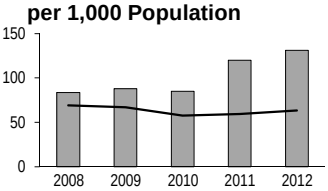
	2008	2009	2010	2011	2012
Wilson	6.66	4.38	4.89	5.54	2.97
Average	5.52	4.24	4.15	4.12	3.53

Fire Department Responses per 1,000 Population



	2008	2009	2010	2011	2012
Wilson	95	95	75	78	78
Average	113	105	108	107	108

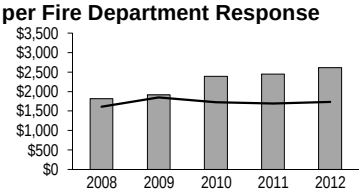
Fire Inspections Completed per 1,000 Population



	2008	2009	2010	2011	2012
Wilson	84	88	85	120	131
Average	69	67	58	59	64

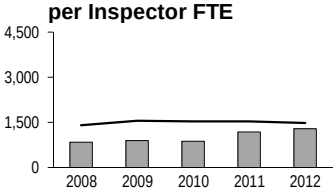
Efficiency Measures

Fire Services Cost per Fire Department Response



	2008	2009	2010	2011	2012
Wilson	$1,814	$1,915	$2,391	$2,446	$2,617
Average	$1,609	$1,849	$1,725	$1,691	$1,737

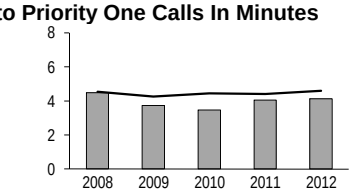
Inspections Completed per Inspector FTE



	2008	2009	2010	2011	2012
Wilson	839	899	880	1,184	1,287
Average	1,410	1,552	1,536	1,531	1,481

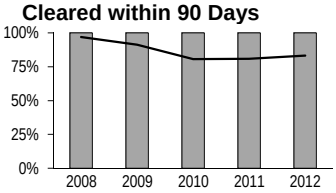
Effectiveness Measures

Average Response Time to Priority One Calls In Minutes



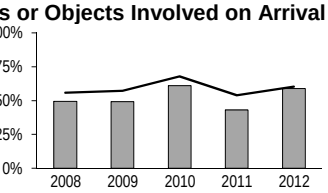
	2008	2009	2010	2011	2012
Wilson	4.5	3.7	3.5	4.1	4.1
Average	4.5	4.3	4.5	4.4	4.6

Percentage of Fire Code Violations Cleared within 90 Days



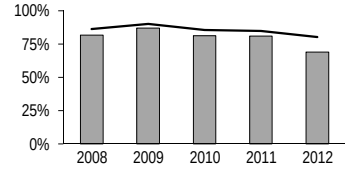
	2008	2009	2010	2011	2012
Wilson	100%	100%	100%	100%	100%
Average	97%	91%	81%	81%	83%

Percentage of Fires Confined to Rooms or Objects Involved on Arrival



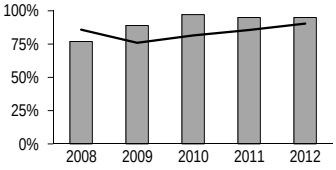
	2008	2009	2010	2011	2012
Wilson	49%	49%	61%	43%	59%
Average	56%	57%	68%	54%	60%

Percentage of Fires for Which Cause Was Determined



	2008	2009	2010	2011	2012
Wilson	82%	87%	81%	81%	69%
Average	86%	90%	86%	85%	80%

Percentage of Full Response Within 8 Minutes Travel Time



	2008	2009	2010	2011	2012
Wilson	77%	89%	97%	95%	95%
Average	86%	76%	82%	85%	90%

Percentage of Lost Pulse Cases Recovered Pulse at Transfer of Care

	2008	2009	2010	2011	2012
Wilson			100.0%	17.1%	3.4%
Average		24.0%	49.9%	41.1%	24.7%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The mission of the Winston-Salem Fire Department is to protect the lives and property of all people within Winston-Salem by reducing the occurrence and minimizing the effects of fires.

The Winston-Salem Fire Department contains the following six divisions: fire suppression, vehicle maintenance, planning, community education, fire prevention, and administration.

Fire suppression personnel work a twenty-one-day cycle with an average of fifty-six hours per week.

The city has an ISO rating of 3, as rated in 2006.

The fire department in Winston-Salem conducted 13,023 fire maintenance, construction, and reinspections during FY 2011–12. The fire department inspection program includes inspections that 1) ensure reasonable life safety conditions within a structure; 2) identify fire hazards; and 3) determine the proper installation, operation, and maintenance of fire protection features, systems, and appliances within buildings. The fire department inspection program involves both the Fire Prevention Bureau and the fire engine companies. Similar to the Fire Prevention Bureau, all fire stations have inspection responsibilities and conduct building inspections within their assigned territories. Each business within the city limits is inspected annually and receives as many return visits as necessary for fire code compliance.

Conditions Affecting Service, Performance, and Costs
The performance measure "percentage of lost pulse cases recovered pulse at transfer of care" is a new measure as of FY 2007–08.

Winston-Salem has a high number of inspections per inspector FTE when compared to the other jurisdictions due to the fact that many inspections are performed by fire company personnel. The city defines an inspection as a site interior and/or exterior survey of a building, operation, event, condition, and/or activity for the purpose of verifying fire and building code compliance.

Municipal Profile

Population (OSBM 2011)	232,143
Land Area (Square Miles)	132.45
Persons per Square Mile	1,753
Median Family Income U.S. Census 2010	$51,491

Service Profile

FTE Positions—Firefighters	319.0
FTE Positions—Other	25.0
Fire Stations	18
First-Line Fire Apparatus	
Pumpers	18
Aerial Trucks	5
Quints	0
Squads	0
Rescue	1
Other	13
Fire Department Responses	26,483
Responses for Fires	823
Structural Fires Reported	279
Inspections Completed for Maintenance, Construction, and Reinspections	13,023
Fire Code Violations Reported	8,781
Estimated Fire Loss (millions)	$4.53
Amount of Property Protected in Service Area (millions)	$21,266
Number of Fire Education Programs or Events	809

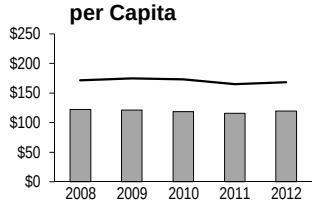
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	80.7%
Operating Costs	12.2%
Capital Costs	7.1%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$22,387,616
Operating Costs	$3,389,516
Capital Costs	$1,977,874
TOTAL	$27,755,006

Key: Winston-Salem ■ Benchmarking Average — Fiscal Years 2008 through 2012

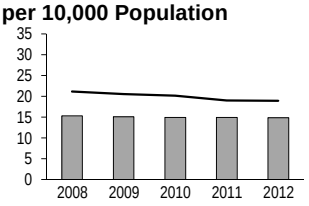
Resource Measures

Fire Services Costs per Capita



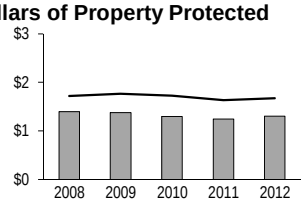
	2008	2009	2010	2011	2012
Winston-Salem	$122	$121	$119	$116	$120
Average	$171	$175	$173	$165	$168

Fire Services Total FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Winston-Salem	15.3	15.1	14.9	14.9	14.8
Average	21.1	20.5	20.1	19.0	18.9

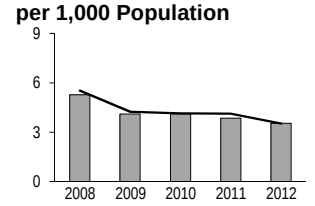
Fire Services Cost per Thousand Dollars of Property Protected



	2008	2009	2010	2011	2012
Winston-Salem	$1.40	$1.38	$1.30	$1.25	$1.31
Average	$1.72	$1.77	$1.73	$1.63	$1.67

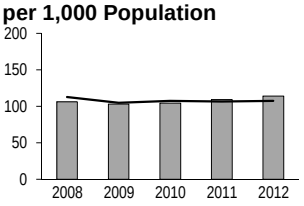
Workload Measures

Actual Fires per 1,000 Population



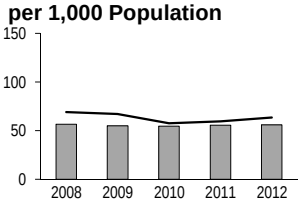
	2008	2009	2010	2011	2012
Winston-Salem	5.27	4.10	4.11	3.85	3.55
Average	5.52	4.24	4.15	4.12	3.53

Fire Department Responses per 1,000 Population



	2008	2009	2010	2011	2012
Winston-Salem	106	103	104	109	114
Average	113	105	108	107	108

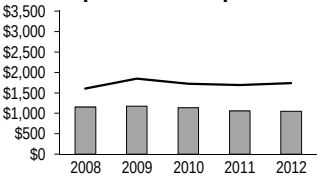
Fire Inspections Completed per 1,000 Population



	2008	2009	2010	2011	2012
Winston-Salem	57	55	55	56	56
Average	69	67	58	59	64

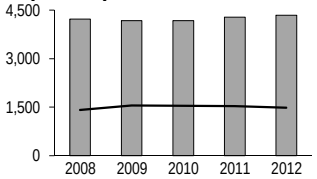
Efficiency Measures

Fire Services Cost per Fire Department Response



	2008	2009	2010	2011	2012
Winston-Salem	$1,151	$1,172	$1,135	$1,057	$1,048
Average	$1,609	$1,849	$1,725	$1,691	$1,737

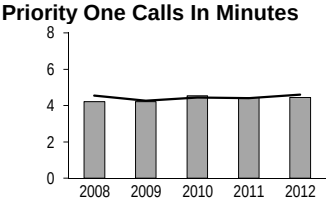
Inspections Completed per Inspector FTE



	2008	2009	2010	2011	2012
Winston-Salem	4,230	4,175	4,180	4,280	4,341
Average	1,410	1,552	1,536	1,531	1,481

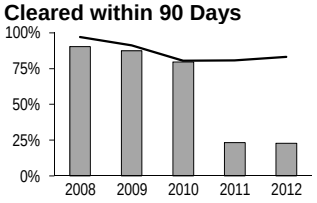
Effectiveness Measures

Average Response Time to Priority One Calls In Minutes



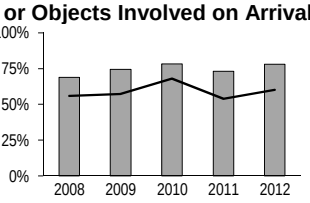
	2008	2009	2010	2011	2012
Winston-Salem	4.2	4.2	4.5	4.5	4.5
Average	4.5	4.3	4.5	4.4	4.6

Percentage of Fire Code Violations Cleared within 90 Days



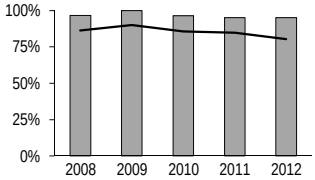
	2008	2009	2010	2011	2012
Winston-Salem	90%	88%	80%	23%	23%
Average	97%	91%	81%	81%	83%

Percentage of Fires Confined to Rooms or Objects Involved on Arrival



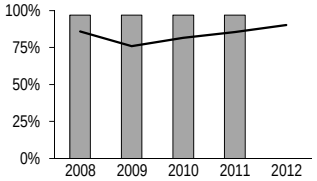
	2008	2009	2010	2011	2012
Winston-Salem	69%	75%	78%	73%	78%
Average	56%	57%	68%	54%	60%

Percentage of Fires for Which Cause Was Determined



	2008	2009	2010	2011	2012
Winston-Salem	97%	100%	97%	95%	95%
Average	86%	90%	86%	85%	80%

Percentage of Full Response Within 8 Minutes Travel Time



	2008	2009	2010	2011	2012
Winston-Salem	97%	97%	97%	97%	
Average	86%	76%	82%	85%	90%

Percentage of Lost Pulse Cases Recovered Pulse at Transfer of Care

	2008	2009	2010	2011	2012
Winston-Salem	13.1%	11.3%	19.2%	30.4%	34.8%
Average		24.0%	49.9%	41.1%	24.7%

UNC
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Performance and Cost Data

BUILDING INSPECTIONS

UNC
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PERFORMANCE MEASURES FOR BUILDING INSPECTIONS

SERVICE DEFINITION

Building inspection services refers to permit issuance and inspections for building, electrical, mechanical (including heating and cooling), and plumbing work on new residential and commercial construction or additions and alterations to enforce the North Carolina State Building Code and related local building regulations. The inspection process includes the receipt of permit applications, review of plans and specifications, issuance of permits, and follow-up field inspections to ensure compliance. Excluded are the enforcement of zoning and subdivision regulations, fire codes, minimum housing codes, erosion and sedimentation control regulations, watershed regulations, historic preservation ordinances, and other development regulations or plans.

NOTES ON PERFORMANCE MEASURES

1. Building Inspections per 1,000 Population

Building inspections are those required by the North Carolina State Building Code for general building, electrical, mechanical (including heating and cooling), and plumbing work associated with construction projects. Inspections include reinspections. They do not include non–building code inspections or consultation visits.

2. Value of Total Building Permits as Percentage of Tax Base of Area Served

When a building permit is issued, the dollar amount of the work specified in the contract(s) authorizing the work is recorded as the value of the building permit. Tax base refers to the taxable valuation used for levying the fiscal year property tax for the area served.

3. Value of Commercial Permits as Percentage of Tax Base of Area Served

Commercial building permits are issued for construction of business, manufacturing, institutional, and other nonresidential buildings or improvements. Tax base is defined above.

4. Cost per Building Inspection and Inspections per Day per Inspector

Building inspections are defined above. Cost is determined using the project's full cost accounting model, including direct, indirect, and capital costs. An inspector full-time equivalent (FTE) is calculated using a work year of 235 days. Inspector FTEs include permanent, temporary, part-time, and full-time inspectors.

5. Value of Building Permits per FTE

Value of building permits is defined above. Inspectors must be certified by the state to enforce the state building code and be able to review plans and conduct inspections to enforce that code. Inspector FTEs exclude supervisors, who may be certified but who spend less than 50 percent of their time performing inspections. Inspector FTEs also exclude support personnel who are not certified.

6. Number of Plan Reviews per Reviewer FTE

The state building code requires that plans and specifications for most commercial and residential construction be reviewed before permits are issued for such construction. Reviewer FTEs are calculated using a 2,080-hour work year, the actual number of plan reviews conducted during the fiscal year, and the number of plan reviewers.

7. Percentage of Inspection Responses within One Working Day of Request

A request for inspection may be by phone, in person, or in writing. A response refers to at least beginning an inspection, regardless of whether approval of the work occurs. The majority of inspections are completed the same day as initiated. A response to a request within one working day means that the inspection is initiated before the end of the workday following the day on which the request is made.

8. Percentage of Inspections that Are Reinspections

A reinspection occurs when a building inspector must inspect work that has previously been inspected. A reinspection can occur due to problems found in the original inspection or for other reasons.

Building Inspections

Summary of Key Dimensions of Service

City or Town	Area Served (in Square Miles)	Population Growth from 2000 to 2011	Building Inspections by Trade					Number of Plan Reviews	Building Inspector FTEs	Total Staff FTEs
			Building	Electrical	Mechanical	Plumbing	Total			
Apex	34.7	91.5%	5,573	4,058	3,126	2,667	15,424	1,102	4.0	10.0
Asheville	63.0	24.3%	12,166	7,326	5,268	4,934	29,694	2,989	13.0	34.0
Burlington	41.1	14.1%	1,901	2,682	1,857	1,440	7,880	185	5.50	9.00
Cary	66.2	47.2%	22,901	12,887	13,747	10,200	59,735	3,573	19.0	41.6
Greensboro	131.9	21.6%	25,523	14,289	10,961	10,103	60,876	892	13.5	28.0
Greenville	65.7	39.0%	3,683	3,252	3,059	1,947	11,941	563	5.0	10.0
High Point	59.3	22.9%	8,191	6,224	4,821	3,419	22,655	890	9.0	15.0
Wilson	58.4	10.6%	1,773	1,707	1,818	907	6,205	179	2.6	5.4
Winston-Salem	391.3	25.0%	15,167	13,890	12,918	9,972	51,947	1,342	16.0	28.4

EXPLANATORY FACTORS

These are factors that the project found affected building inspection performance and cost in one or more of the municipalities:

Rate of growth and development in city
Size and complexity of construction projects
Geographic area served by county building inspections
Inspectors' enforcement of local development regulations
Emphasis given to plan review in each jurisdiction
Inspector specialization
Organization of the building inspection function

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The Town of Apex provides building inspection services though the Building Inspections and Permits Department. The department is organized into two major divisions, building inspections and engineering. The department provides inspections for all of the Town of Apex and nearly nineteen square miles of area in its extra-territorial jurisdiction (ETJ).

All building inspectors in Apex serve each of the major trades. The department enforces the North Carolina State Building Code.

The department has a goal of having all inspectors fully qualified for the technical, administrative, and customer service aspects of their job. Training is accomplished primariliy by offsite seminars and conferences offered by state-approved sponsors.

Apex has a standard that all inspection requests recorded by a permit technician or the permit office voice mail by 3 a.m. are to be performed on the next business day.

Total revenue received from inspection fees amounted to $658,698 for FY 2011–12.

Conditions Affecting Service, Performance, and Costs
Apex began participation in the benchmarking project in July 2011, with FY 2010–11 being the first reporting year.

The population served is calculated by adding the population of Apex with the population of the ETJ. The tax base served is calculated by adding the tax base of Apex with the tax base of the ETJ. The population and the tax base of the ETJ are calculated by taking the population and tax base per square mile of Wake County and multiplying them by the square miles of the ETJ.

Apex does not track multi-family as a category of reporting for inspections or plan reviews. Instead, townhomes are included with residential and condos and apartments are included with commercial.

Municipal Profile

Population Served	59,532
Land Area Inspected (Square Miles)	34.68
Persons per Square Mile	1,717
Estimated Tax Base in Service Area (billions)	$7.13
Median Family Income U.S. Census 2010	$97,201

Service Profile

FTE Inspectors	
Building	0.0
Electrical	0.0
Mechanical	0.0
Plumbing	0.0
All Trades	4.0
Total Inspectors	4.0
FTE Plan Reviewers	1.0
Other FTE Positions	5.0
Total of All Positions	10.0
Number of Inspections by Type	
Building	5,573
Electrical	4,058
Mechanical	3,126
Plumbing	2,667
TOTAL	15,424
Building Permit Values	
Residential	$51,916,931
Multi-Family	$21,950,168
Commercial	$28,571,670
TOTAL	$102,438,769
Inspection Fee Revenue	$658,696

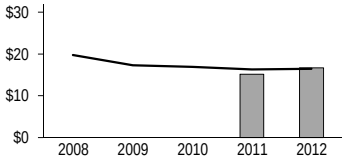
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	76.5%
Operating Costs	18.2%
Capital Costs	5.3%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$760,171
Operating Costs	$180,595
Capital Costs	$52,655
TOTAL	$993,421

Key: Apex ■ Benchmarking Average — Fiscal Years 2008 through 2012

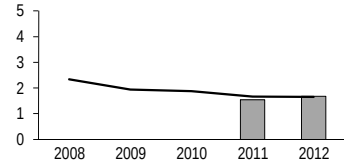
Resource Measures

Building Inspections Services Costs per Capita



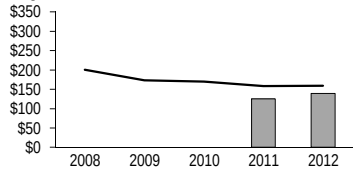
	2008	2009	2010	2011	2012
Apex				$15.15	$16.69
Average	$19.77	$17.27	$16.95	$16.33	$16.43

Building Inspections Services FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Apex				1.54	1.68
Average	2.34	1.94	1.88	1.66	1.65

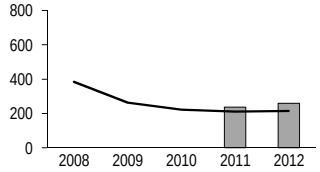
Building Inspections Services Cost per Million Dollars of Tax Base



	2008	2009	2010	2011	2012
Apex				$126	$139
Average	$201	$173	$170	$158	$159

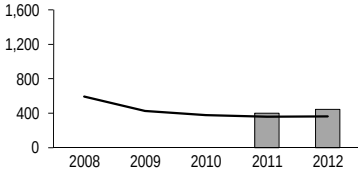
Workload Measures

Inspections per 1,000 Population in Service Area



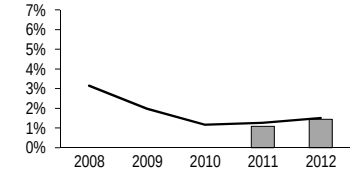
	2008	2009	2010	2011	2012
Apex				237	259
Average	385	263	222	211	214

Inspections per Square Mile in Service Area



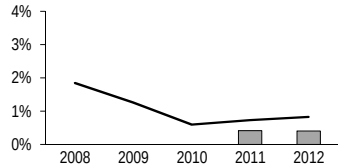
	2008	2009	2010	2011	2012
Apex				400	445
Average	593	426	378	358	364

Value of Building Permits as Percentage of Tax Base of Area Served



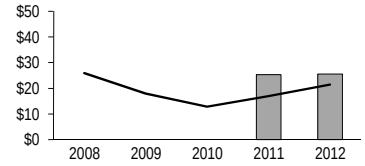
	2008	2009	2010	2011	2012
Apex				1.08%	1.44%
Average	3.15%	1.97%	1.17%	1.27%	1.51%

Value of Commercial Permits as Percentage of Tax Base of Area Served



	2008	2009	2010	2011	2012
Apex				0.41%	0.40%
Average	1.85%	1.26%	0.60%	0.73%	0.82%

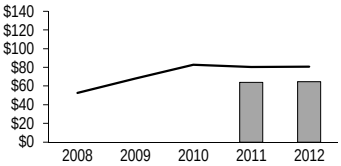
Value of Building Permits Per Inspector FTE In Millions of Dollars



	2008	2009	2010	2011	2012
Apex				$25.3	$25.6
Average	$26.0	$18.0	$12.9	$17.0	$21.5

Efficiency Measures

Building Services Cost per Inspection—All Types

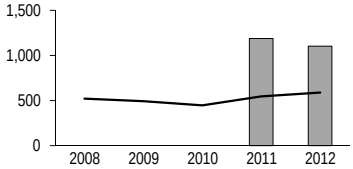


	2008	2009	2010	2011	2012
Apex				$63.80	$64.41
Average	$52.74	$68.00	$82.71	$80.41	$80.55

Inspections per Day per Inspector FTE

	2008	2009	2010	2011	2012
Apex				19.7	16.4
Average	13.4	10.9	10.2	11.9	12.2

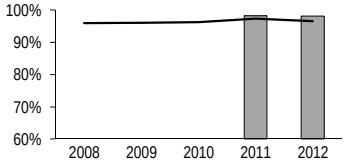
Plan Reviews per Year per Reviewer FTE



	2008	2009	2010	2011	2012
Apex				1,188	1,102
Average	521	490	446	546	587

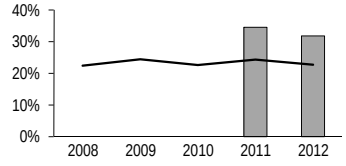
Effectiveness Measures

Percentage of Inspection Responses within One Working Day of Request



	2008	2009	2010	2011	2012
Apex				98.2%	98.1%
Average	96.0%	96.1%	96.2%	97.3%	96.5%

Percentage of Inspections that Are Reinspections



	2008	2009	2010	2011	2012
Apex				34.5%	31.8%
Average	22.5%	24.5%	22.7%	24.4%	22.7%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

The City of Asheville Building Safety Department provides building inspection and permitting services to all areas within the Asheville city limits and, beginning in FY 2006–07, its extra-territorial jurisdiction (ETJ).

Inspectors include those who function in all trades and those who are certified in one of the following four trades: building, electrical, plumbing, or mechanical. The city is divided into two geographic areas for commericial inspections, with an inspector from each trade assigned to each area. The city is divided into six areas for inspection of one- and two-family dwellings, with one inspector assigned for each area performing all trades. The Building Safety Department enforces the North Carolina State Building Code and the Asheville Minimum Housing Code. The costs and the positions associated with enforcing the housing code are excluded from the project's performance and cost data.

The department has a goal of twelve training days per inspector per year. Inspectors are required to obtain certification in their primary trade plus two others. A career ladder encourages inspectors to work toward obtaining Level III certification in their primary trade and Level II certification in two other trades. Training is a high priority for the department, with an emphasis on code consistency. Training for contractors and designers also is a high priority for the department.

Asheville's policy is that all calls received for inspection before 7:30 a.m. receive same-day inspection.

Total revenue received from inspection fees amounted to $2.2 million for FY 2011–12. The fee schedule separates fees for each type of permit, with specific fees depending on type of work, cost, square footage, and other factors. One free reinspection is granted per trade per project. Additional inspections are provided for a fee of $75 that must be paid prior to the inspection.

Conditions Affecting Service, Performance, and Costs

The population served is calculated by adding the population of Asheville with the population of the ETJ. The tax base served is calculated by adding the tax base of Asheville with the tax base of the ETJ. The population and the tax base of the ETJ are calculated by taking the population and tax base per square mile of Buncombe County and multiplying them by the square miles of the ETJ.

The city has many old and historic buildings that are difficult to renovate and bring into compliance with the state code. The city also has days during which snow and ice impact service delivery for this city function.

Municipal Profile

Population Served	92,058
Land Area Inspected (Square Miles)	63.04
Persons per Square Mile	1,460
Estimated Tax Base in Service Area (billions)	$11.78
Median Family Income U.S. Census 2010	$53,350

Service Profile

FTE Inspectors	
Building	0.0
Electrical	0.0
Mechanical	0.0
Plumbing	0.0
All Trades	13.0
Total Inspectors	13.0
FTE Plan Reviewers	5.0
Other FTE Positions	16.0
Total of All Positions	34.0
Number of Inspections by Type	
Building	12,166
Electrical	7,326
Mechanical	5,268
Plumbing	4,934
TOTAL	29,694
Building Permit Values	
Residential	$79,934,513
Multi-Family	$15,444,418
Commercial	$75,921,914
TOTAL	$171,300,845
Inspection Fee Revenue	$2,169,447

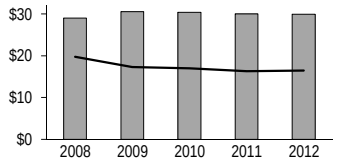
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	69.7%
Operating Costs	22.5%
Capital Costs	7.8%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,919,545
Operating Costs	$619,055
Capital Costs	$215,845
TOTAL	$2,754,445

Key: Asheville ■ Benchmarking Average — Fiscal Years 2008 through 2012

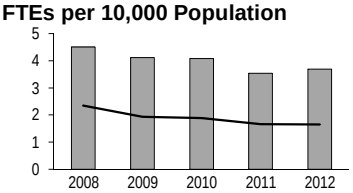
Resource Measures

Building Inspections Services Costs per Capita



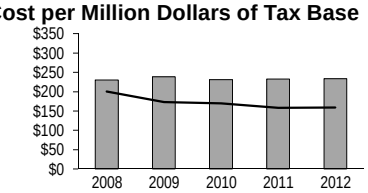
	2008	2009	2010	2011	2012
Asheville	$28.99	$30.53	$30.37	$29.99	$29.92
Average	$19.77	$17.27	$16.95	$16.33	$16.43

Building Inspections Services FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Asheville	4.51	4.12	4.08	3.54	3.69
Average	2.34	1.94	1.88	1.66	1.65

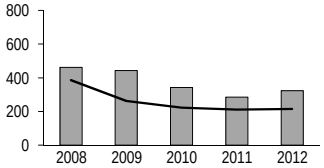
Building Inspections Services Cost per Million Dollars of Tax Base



	2008	2009	2010	2011	2012
Asheville	$230	$238	$231	$232	$234
Average	$201	$173	$170	$158	$159

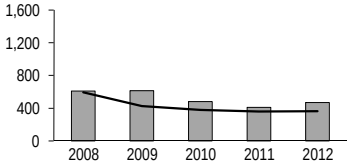
Workload Measures

Inspections per 1,000 Population in Service Area



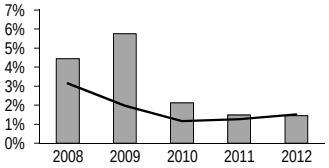
	2008	2009	2010	2011	2012
Asheville	461	443	343	285	323
Average	385	263	222	211	214

Inspections per Square Mile in Service Area



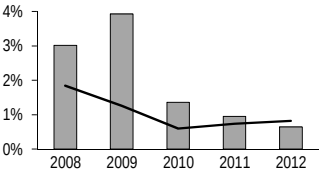
	2008	2009	2010	2011	2012
Asheville	610	614	482	410	471
Average	593	426	378	358	364

Value of Building Permits as Percentage of Tax Base of Area Served



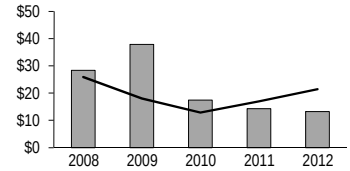
	2008	2009	2010	2011	2012
Asheville	4.44%	5.76%	2.12%	1.48%	1.45%
Average	3.15%	1.97%	1.17%	1.27%	1.51%

Value of Commercial Permits as Percentage of Tax Base of Area Served



	2008	2009	2010	2011	2012
Asheville	3.02%	3.92%	1.36%	0.95%	0.64%
Average	1.85%	1.26%	0.60%	0.73%	0.82%

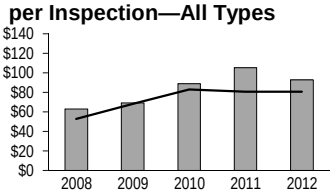
Value of Building Permits Per Inspector FTE In Millions of Dollars



	2008	2009	2010	2011	2012
Asheville	$28.4	$37.9	$17.5	$14.3	$13.2
Average	$26.0	$18.0	$12.9	$17.0	$21.5

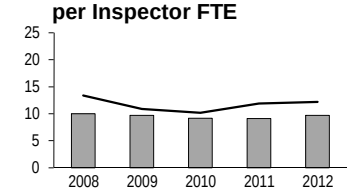
Efficiency Measures

Building Services Cost per Inspection—All Types



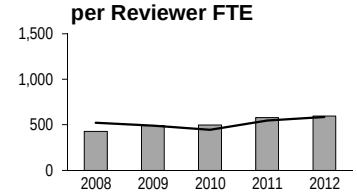
	2008	2009	2010	2011	2012
Asheville	$62.91	$68.95	$88.62	$105.08	$92.76
Average	$52.74	$68.00	$82.71	$80.41	$80.55

Inspections per Day per Inspector FTE



	2008	2009	2010	2011	2012
Asheville	10.0	9.7	9.2	9.1	9.7
Average	13.4	10.9	10.2	11.9	12.2

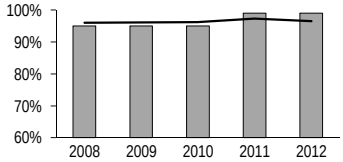
Plan Reviews per Year per Reviewer FTE



	2008	2009	2010	2011	2012
Asheville	427	490	500	578	598
Average	521	490	446	546	587

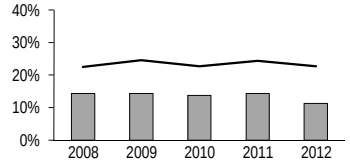
Effectiveness Measures

Percentage of Inspection Responses within One Working Day of Request



	2008	2009	2010	2011	2012
Asheville	95.0%	95.0%	95.0%	99.0%	99.0%
Average	96.0%	96.1%	96.2%	97.3%	96.5%

Percentage of Inspections that Are Reinspections



	2008	2009	2010	2011	2012
Asheville	14.3%	14.4%	13.7%	14.3%	11.3%
Average	22.5%	24.5%	22.7%	24.4%	22.7%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The City of Burlington Building Inspections Division is under the Public Works Department. The Division provides commercial and residential inspections within city limits and the extra-territorial zoning district properties covering about fourteen square miles outside city boundaries.

The inspections department uses inspectors certified in individual building trades. Training meets the state requirement of six hours a year for each trade.

Burlington does not currently have any standards for the length of time between a request for an inspection and the actual inspection.

Total revenue received from inspection fees amounted to $478,035 for FY 2011–12. The fee schedule separates fees for the type of work. Burlington charges $50 for a third reinspection, $75 for a fourth reinspection, and $100 for any additional reinspections. The number of reinspections for the year was not available.

Conditions Affecting Service, Performance, and Costs
The population served is calculated by adding the population of Burlington with the population of the extra-territorial jurisdiction (ETJ). The tax base served is calculated by adding the tax base of Burlington with the tax base of the ETJ. The population and the tax base of the ETJ are calculated by taking the population and tax base per square mile of Alamance County and multiplying them by the square miles of the ETJ.

The City of Burlington started residential plan reviews on June 1, 2009.

The broad downturn in the economy over the last several years has reduced building activity and the number of requests for inspections.

Municipal Profile

Population Served	56,123
Land Area Inspected (Square Miles)	41.10
Persons per Square Mile	1,366
Estimated Tax Base in Service Area (billions)	$4.55
Median Family Income U.S. Census 2010	$46,461

Service Profile

FTE Inspectors	
Building	0.5
Electrical	1.0
Mechanical	2.0
Plumbing	0.0
All Trades	2.0
Total Inspectors	5.5
FTE Plan Reviewers	0.5
Other FTE Positions	3.0
Total of All Positions	9.0
Number of Inspections by Type	
Building	1,901
Electrical	2,682
Mechanical	1,857
Plumbing	1,440
TOTAL	7,880
Building Permit Values	
Residential	$25,608,213
Multi-Family	In commercial
Commercial	$58,034,653
TOTAL	$83,642,866
Inspection Fee Revenue	$478,035

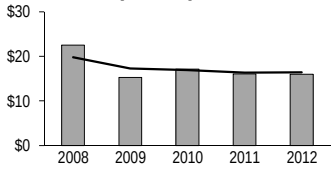
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	65.0%
Operating Costs	26.4%
Capital Costs	8.7%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$583,463
Operating Costs	$237,075
Capital Costs	$77,702
TOTAL	$898,240

Key: Burlington ■ Benchmarking Average — Fiscal Years 2008 through 2012

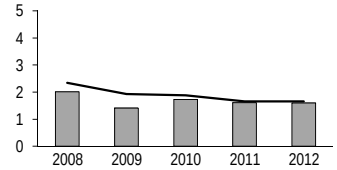
Resource Measures

Building Inspections Services Costs per Capita



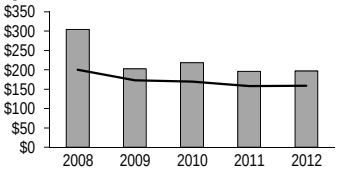
	2008	2009	2010	2011	2012
Burlington	$22.53	$15.30	$17.11	$16.07	$16.00
Average	$19.77	$17.27	$16.95	$16.33	$16.43

Building Inspections Services FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Burlington	2.01	1.41	1.73	1.61	1.60
Average	2.34	1.94	1.88	1.66	1.65

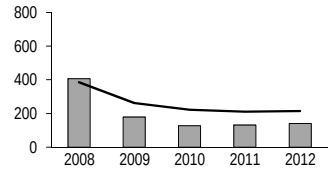
Building Inspections Services Cost per Million Dollars of Tax Base



	2008	2009	2010	2011	2012
Burlington	$304	$203	$218	$196	$197
Average	$201	$173	$170	$158	$159

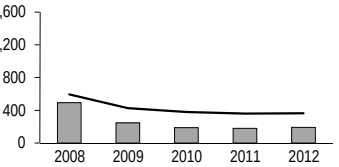
Workload Measures

Inspections per 1,000 Population in Service Area



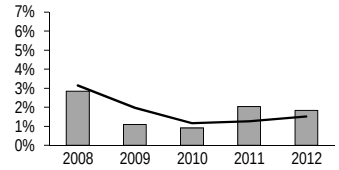
	2008	2009	2010	2011	2012
Burlington	407	178	128	131	140
Average	385	263	222	211	214

Inspections per Square Mile in Service Area



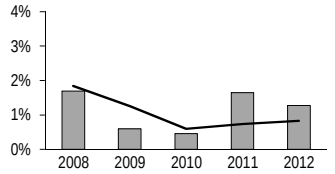
	2008	2009	2010	2011	2012
Burlington	492	246	187	178	192
Average	593	426	378	358	364

Value of Building Permits as Percentage of Tax Base of Area Served



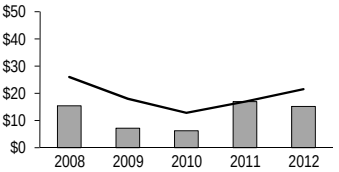
	2008	2009	2010	2011	2012
Burlington	2.85%	1.10%	0.91%	2.03%	1.84%
Average	3.15%	1.97%	1.17%	1.27%	1.51%

Value of Commercial Permits as Percentage of Tax Base of Area Served



	2008	2009	2010	2011	2012
Burlington	1.70%	0.59%	0.45%	1.65%	1.28%
Average	1.85%	1.26%	0.60%	0.73%	0.82%

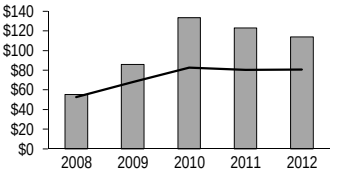
Value of Building Permits Per Inspector FTE In Millions of Dollars



	2008	2009	2010	2011	2012
Burlington	$15.4	$7.2	$6.3	$17.0	$15.2
Average	$26.0	$18.0	$12.9	$17.0	$21.5

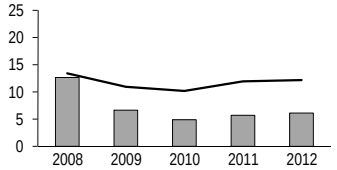
Efficiency Measures

Building Services Cost per Inspection—All Types



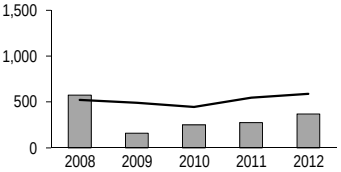
	2008	2009	2010	2011	2012
Burlington	$55.34	$85.72	$133.40	$122.83	$113.99
Average	$52.74	$68.00	$82.71	$80.41	$80.55

Inspections per Day per Inspector FTE



	2008	2009	2010	2011	2012
Burlington	12.6	6.6	4.8	5.7	6.1
Average	13.4	10.9	10.2	11.9	12.2

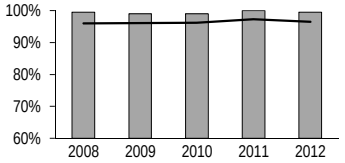
Plan Reviews per Year per Reviewer FTE



	2008	2009	2010	2011	2012
Burlington	576	160	252	276	370
Average	521	490	446	546	587

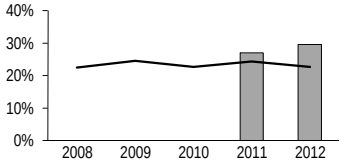
Effectiveness Measures

Percentage of Inspection Responses within One Working Day of Request



	2008	2009	2010	2011	2012
Burlington	99.5%	99.0%	99.0%	100.0%	99.5%
Average	96.0%	96.1%	96.2%	97.3%	96.5%

Percentage of Inspections that Are Reinspections



	2008	2009	2010	2011	2012
Burlington				27.0%	29.6%
Average	22.5%	24.5%	22.7%	24.4%	22.7%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

The Town of Cary provides building inspection services within its corporate limits and extra-territorial jurisdiction (ETJ) through its inspections and permits department. The department is a full-service function, meeting all requirements mandated by the N.C. General Statutes. The department consists of two main divisions. The permitting division processes all construction-related permits and related fees. Associated functions include plans review, assigning property addresses, and zoning set-back review. The inspections division performs construction-related inspections to ensure compliance with the state building code and the building regulations listed in the Town of Cary Code of Ordinances. The town has both single-trade inspectors and all trade inspectors.

The building permit and inspection process includes the receipt of permit applications, review of plans and specifications, issuance of permits, and follow-up field inspections to ensure compliance. Excluded are the enforcement of zoning and subdivision regulations, fire codes, minimum housing codes, erosion and sedimentation control regulations, watershed regulations, historic preservation ordinances, and other development regulations or plans.

The Town of Cary supports both in-house and state-sponsored training classes for inspectors on a regular basis. While in-house field training revolves around peer mentoring, the town's Human Resources Department offers a wide variety of customer service–related classes. The Town's Technology Services Department also supports code enforcement officials by offering regular computer classes through a state-of-the-art computer lab. Code enforcement officials also attend annual workshops and seminars sponsored by the various state inspections trade groups.

Total revenue received from inspection fees amounted to $2.4 million for FY 2011–12. The fee schedule separates fees for each type of permit, with specific fees depending on a minimum amount, square footage, and other factors. Reinspection fees are charged if a violation has been cited and not corrected on the next inspection or if an inspection is scheduled and the work has not been completed.

Conditions Affecting Service, Performance, and Costs

The population served is calculated by adding the population of Cary with the population of the ETJ. The tax base served is calculated by adding the tax base of Cary with the tax base of the ETJ. The population and the tax base of the ETJ are calculated by taking the population and tax base per square mile of Wake County and multiplying them by the square miles of the ETJ.

The broad downturn in the economy has reduced building activity and the number of requests for inspections.

Municipal Profile

Population Served	150,591
Land Area Inspected (Square Miles)	66.19
Persons per Square Mile	2,275
Estimated Tax Base in Service Area (billions)	$22.55
Median Family Income U.S. Census 2010	$108,956

Service Profile

FTE Inspectors	
Building	7.0
Electrical	4.0
Mechanical	3.0
Plumbing	3.0
All Trades	2.0
Total Inspectors	19.0
FTE Plan Reviewers	4.0
Other FTE Positions	18.6
Total of All Positions	41.6
Number of Inspections by Type	
Building	22,901
Electrical	12,887
Mechanical	13,747
Plumbing	10,200
TOTAL	59,735
Building Permit Values	
Residential	$175,707,449
Multi-Family	$60,891,385
Commercial	$44,135,790
TOTAL	$280,734,624
Inspection Fee Revenue	$2,381,537

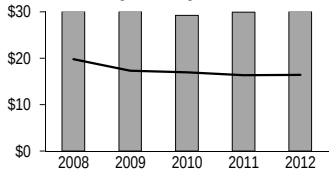
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	74.8%
Operating Costs	21.0%
Capital Costs	4.1%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$3,400,239
Operating Costs	$955,665
Capital Costs	$187,988
TOTAL	$4,543,892

Key: Cary ■ Benchmarking Average — Fiscal Years 2008 through 2012

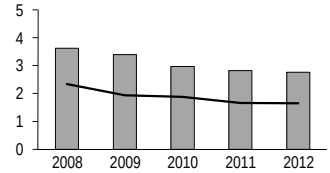
Resource Measures

Building Inspections Services Costs per Capita



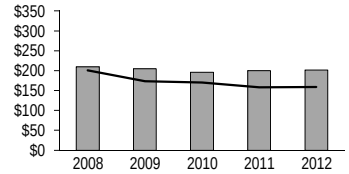
	2008	2009	2010	2011	2012
Cary	$33.38	$31.62	$29.23	$29.92	$30.17
Average	$19.77	$17.27	$16.95	$16.33	$16.43

Building Inspections Services FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Cary	3.62	3.39	2.97	2.82	2.76
Average	2.34	1.94	1.88	1.66	1.65

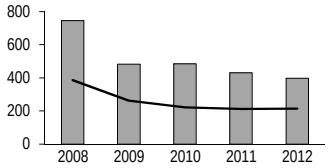
Building Inspections Services Cost per Million Dollars of Tax Base



	2008	2009	2010	2011	2012
Cary	$209	$205	$196	$200	$201
Average	$201	$173	$170	$158	$159

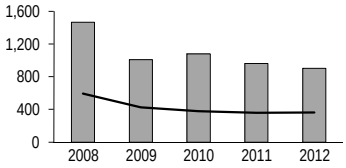
Workload Measures

Inspections per 1,000 Population in Service Area



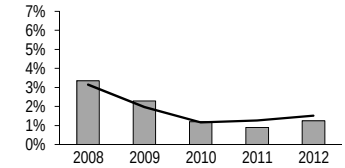
	2008	2009	2010	2011	2012
Cary	745	483	485	431	397
Average	385	263	222	211	214

Inspections per Square Mile in Service Area



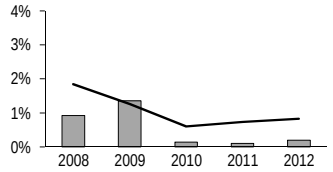
	2008	2009	2010	2011	2012
Cary	1,466	1,007	1,080	963	902
Average	593	426	378	358	364

Value of Building Permits as Percentage of Tax Base of Area Served



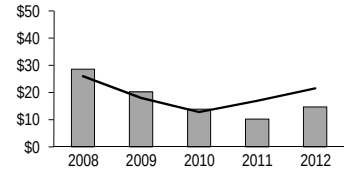
	2008	2009	2010	2011	2012
Cary	3.34%	2.29%	1.20%	0.89%	1.24%
Average	3.15%	1.97%	1.17%	1.27%	1.51%

Value of Commercial Permits as Percentage of Tax Base of Area Served



	2008	2009	2010	2011	2012
Cary	0.92%	1.36%	0.14%	0.10%	0.20%
Average	1.85%	1.26%	0.60%	0.73%	0.82%

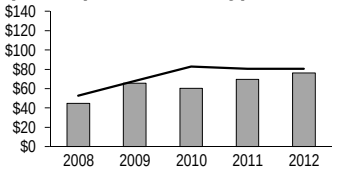
Value of Building Permits Per Inspector FTE In Millions of Dollars



	2008	2009	2010	2011	2012
Cary	$28.6	$20.2	$13.9	$10.3	$14.8
Average	$26.0	$18.0	$12.9	$17.0	$21.5

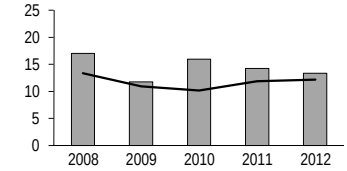
Efficiency Measures

Building Services Cost per Inspection—All Types



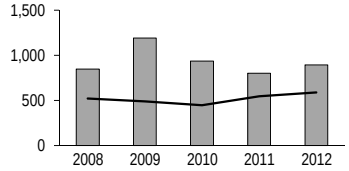
	2008	2009	2010	2011	2012
Cary	$44.80	$65.50	$60.30	$69.45	$76.07
Average	$52.74	$68.00	$82.71	$80.41	$80.55

Inspections per Day per Inspector FTE



	2008	2009	2010	2011	2012
Cary	17.0	11.8	16.0	14.2	13.4
Average	13.4	10.9	10.2	11.9	12.2

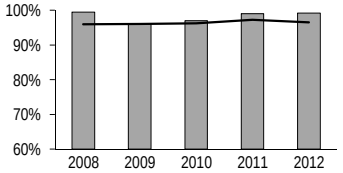
Plan Reviews per Year per Reviewer FTE



	2008	2009	2010	2011	2012
Cary	848	1,192	936	801	893
Average	521	490	446	546	587

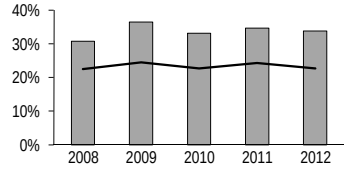
Effectiveness Measures

Percentage of Inspection Responses within One Working Day of Request



	2008	2009	2010	2011	2012
Cary	99.5%	96.2%	97.0%	99.0%	99.2%
Average	96.0%	96.1%	96.2%	97.3%	96.5%

Percentage of Inspections that Are Reinspections



	2008	2009	2010	2011	2012
Cary	30.8%	36.5%	33.2%	34.7%	33.9%
Average	22.5%	24.5%	22.7%	24.4%	22.7%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Inspections is a division of the Engineering and Inspections Department of the City of Greensboro. The inspections division consists of plans review, building inspections, plumbing inspections, mechanical inspections, electrical inspections, and local code enforcement. The city services the incorporated portion of the city but not the extra-territorial jurisdiction areas.

Trade inspectors are required to attain a Level III certification of their primary building trade within two years. Mechanical and plumbing inspectors are required to attain a secondary certification. Local ordinance inspectors are required to attain a Level I certification. All certified inspectors are required to take and pass a law and administrative course.

All requests for inspections are responded to within forty-eight hours or less. Nearly all requests, 96 percent, are called into the city's automated system or entered via its website.

Total revenue received from inspection fees amounted to $2.0 million for FY 2011–12. If a request for inspection is made and the job is not ready or corrections have not been made, a $45 fee for each reinspection is assessed.

Conditions Affecting Service, Performance, and Costs
The broad downturn in the economy has reduced building activity and the number of requests for inspections.

Municipal Profile

Population Served	272,196
Land Area Inspected (Square Miles)	131.94
Persons per Square Mile	2,063
Estimated Tax Base in Service Area (billions)	$24.41
Median Family Income U.S. Census 2010	$52,752

Service Profile

FTE Inspectors	
Building	5.0
Electrical	3.5
Mechanical	2.0
Plumbing	3.0
All Trades	0.0
Total Inspectors	13.5
FTE Plan Reviewers	4.5
Other FTE Positions	10.0
Total of All Positions	28.0
Number of Inspections by Type	
Building	25,523
Electrical	14,289
Mechanical	10,961
Plumbing	10,103
TOTAL	60,876
Building Permit Values	
Residential	$67,006,191
Multi-Family	$94,417,193
Commercial	$273,838,014
TOTAL	$435,261,398
Inspection Fee Revenue	$2,037,344

Full Cost Profile

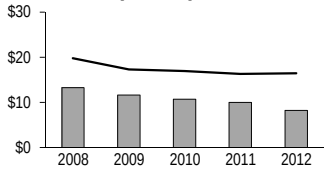
Cost Breakdown by Percentage	
Personal Services	76.6%
Operating Costs	23.4%
Capital Costs	0.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,711,563
Operating Costs	$522,152
Capital Costs	$0
TOTAL	$2,233,715

Greensboro — Building Inspections

Key: Greensboro ■ Benchmarking Average — Fiscal Years 2008 through 2012

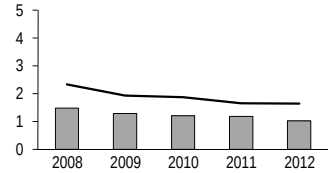
Resource Measures

Building Inspections Services Costs per Capita



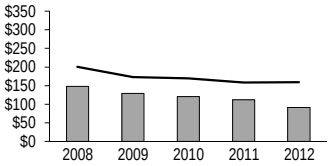
	2008	2009	2010	2011	2012
Greensboro	$13.24	$11.63	$10.72	$10.00	$8.21
Average	$19.77	$17.27	$16.95	$16.33	$16.43

Building Inspections Services FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Greensboro	1.49	1.29	1.21	1.18	1.03
Average	2.34	1.94	1.88	1.66	1.65

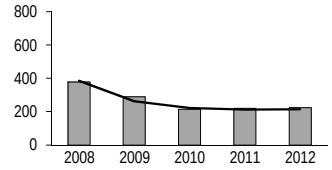
Building Inspections Services Cost per Million Dollars of Tax Base



	2008	2009	2010	2011	2012
Greensboro	$148	$129	$120	$112	$92
Average	$201	$173	$170	$158	$159

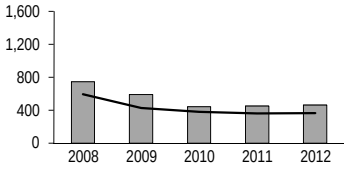
Workload Measures

Inspections per 1,000 Population in Service Area



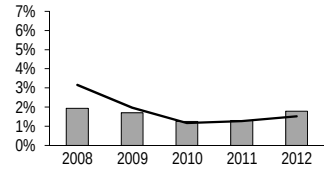
	2008	2009	2010	2011	2012
Greensboro	377	290	214	220	224
Average	385	263	222	211	214

Inspections per Square Mile in Service Area



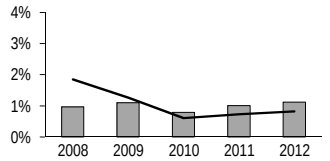
	2008	2009	2010	2011	2012
Greensboro	743	588	441	451	461
Average	593	426	378	358	364

Value of Building Permits as Percentage of Tax Base of Area Served



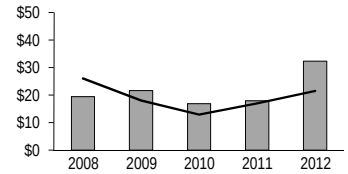
	2008	2009	2010	2011	2012
Greensboro	1.93%	1.70%	1.25%	1.30%	1.78%
Average	3.15%	1.97%	1.17%	1.27%	1.51%

Value of Commercial Permits as Percentage of Tax Base of Area Served



	2008	2009	2010	2011	2012
Greensboro	0.97%	1.10%	0.79%	1.00%	1.12%
Average	1.85%	1.26%	0.60%	0.73%	0.82%

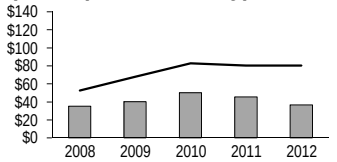
Value of Building Permits Per Inspector FTE In Millions of Dollars



	2008	2009	2010	2011	2012
Greensboro	$19.4	$21.6	$16.9	$17.9	$32.2
Average	$26.0	$18.0	$12.9	$17.0	$21.5

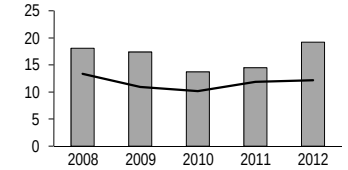
Efficiency Measures

Building Services Cost per Inspection—All Types



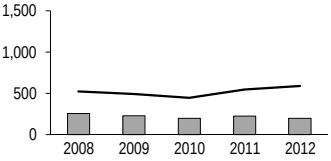
	2008	2009	2010	2011	2012
Greensboro	$35.14	$40.13	$50.16	$45.42	$36.69
Average	$52.74	$68.00	$82.71	$80.41	$80.55

Inspections per Day per Inspector FTE



	2008	2009	2010	2011	2012
Greensboro	18.1	17.4	13.7	14.5	19.2
Average	13.4	10.9	10.2	11.9	12.2

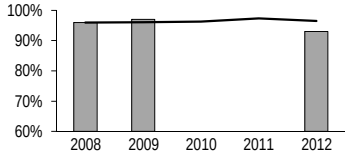
Plan Reviews per Year per Reviewer FTE



	2008	2009	2010	2011	2012
Greensboro	254	226	195	226	198
Average	521	490	446	546	587

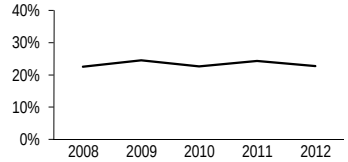
Effectiveness Measures

Percentage of Inspection Responses within One Working Day of Request



	2008	2009	2010	2011	2012
Greensboro	96.0%	97.0%			93.0%
Average	96.0%	96.1%	96.2%	97.3%	96.5%

Percentage of Inspections that Are Reinspections



	2008	2009	2010	2011	2012
Greensboro					
Average	22.5%	24.5%	22.7%	24.4%	22.7%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The City of Greenville provides detailed inspections services within city limits and its extra-territorial jurisdiction (ETJ). The city provides building, plumbing, electrical, and mechanical code enforcement services.

Total revenue received from inspection fees amounted to $866,981 for FY 2011–12. Inspection and permit fees depend on the type of construction or work, value of construction, and other factors.

Conditions Affecting Service, Performance, and Costs
Greenville joined the benchmarking project in 2009, with the first year of reporting being for FY 2008–09.

The population served is calculated by adding the population of Greenville with the population of the ETJ. The tax base served is calculated by adding the tax base of Greenville with the tax base of the ETJ. The population and the tax base of the ETJ are calculated by taking the population and tax base per square mile of Pitt County and multiplying them by the square miles of the ETJ.

The downturn in the economy over the past several years has decreased the demand for inspections services.

Municipal Profile

Population Served	110,763
Land Area Inspected (Square Miles)	65.70
Persons per Square Mile	1,686
Estimated Tax Base in Service Area (billions)	$7.77
Median Family Income U.S. Census 2010	$50,395

Service Profile

FTE Inspectors	
Building	0.0
Electrical	0.0
Mechanical	0.0
Plumbing	0.0
All Trades	5.0
Total Inspectors	5.0
FTE Plan Reviewers	1.0
Other FTE Positions	4.0
Total of All Positions	10.0
Number of Inspections by Type	
Building	3,683
Electrical	3,252
Mechanical	3,059
Plumbing	1,947
TOTAL	11,941
Building Permit Values	
Residential	$32,647,551
Multi-Family	$24,045,604
Commercial	$110,656,954
TOTAL	$167,350,109
Inspection Fee Revenue	$866,981

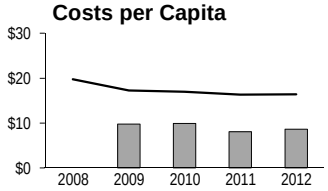
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	75.4%
Operating Costs	18.8%
Capital Costs	5.8%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$718,623
Operating Costs	$179,652
Capital Costs	$55,139
TOTAL	$953,414

Key: Greenville ■ Benchmarking Average — Fiscal Years 2008 through 2012

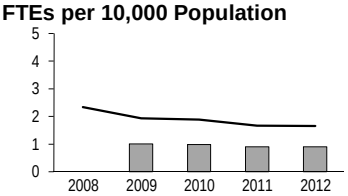
Resource Measures

Building Inspections Services Costs per Capita



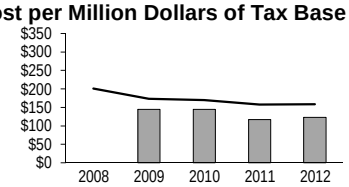
	2008	2009	2010	2011	2012
Greenville		$9.77	$9.89	$8.04	$8.61
Average	$19.77	$17.27	$16.95	$16.33	$16.43

Building Inspections Services FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Greenville		1.01	0.99	0.90	0.90
Average	2.34	1.94	1.88	1.66	1.65

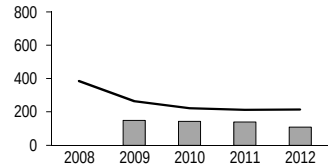
Building Inspections Services Cost per Million Dollars of Tax Base



	2008	2009	2010	2011	2012
Greenville		$145	$145	$117	$123
Average	$201	$173	$170	$158	$159

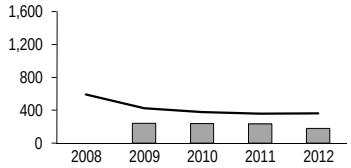
Workload Measures

Inspections per 1,000 Population in Service Area



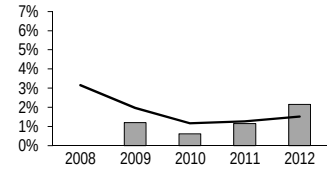
	2008	2009	2010	2011	2012
Greenville		149	142	139	108
Average	385	263	222	211	214

Inspections per Square Mile in Service Area



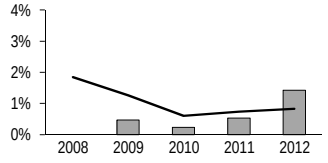
	2008	2009	2010	2011	2012
Greenville		243	237	234	182
Average	593	426	378	358	364

Value of Building Permits as Percentage of Tax Base of Area Served



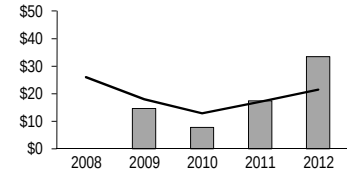
	2008	2009	2010	2011	2012
Greenville		1.20%	0.61%	1.14%	2.15%
Average	3.15%	1.97%	1.17%	1.27%	1.51%

Value of Commercial Permits as Percentage of Tax Base of Area Served



	2008	2009	2010	2011	2012
Greenville		0.47%	0.23%	0.53%	1.42%
Average	1.85%	1.26%	0.60%	0.73%	0.82%

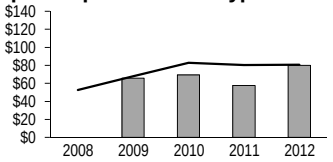
Value of Building Permits Per Inspector FTE In Millions of Dollars



	2008	2009	2010	2011	2012
Greenville		$14.6	$7.7	$17.4	$33.5
Average	$26.0	$18.0	$12.9	$17.0	$21.5

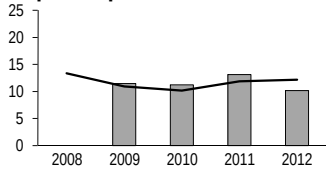
Efficiency Measures

Building Services Cost per Inspection—All Types



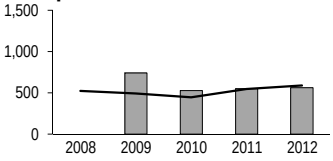
	2008	2009	2010	2011	2012
Greenville		$65.61	$69.41	$57.62	$79.84
Average	$52.74	$68.00	$82.71	$80.41	$80.55

Inspections per Day per Inspector FTE



	2008	2009	2010	2011	2012
Greenville		11.5	11.2	13.1	10.2
Average	13.4	10.9	10.2	11.9	12.2

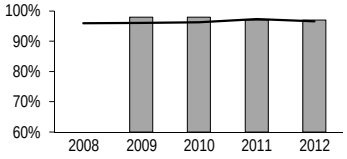
Plan Reviews per Year per Reviewer FTE



	2008	2009	2010	2011	2012
Greenville		738	526	550	563
Average	521	490	446	546	587

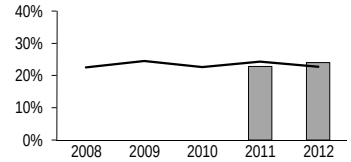
Effectiveness Measures

Percentage of Inspection Responses within One Working Day of Request



	2008	2009	2010	2011	2012
Greenville		98.0%	98.0%	97.0%	97.0%
Average	96.0%	96.1%	96.2%	97.3%	96.5%

Percentage of Inspections that Are Reinspections



	2008	2009	2010	2011	2012
Greenville				22.8%	24.1%
Average	22.5%	24.5%	22.7%	24.4%	22.7%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The inspections department of High Point provides building, plumbing, electrical, and mechanical code enforcement services to the incorporated area of the city in addition to a small portion of the rural/suburban extra-territorial jurisdiction (ETJ) within Guilford County.

Fire inspections and permit records are maintained by the inspections department, but fire inspections are performed by fire marshals. The department also has a local codes division, which enforces zoning, housing, public nuisance, and vehicle codes. This staff was not included in this report.

Inspectors are required to complete a level of training prior to receiving individual assignments. Prior to completing the required training, employees must work under the direct supervision of their supervisor or assigned employees. Training includes formal classroom and on-the-job training in code enforcement, technical codes, related state and local code laws, safety, and personnel regulations. All inspection requests received by midnight are inspected the next business day.

Total revenue received from inspection fees amounted to $691,775 for FY 2011–12. Inspection and permit fees depend on the type of construction or work, value of construction, and other factors.

Conditions Affecting Service, Performance, and Costs
The population served is calculated by adding the population of High Point with the population of the ETJ. The tax base served is calculated by adding the tax base of High Point with the tax base of the ETJ. The population and the tax base of the ETJ are calculated by taking the population and tax base per square mile of Guilford County and multiplying them by the square miles of the ETJ.

The broad downturn in the economy has reduced building activity and the number of requests for inspections.

Municipal Profile

Population Served	108,457
Land Area Inspected (Square Miles)	59.29
Persons per Square Mile	1,829
Estimated Tax Base in Service Area (billions)	$9.54
Median Family Income U.S. Census 2010	$49,720

Service Profile

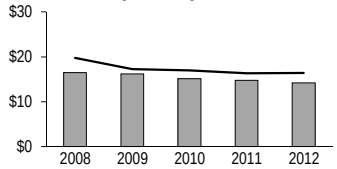
FTE Inspectors	
Building	2.5
Electrical	2.5
Mechanical	2.5
Plumbing	1.5
All Trades	0.0
Total Inspectors	9.0
FTE Plan Reviewers	1.0
Other FTE Positions	5.0
Total of All Positions	15.0
Number of Inspections by Type	
Building	8,191
Electrical	6,224
Mechanical	4,821
Plumbing	3,419
TOTAL	22,655
Building Permit Values	
Residential	$41,118,778
Multi-Family	In commercial
Commercial	$76,557,000
TOTAL	$117,675,778
Inspection Fee Revenue	$691,775

Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	73.3%
Operating Costs	21.3%
Capital Costs	5.3%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,127,138
Operating Costs	$328,231
Capital Costs	$82,121
TOTAL	$1,537,490

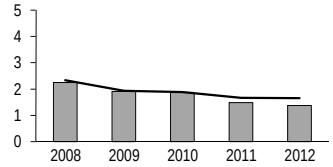
Resource Measures

Building Inspections Services Costs per Capita



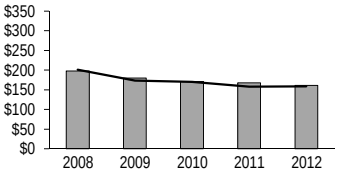
	2008	2009	2010	2011	2012
High Point	$16.45	$16.17	$15.12	$14.74	$14.18
Average	$19.77	$17.27	$16.95	$16.33	$16.43

Building Inspections Services FTEs per 10,000 Population



	2008	2009	2010	2011	2012
High Point	2.25	1.91	1.88	1.49	1.38
Average	2.34	1.94	1.88	1.66	1.65

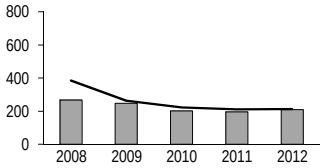
Building Inspections Services Cost per Million Dollars of Tax Base



	2008	2009	2010	2011	2012
High Point	$198	$180	$171	$168	$161
Average	$201	$173	$170	$158	$159

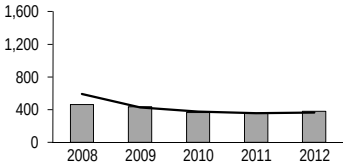
Workload Measures

Inspections per 1,000 Population in Service Area



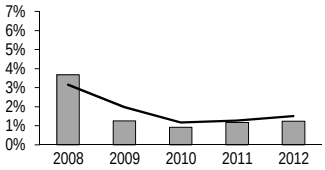
	2008	2009	2010	2011	2012
High Point	267	247	202	196	209
Average	385	263	222	211	214

Inspections per Square Mile in Service Area



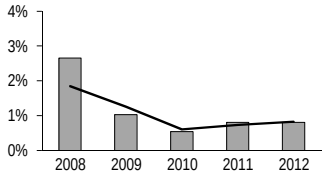
	2008	2009	2010	2011	2012
High Point	463	437	364	357	382
Average	593	426	378	358	364

Value of Building Permits as Percentage of Tax Base of Area Served



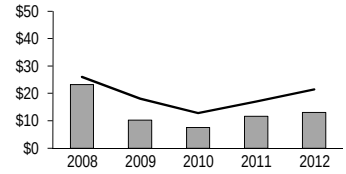
	2008	2009	2010	2011	2012
High Point	3.68%	1.26%	0.92%	1.17%	1.23%
Average	3.15%	1.97%	1.17%	1.27%	1.51%

Value of Commercial Permits as Percentage of Tax Base of Area Served



	2008	2009	2010	2011	2012
High Point	2.66%	1.03%	0.54%	0.81%	0.80%
Average	1.85%	1.26%	0.60%	0.73%	0.82%

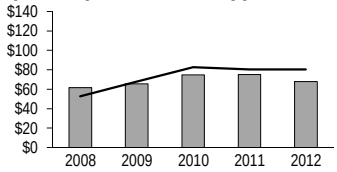
Value of Building Permits Per Inspector FTE In Millions of Dollars



	2008	2009	2010	2011	2012
High Point	$23.2	$10.3	$7.6	$11.6	$13.1
Average	$26.0	$18.0	$12.9	$17.0	$21.5

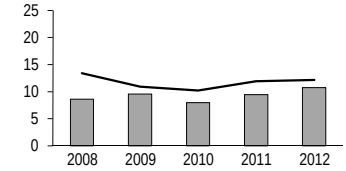
Efficiency Measures

Building Services Cost per Inspection—All Types



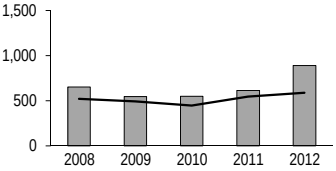
	2008	2009	2010	2011	2012
High Point	$61.68	$65.47	$74.72	$75.12	$67.87
Average	$52.74	$68.00	$82.71	$80.41	$80.55

Inspections per Day per Inspector FTE



	2008	2009	2010	2011	2012
High Point	8.6	9.6	8.0	9.5	10.7
Average	13.4	10.9	10.2	11.9	12.2

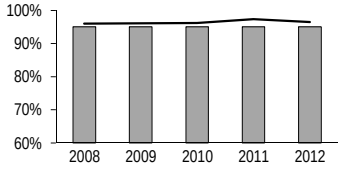
Plan Reviews per Year per Reviewer FTE



	2008	2009	2010	2011	2012
High Point	652	547	549	611	890
Average	521	490	446	546	587

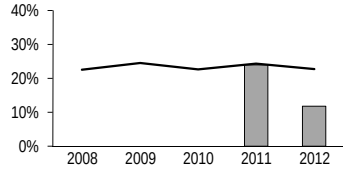
Effectiveness Measures

Percentage of Inspection Responses within One Working Day of Request



	2008	2009	2010	2011	2012
High Point	95.0%	95.0%	95.0%	95.0%	95.0%
Average	96.0%	96.1%	96.2%	97.3%	96.5%

Percentage of Inspections that Are Reinspections



	2008	2009	2010	2011	2012
High Point				23.9%	11.8%
Average	22.5%	24.5%	22.7%	24.4%	22.7%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The City of Wilson's inspection team serves an area consisting of the area within the city's corporate limits and the extra-territorial zoning jurisdiction (ETJ) that is approximately one mile beyond city limits.

Inspection services are currently provided by three inspectors, one field supervisor, and the inspections divisions manager. Two permit technicians provide support to this function. For commercial jobs, each inspector is assigned a primary inspection field. For residential jobs, inspectors hold certificates in all trade areas. Fire inspections are typically handled by certified inspectors in the fire department but are occasionally conducted by building inspectors who have fire inspection certification.

It is the policy of the inspection work team to respond to an inspection request on the same working day if the request is made prior to 8:30 a.m. and to respond to an inspection request by the following working day if the request is made after 8:30 a.m. Most inspections are completed on the same day the request was made.

Total revenue received from inspection fees was not available for FY 2011–12. Building inspection fees had been increased in FY 2007–08. Inspection and permit fees depend on the type of construction or work, the value of construction, and other factors. A reinspection fee is assessed when making an inspection for the same trade that had been previously rejected.

Conditions Affecting Service, Performance, and Costs
The population served is calculated by adding the population of Wilson with the population of the ETJ. The tax base served is calculated by adding the tax base of Wilson with the tax base of the ETJ. The population and the tax base of the ETJ are calculated by taking the population and tax base per square mile of Wilson County and multiplying them by the square miles of the ETJ.

The broad downturn in the economy has reduced building activity and the number of requests for inspections.

Municipal Profile

Population Served	55,953
Land Area Inspected (Square Miles)	58.38
Persons per Square Mile	958
Estimated Tax Base in Service Area (billions)	$4.50
Median Family Income U.S. Census 2010	$43,442

Service Profile

FTE Inspectors	
Building	0.0
Electrical	0.0
Mechanical	0.0
Plumbing	0.0
All Trades	2.6
Total Inspectors	2.6
FTE Plan Reviewers	0.8
Other FTE Positions	2.0
Total of All Positions	5.4
Number of Inspections by Type	
Building	1,773
Electrical	1,707
Mechanical	1,818
Plumbing	907
TOTAL	6,205
Building Permit Values	
Residential	$14,494,743
Multi-Family	$0
Commercial	$37,595,125
TOTAL	$52,089,868
Inspection Fee Revenue	NA

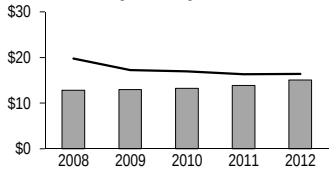
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	65.0%
Operating Costs	29.0%
Capital Costs	6.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$549,029
Operating Costs	$245,375
Capital Costs	$50,888
TOTAL	$845,292

Key: Wilson ■ Benchmarking Average — Fiscal Years 2008 through 2012

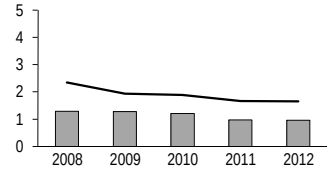
Resource Measures

Building Inspections Services Costs per Capita



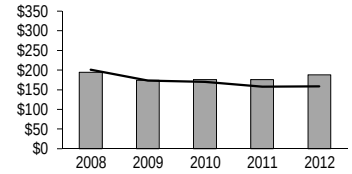
	2008	2009	2010	2011	2012
Wilson	$12.87	$13.01	$13.26	$13.91	$15.11
Average	$19.77	$17.27	$16.95	$16.33	$16.43

Building Inspections Services FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Wilson	1.29	1.28	1.21	0.97	0.97
Average	2.34	1.94	1.88	1.66	1.65

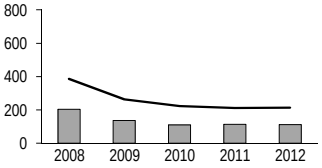
Building Inspections Services Cost per Million Dollars of Tax Base



	2008	2009	2010	2011	2012
Wilson	$194	$174	$175	$176	$188
Average	$201	$173	$170	$158	$159

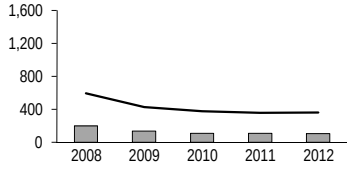
Workload Measures

Inspections per 1,000 Population in Service Area



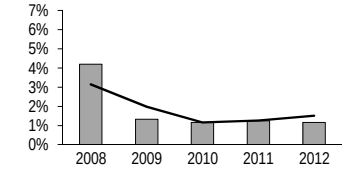
	2008	2009	2010	2011	2012
Wilson	204	136	110	114	111
Average	385	263	222	211	214

Inspections per Square Mile in Service Area



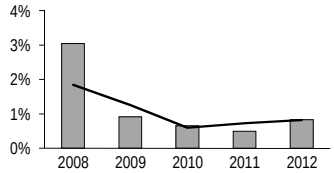
	2008	2009	2010	2011	2012
Wilson	199	138	110	109	106
Average	593	426	378	358	364

Value of Building Permits as Percentage of Tax Base of Area Served



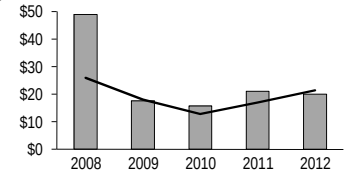
	2008	2009	2010	2011	2012
Wilson	4.21%	1.33%	1.16%	1.25%	1.16%
Average	3.15%	1.97%	1.17%	1.27%	1.51%

Value of Commercial Permits as Percentage of Tax Base of Area Served



	2008	2009	2010	2011	2012
Wilson	3.04%	0.92%	0.65%	0.50%	0.83%
Average	1.85%	1.26%	0.60%	0.73%	0.82%

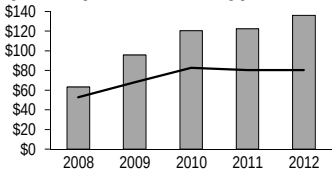
Value of Building Permits Per Inspector FTE In Millions of Dollars



	2008	2009	2010	2011	2012
Wilson	$49.0	$17.6	$15.8	$21.1	$20.0
Average	$26.0	$18.0	$12.9	$17.0	$21.5

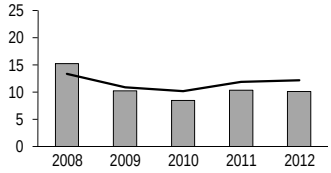
Efficiency Measures

Building Services Cost per Inspection—All Types



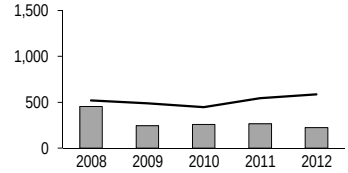
	2008	2009	2010	2011	2012
Wilson	$63.13	$95.78	$120.39	$122.46	$136.23
Average	$52.74	$68.00	$82.71	$80.41	$80.55

Inspections per Day per Inspector FTE



	2008	2009	2010	2011	2012
Wilson	15.2	10.3	8.5	10.3	10.2
Average	13.4	10.9	10.2	11.9	12.2

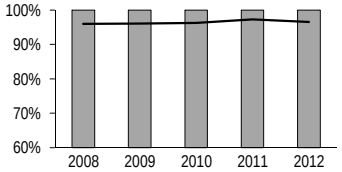
Plan Reviews per Year per Reviewer FTE



	2008	2009	2010	2011	2012
Wilson	455	245	260	265	224
Average	521	490	446	546	587

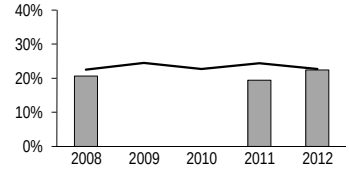
Effectiveness Measures

Percentage of Inspection Responses within One Working Day of Request



	2008	2009	2010	2011	2012
Wilson	100.0%	100.0%	100.0%	100.0%	100.0%
Average	96.0%	96.1%	96.2%	97.3%	96.5%

Percentage of Inspections that Are Reinspections



	2008	2009	2010	2011	2012
Wilson	20.6%			19.4%	22.4%
Average	22.5%	24.5%	22.7%	24.4%	22.7%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The Inspections Division is a combined program for Winston-Salem and Forsyth County, providing building inspections services for all areas of the county, with the exception of the Town of Kernersville.

Inspectors are certified in one of the following four trades: building, electrical, mechanical, or plumbing. Inspectors drive to and from inspection sites in city-owned vehicles. Besides the North Carolina State Building Code, the Inspections Division enforces zoning codes and soil and sedimentation control regulations. Full-time equivalent positions and costs for these responsibilities are excluded from the project's figures for building inspections.

It is the policy of the Inspections Division to respond to inspection requests within one working day 90 percent of the time.

Total revenue received from inspection fees amounted to $2.56 million for FY 2011–12. Inspection and permit fees depend on the type of construction or work, value of the construction, and other factors. An extra trip charge of $40 is assessed for each reinspection due to a second and subsequent failed inspection on each permit.

Conditions Affecting Service, Performance, and Costs
The broad downturn in the economy has reduced building activity and the number of requests for inspections.

Municipal Profile

Population Served	331,153
Land Area Inspected (Square Miles)	391.31
Persons per Square Mile	846
Estimated Tax Base in Service Area (billions)	$31.31
Median Family Income U.S. Census 2010	$51,491

Service Profile

FTE Inspectors	
Building	4.0
Electrical	4.0
Mechanical	4.0
Plumbing	4.0
All Trades	0.0
Total Inspectors	16.0
FTE Plan Reviewers	3.0
Other FTE Positions	9.4
Total of All Positions	28.4
Number of Inspections by Type	
Building	15,167
Electrical	13,890
Mechanical	12,918
Plumbing	9,972
TOTAL	51,947
Building Permit Values	
Residential	$188,462,476
Multi-Family	In residential
Commercial	$224,622,860
TOTAL	$413,085,336
Inspection Fee Revenue	$2,558,256

Full Cost Profile

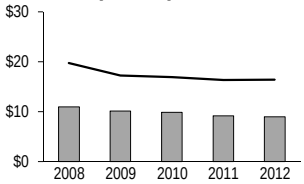
Cost Breakdown by Percentage	
Personal Services	60.1%
Operating Costs	33.2%
Capital Costs	6.7%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,783,537
Operating Costs	$983,445
Capital Costs	$198,480
TOTAL	$2,965,462

Winston-Salem Building Inspections

Key: Winston-Salem ■ Benchmarking Average — Fiscal Years 2008 through 2012

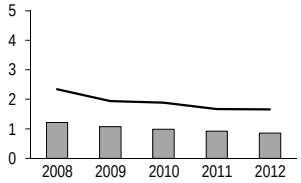
Resource Measures

Building Inspections Services Costs per Capita



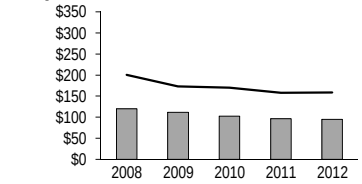
	2008	2009	2010	2011	2012
Winston-Salem	$10.94	$10.12	$9.90	$9.19	$8.95
Average	$19.77	$17.27	$16.95	$16.33	$16.43

Building Inspections Services FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Winston-Salem	1.21	1.07	0.99	0.92	0.86
Average	2.34	1.94	1.88	1.66	1.65

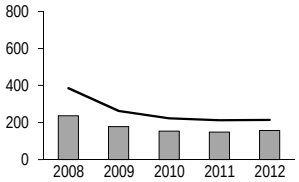
Building Inspections Services Cost per Million Dollars of Tax Base



	2008	2009	2010	2011	2012
Winston-Salem	$120	$111	$102	$96	$95
Average	$201	$173	$170	$158	$159

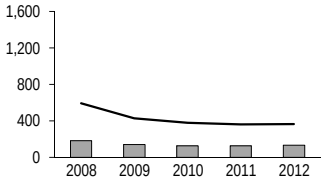
Workload Measures

Inspections per 1,000 Population in Service Area



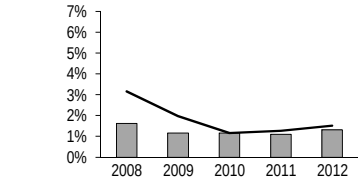
	2008	2009	2010	2011	2012
Winston-Salem	237	178	153	148	157
Average	385	263	222	211	214

Inspections per Square Mile in Service Area



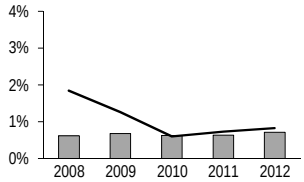
	2008	2009	2010	2011	2012
Winston-Salem	181	138	125	123	133
Average	593	426	378	358	364

Value of Building Permits as Percentage of Tax Base of Area Served



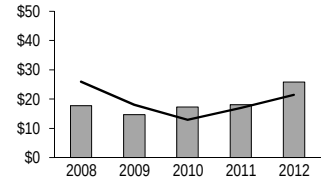
	2008	2009	2010	2011	2012
Winston-Salem	1.61%	1.16%	1.16%	1.09%	1.32%
Average	3.15%	1.97%	1.17%	1.27%	1.51%

Value of Commercial Permits as Percentage of Tax Base of Area Served



	2008	2009	2010	2011	2012
Winston-Salem	0.62%	0.68%	0.63%	0.63%	0.72%
Average	1.85%	1.26%	0.60%	0.73%	0.82%

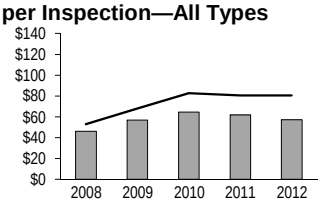
Value of Building Permits Per Inspector FTE In Millions of Dollars



	2008	2009	2010	2011	2012
Winston-Salem	$17.8	$14.7	$17.3	$18.0	$25.8
Average	$26.0	$18.0	$12.9	$17.0	$21.5

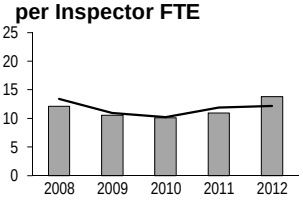
Efficiency Measures

Building Services Cost per Inspection—All Types



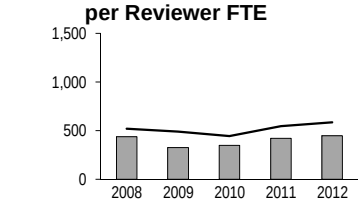
	2008	2009	2010	2011	2012
Winston-Salem	$46.21	$56.82	$64.66	$61.89	$57.09
Average	$52.74	$68.00	$82.71	$80.41	$80.55

Inspections per Day per Inspector FTE



	2008	2009	2010	2011	2012
Winston-Salem	12.1	10.6	10.1	10.9	13.8
Average	13.4	10.9	10.2	11.9	12.2

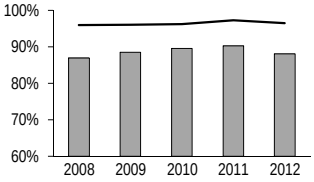
Plan Reviews per Year per Reviewer FTE



	2008	2009	2010	2011	2012
Winston-Salem	438	325	349	421	447
Average	521	490	446	546	587

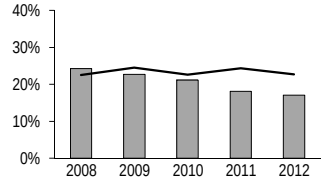
Effectiveness Measures

Percentage of Inspection Responses within One Working Day of Request



	2008	2009	2010	2011	2012
Winston-Salem	86.9%	88.5%	89.6%	90.3%	88.0%
Average	96.0%	96.1%	96.2%	97.3%	96.5%

Percentage of Inspections that Are Reinspections



	2008	2009	2010	2011	2012
Winston-Salem	24.3%	22.7%	21.1%	18.1%	17.0%
Average	22.5%	24.5%	22.7%	24.4%	22.7%

UNC
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Performance and Cost Data

FLEET MAINTENANCE

UNC
SCHOOL OF
GOVERNMENT

PERFORMANCE MEASURES FOR FLEET MAINTENANCE

SERVICE DEFINITION

Fleet maintenance represents the scheduled and unscheduled maintenance of rolling stock performed by the central garage and contractual work assigned by the central garage. This includes preventive, predictive, corrective, and breakdown maintenance. Excluded from this definition are rolling stock not maintained by the central garage and the broader activities of fleet services, such as rolling stock replacement and disposal, fuel station operation, and pool vehicle management.

NOTES ON PERFORMANCE MEASURES

1. Number of Vehicle Equivalent Units (VEUs) per Technician FTE

Vehicle Equivalent Units (VEUs) are a weighted measure of the maintenance effort associated with different classes of vehicles. A normal-use car is considered equal to one VEU. Vehicles such as fire trucks or police cars have higher VEUs, reflecting greater expected levels of maintenance effort. The number of VEUs in a municipality is determined by taking the number of rolling stock units in different classes of vehicles and multiplying them by a class weight for that category of vehicle. Vehicle categories include cars; light, medium, and heavy vehicles; trailed equipment; off-road/ construction/tractor units; and buses. The number of full-time equivalent (FTE) positions for technicians is the number of employees directly involved in providing the maintenance services for the municipality's rolling stock as approved in the annual operating budget for the fiscal year.

2. Number of Preventive Maintenances Completed In-House per Technician FTE

The number of preventive maintenance jobs (PMs) completed in-house is the total number completed for the fiscal year ending June 30 that are done by the municipality's staff. The number of full-time equivalent (FTE) positions for technicians is the same as defined above.

3. Cost per Work Order

This measure represents the total cost of fleet maintenance and is calculated using the full cost accounting model that captures direct, indirect, and capital costs. Work orders include the total number of work orders produced, including those related to contractual work, for the fiscal year ending June 30.

4. Cost per Vehicle Equivalent Unit (VEU)

This measure represents the total cost of fleet maintenance and is calculated using the full cost accounting model that captures direct, indirect, and capital costs. Vehicle Equivalent Units (VEUs) are calculated as defined above for the fiscal year ending June 30.

5. Hours Billed as a Percentage of Total Hours
The total number of billable hours includes all hours for technicians available for work during the fiscal year. Billable hours are calculated by multiplying 2,080 (hours in a normal working year) by the number of full-time equivalent (FTE) positions for technicians as defined above. However, this number of FTEs is adjusted for vacancies. Hours billed represents actual hours billed during the fiscal year by the central garage to departments, divisions, and programs.

6. Preventive Maintenances (PMs) as a Percentage of All Work Orders
This measure is based on the total number of preventive maintenance jobs (PMs) (done in-house or by outside contractors) completed during the fiscal year divided by the total number of work orders (including contractual work) completed during the fiscal year for that jurisdiction.

7. Percentage of PMs Completed on Schedule
Based on the total number of PMs as defined above, this measure represents the percentage of PMs completed as scheduled as defined by the respective jurisdiction's standards.

8. Percentage of Work Orders Completed within Twenty-Four Hours
Based on the total number of work orders as defined above, this measure represents the percentage of work orders completed during the fiscal year within twenty-four hours of being received.

9. Percentage of Rolling Stock Available per Day
Based on the total number of rolling stock units as defined above, this measure represents the average percentage of rolling stock available for use per working day of the jurisdiction.

10. Percentage of Work Orders Requiring Repeat Repair within Thirty Days
Based on the total number of work orders as defined above, this measure represents the percentage of works orders (completed work on a unit of rolling stock) requiring repeat repair for the same problem within thirty days.

Fleet Maintenance

Summary of Key Dimensions of Service

City or Town	Number of Rolling Stock Maintained	Average Age of Rolling Stock (in Years)	Number of Work Orders	Number of Preventive Maintenances	Number of Work Bays	Authorized Technician FTEs	Labor Rate (per Hour)	Parts Inventory Turnover per Year	Fund Type
Apex	290	7.1	1,839	895	4	3.5	NA	4.0	General Fund
Asheville	807	7.5	4,252	1,432	16	9.0	$50—Cars and Small Trucks $60—Large Truck and Off-Road	2.3	General Fund
Burlington	486	10.7	3,871	2,473	19	8.0	$55—Heavy Equipment $45—Auto/Light Truck $35—Small Engine/Mowers	0.9	General Fund
Cary	808	5.6	4,887	2,110	7	8.0	$60.00	NA	Internal Service
Charlotte	4,840	6.4	38,050	12,187	86	73.8	$50.55	5.0	General Fund
Concord	798	7.7	3,690	1,889	8	7.3	$60.00	5.6	General Fund
Greensboro	1,921	5.5	11,124	4,895	33	32.0	$52.00	2.1	Internal Service
Greenville	515	6.9	6,761	1,969	12	12.0	$60.00	na	Internal Service
Hickory	543	10.1	5,549	1,382	14	6.0	$44.50	4.0	Internal Service
High Point	935	8.8	4,874	2,293	18	12.0	$60.00	4.0	Internal Service
Salisbury	498	9.8	4,569	1,586	14	10.0	NA	1.6	General Fund
Wilmington	553	7.3	4,083	1,584	20	9.0	$68.00	4.0	Internal Service
Wilson	766	9.2	6,285	1,426	15	11.0	$44.00	2.3	General Fund
Winston-Salem	1,754	8.5	10,416	5,344	31	16.0	$50.00	3.6	Internal Service

EXPLANATORY FACTORS

These are factors that the project found affected fleet maintenance performance and cost in one or more of the municipalities:

Number of vehicles maintained
Types of vehicles maintained
Fleet replacement plan
Average age of vehicles by type
Average miles driven for each type of vehicle
Preventive maintenance classification system
Preventive maintenance schedule

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Fleet Services is a division of the Facility and Fleet Services Department in the Town of Apex. The activities for this operation are accounted for in the general fund.

The town does not charge departments for labor but does track time technicians spend on work orders. There is no charge to departments for parts or sublet work. Parts inventory turned over approximately four times during the fiscal year.

The following services were contracted out:

- transmission repairs
- extended repair order work
- major engine repairs
- body work
- EMS ambulance body service work
- electric line truck repairs
- major hydraulic cylinder repairs
- fire truck pump repairs.

Conditions Affecting Service, Performance, and Costs
Apex began participation in the benchmarking project in July 2011, with FY 2010–11 being the first reporting year.

Vehicle Equivalent Units (VEUs) are a weighted measure of the maintenance effort associated with different classes of vehicles. A normal-use car is considered equal to one VEU. Vehicles such as fire trucks or police cars have higher VEUs, reflecting greater expected levels of maintenance.

The measure "hours billed as a percentage of total hours" is based on a work year of 2,080 hours and only counts those positions that were filled. It should be noted that technicians have responsibilities that do not result in billable hours and they take normal vacation and sick leave. Therefore this percentage should not be expected to be near 100 percent.

In Apex the preventive maintenance (PM) completion standard for "percentage of PMs completed as scheduled" is within thirty days of the scheduled date or within mileage parameters.

In addition to rolling stock, Apex's fleet services has maintenance responsibilities for other pieces of equipment, including asphalt rollers, whacker and roller tamps, portable generators, ballfield conditions, various types of ATVs, weedeaters, lawnmowers, chainsaws, sump pumps, water pumps, snow plows, flail mowers, boat motors, light towers, and stump grinders.

The Apex Fleet Services Supervisor provides technician support on an as needed basis.

Municipal Profile

Population (OSBM 2009)	38,696
Land Area (Square Miles)	15.63
Persons per Square Mile	2,477

Service Profile

FTE Positions—Technician	3.5
FTE Positions—Other	1.0
Work Bays	4

Rolling Stock Maintained	No.	Average Age
Cars—Normal Usage	3	7.5 Years
Cars—Severe Usage	46	6.2 Years
Light Vehicles	97	5.2 Years
Medium Vehicles	23	8.5 Years
Heavy—Sanitation	0	NA
Heavy—Sewer	1	3.0 Years
Heavy—Fire Apparatus	10	10.5 Years
Heavy—Other	17	7.5 Years
Trailed Equipment	63	8.5 Years
Off-Road/Construction/Tractors	30	9.2 Years
Buses	0	NA
TOTAL	290	

Vehicle Equivalent Units (VEUs)	844
Average Rolling Stock Units Available per Day	274
Hours Billed	6,842
Work Orders	1,839
Repeat Repairs within 30 Days	10
Work Orders Completed within 24 hours	1,500
Preventive Maintenance Jobs (PMs)	895
PMs Completed as Scheduled	895

Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	28.7%
Operating Costs	60.9%
Capital Costs	10.4%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$195,797
Operating Costs	$415,663
Capital Costs	$70,943
TOTAL	$682,403

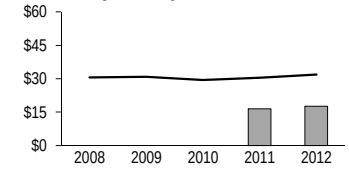
Apex

Fleet Maintenance

Key: Apex ■ Benchmarking Average — Fiscal Years 2008 through 2012

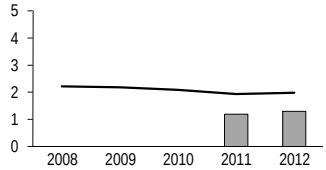
Resource Measures

Fleet Maintenance Services Cost per Capita



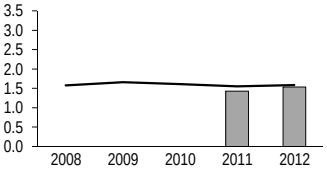
	2008	2009	2010	2011	2012
Apex				$16.49	$17.63
Average	$30.63	$30.88	$29.42	$30.48	$31.83

Fleet Maintenance FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Apex				1.19	1.29
Average	2.21	2.18	2.09	1.93	1.97

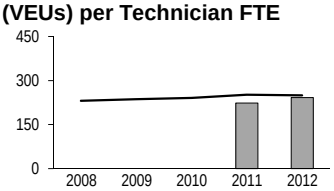
Fleet Maintenance FTEs per 100 Municipal Employees



	2008	2009	2010	2011	2012
Apex				1.42	1.54
Average	1.57	1.66	1.61	1.55	1.59

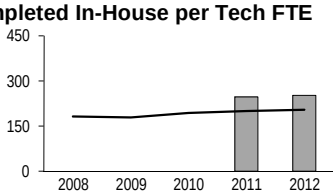
Workload Measures

Number of Vehicle Equivalent Units (VEUs) per Technician FTE



	2008	2009	2010	2011	2012
Apex				223	241
Average	231	236	240	252	249

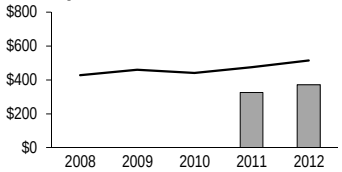
Preventive Maintenances (PMs) Completed In-House per Tech FTE



	2008	2009	2010	2011	2012
Apex				247	252
Average	182	179	194	200	205

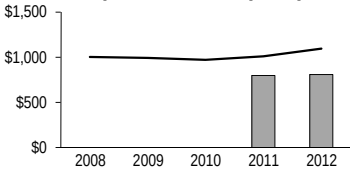
Efficiency Measures

Fleet Maintenance Cost per Work Order



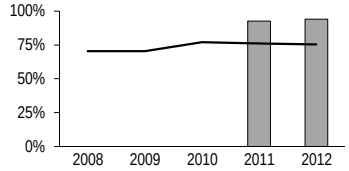
	2008	2009	2010	2011	2012
Apex				$325	$371
Average	$428	$460	$440	$475	$514

Fleet Maintenance Cost per Vehicle Equivalent Unit (VEU)



	2008	2009	2010	2011	2012
Apex				$799	$808
Average	$1,002	$994	$972	$1,009	$1,095

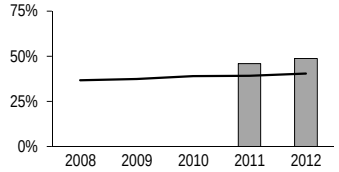
Hours Billed as a Percentage of Total Hours



	2008	2009	2010	2011	2012
Apex				93%	94%
Average	70%	70%	77%	76%	75%

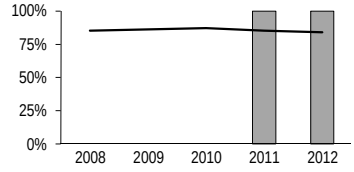
Effectiveness Measures

Preventive Maintenances (PMs) as a Percentage of All Work Orders



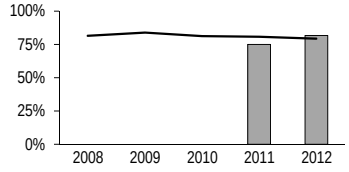
	2008	2009	2010	2011	2012
Apex				46%	49%
Average	37%	37%	39%	39%	40%

Percentage of Preventive Maintenances (PMs) Completed as Scheduled



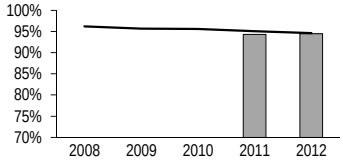
	2008	2009	2010	2011	2012
Apex				100%	100%
Average	85%	86%	87%	85%	84%

Percentage of Work Orders Completed within 24 Hours



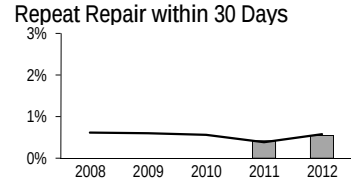
	2008	2009	2010	2011	2012
Apex				75%	82%
Average	81%	84%	81%	81%	79%

Percentage of Rolling Stock Available per Day



	2008	2009	2010	2011	2012
Apex				94%	94%
Average	96%	96%	96%	95%	95%

Percentage of Work Orders Requiring Repeat Repair within 30 Days



	2008	2009	2010	2011	2012
Apex				0.42%	0.54%
Average	0.62%	0.60%	0.56%	0.38%	0.58%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Fleet management is a division of the Asheville Public Works Department, consisting of the fleet maintenance garage and a fueling station. The activities for this operation are accounted for in the general fund.

Charges for maintenance services included a $50-an-hour labor rate for passenger cars and light trucks up to one ton in weight and a $60-an-hour labor rate for vehicles over one ton in weight and off-road vehicles, a 30 percent markup on parts, and a 5 percent markup on sublet work.

The following services were contracted out:

- major automatic and manual transmission repairs
- front-end alignments
- major emergency generator repairs
- aerial inspections
- major engine repairs
- paint and body repairs
- tire repairs on trucks over one ton
- major hydraulic cylinder repairs
- refuse truck body packer repairs.

Conditions Affecting Service, Performance, and Costs
Vehicle Equivalent Units (VEUs) are a weighted measure of the maintenance effort associated with different classes of vehicles. A normal-use car is considered equal to one VEU. Vehicles such as fire trucks or police cars have higher VEUs, reflecting greater expected levels of maintenance.

The measure "hours billed as a percentage of total hours" is based on a work year of 2,080 hours and only counts those positions that were filled. It should be noted that technicians have responsibilities that do not result in billable hours and they take normal vacation and sick leave. Therefore this percentage should not be expected to be near 100 percent.

In Asheville, the preventive maintenance (PM) completion standard for "percentage of PMs completed as scheduled" is within the same calendar month as the scheduled date.

In addition to rolling stock, Asheville's fleet services has maintenance responsibilities for other pieces of equipment, including snow plows, sand spreaders, emergency generators, water pumps, chain saws, a pressure washer, a curb builder, and other city equipment.

Municipal Profile

Population (OSBM 2009)	85,646
Land Area (Square Miles)	45.40
Persons per Square Mile	1,886

Service Profile

FTE Positions—Technician	9.0
FTE Positions—Other	7.0
Work Bays	16

Rolling Stock Maintained	No.	Average Age
Cars—Normal Usage	28	8.5 Years
Cars—Severe Usage	164	6.0 Years
Light Vehicles	289	6.6 Years
Medium Vehicles	8	3.0 Years
Heavy—Sanitation	14	6.3 Years
Heavy—Sewer	2	4.8 Years
Heavy—Fire Apparatus	30	12.2 Years
Heavy—Other	64	9.1 Years
Trailed Equipment	117	8.8 Years
Off-Road/Construction/Tractors	87	8.7 Years
Buses	4	11.4 Years
TOTAL	807	

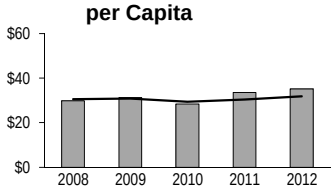
Vehicle Equivalent Units (VEUs)	2,612
Average Rolling Stock Units Available per Day	782
Hours Billed	14,397
Work Orders	4,252
Repeat Repairs within 30 Days	42
Work Orders Completed within 24 hours	2,976
Preventive Maintenance Jobs (PMs)	1,432
PMs Completed as Scheduled	1,360

Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	29.0%
Operating Costs	68.9%
Capital Costs	2.1%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$873,170
Operating Costs	$2,075,447
Capital Costs	$62,819
TOTAL	$3,011,436

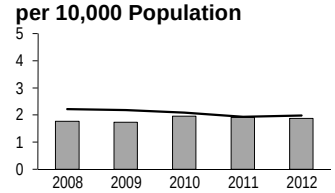
Resource Measures

Fleet Maintenance Services Cost per Capita



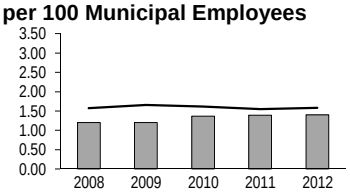
	2008	2009	2010	2011	2012
Asheville	$29.77	$31.26	$28.42	$33.59	$35.16
Average	$30.63	$30.88	$29.42	$30.48	$31.83

Fleet Maintenance FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Asheville	1.77	1.73	1.95	1.91	1.87
Average	2.21	2.18	2.09	1.93	1.97

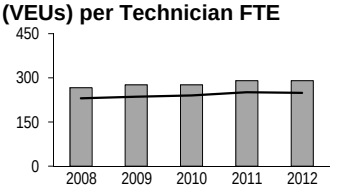
Fleet Maintenance FTEs per 100 Municipal Employees



	2008	2009	2010	2011	2012
Asheville	1.20	1.20	1.36	1.40	1.40
Average	1.57	1.66	1.61	1.55	1.59

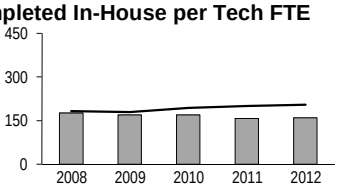
Workload Measures

Number of Vehicle Equivalent Units (VEUs) per Technician FTE



	2008	2009	2010	2011	2012
Asheville	266	276	276	290	290
Average	231	236	240	252	249

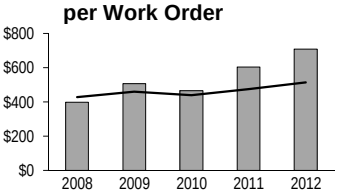
Preventive Maintenances (PMs) Completed In-House per Tech FTE



	2008	2009	2010	2011	2012
Asheville	176	170	170	157	159
Average	182	179	194	200	205

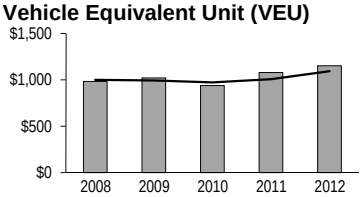
Efficiency Measures

Fleet Maintenance Cost per Work Order



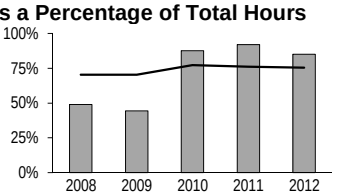
	2008	2009	2010	2011	2012
Asheville	$399	$507	$466	$604	$708
Average	$428	$460	$440	$475	$514

Fleet Maintenance Cost per Vehicle Equivalent Unit (VEU)



	2008	2009	2010	2011	2012
Asheville	$983	$1,023	$938	$1,079	$1,153
Average	$1,002	$994	$972	$1,009	$1,095

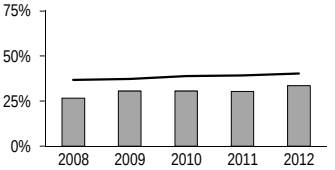
Hours Billed as a Percentage of Total Hours



	2008	2009	2010	2011	2012
Asheville	49%	44%	88%	92%	85%
Average	70%	70%	77%	76%	75%

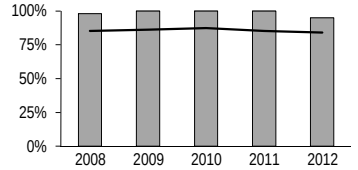
Effectiveness Measures

Preventive Maintenances (PMs) as a Percentage of All Work Orders



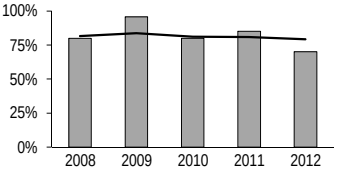
	2008	2009	2010	2011	2012
Asheville	27%	31%	31%	30%	34%
Average	37%	37%	39%	39%	40%

Percentage of Preventive Maintenances (PMs) Completed as Scheduled



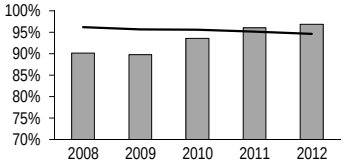
	2008	2009	2010	2011	2012
Asheville	98%	100%	100%	100%	95%
Average	85%	86%	87%	85%	84%

Percentage of Work Orders Completed within 24 Hours



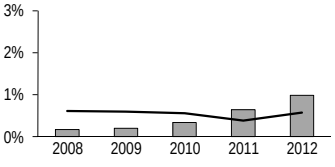
	2008	2009	2010	2011	2012
Asheville	80%	96%	80%	85%	70%
Average	81%	84%	81%	81%	79%

Percentage of Rolling Stock Available per Day



	2008	2009	2010	2011	2012
Asheville	90%	90%	94%	96%	97%
Average	96%	96%	96%	95%	95%

Percentage of Work Orders Requiring Repeat Repair within 30 Days



	2008	2009	2010	2011	2012
Asheville	0.17%	0.20%	0.34%	0.64%	0.99%
Average	0.62%	0.60%	0.56%	0.38%	0.58%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Burlington's fleet maintenance is performed by the Equipment Services Division of the Public Works Department. The activities for this operation were accounted for in the general fund.

There are no charges for hourly labor, but a tracking fee is used for internal purposes. There is a 5 percent markup on parts but no markup on sublet work.

The following services were contracted out:

- bodywork
- alignments
- major transmission repairs
- machine work
- windshield replacement
- upholstery work
- aerial inspections
- wrecker service
- two-way radio work.

In addition to rolling stock, Burlington's Equipment Services Division has maintenance responsibility for bush hogs, edgers, pavers, pressure washers, riding mowers, generators, chain saws, push mowers, grinders, paint machines, spreaders, aerators, directional signs, and other city equipment.

Conditions Affecting Service, Performance, and Costs
Vehicle Equivalent Units (VEUs) are a weighted measure of the maintenance effort associated with different classes of vehicles. A normal-use car is considered equal to one VEU. Vehicles such as fire trucks or police cars have higher VEUs, reflecting greater expected levels of maintenance.

In Burlington, the preventive maintenance (PM) completion standard for "percentage of PMs completed as scheduled" is based on mileage parameters. While most PMs are done within twenty-four hours of arrival at the fleet shop, not all vehicles are brought in by departments on time to allow completion on schedule.

Municipal Profile

Population (OSBM 2009)	51,263
Land Area (Square Miles)	25.21
Persons per Square Mile	2,034

Service Profile

FTE Positions—Technician	8.0
FTE Positions—Other	6.0
Work Bays	19

Rolling Stock Maintained	No.	Average Age
Cars—Normal Usage	40	5.8 Years
Cars—Severe Usage	97	5.0 Years
Light Vehicles	132	10.3 Years
Medium Vehicles	35	13.9 Years
Heavy—Sanitation	19	7.5 Years
Heavy—Sewer	4	18.0 Years
Heavy—Fire Apparatus	10	12.1 Years
Heavy—Other	8	13.9 Years
Trailed Equipment	91	15.8 Years
Off-Road/Construction/Tractors	47	15.6 Years
Buses	3	7.9 Years
TOTAL	486	

Vehicle Equivalent Units (VEUs)	1,502
Average Rolling Stock Units Available per Day	407
Hours Billed	9,752
Work Orders	3,871
Repeat Repairs within 30 Days	1
Work Orders Completed within 24 hours	2,421
Preventive Maintenance Jobs (PMs)	2,473
PMs Completed as Scheduled	873

Full Cost Profile

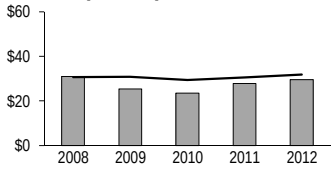
Cost Breakdown by Percentage	
Personal Services	42.5%
Operating Costs	54.7%
Capital Costs	2.8%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$644,775
Operating Costs	$828,938
Capital Costs	$42,266
TOTAL	$1,515,979

Burlington Fleet Maintenance

Key: Burlington ■ Benchmarking Average — Fiscal Years 2008 through 2012

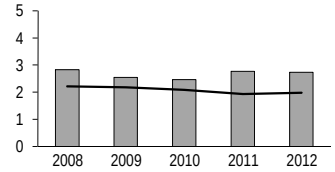
Resource Measures

Fleet Maintenance Services Cost per Capita



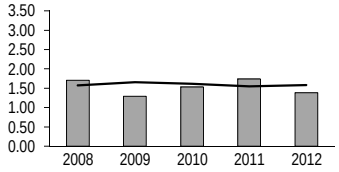
	2008	2009	2010	2011	2012
Burlington	$31.02	$25.39	$23.45	$27.79	$29.57
Average	$30.63	$30.88	$29.42	$30.48	$31.83

Fleet Maintenance FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Burlington	2.83	2.54	2.46	2.77	2.73
Average	2.21	2.18	2.09	1.93	1.97

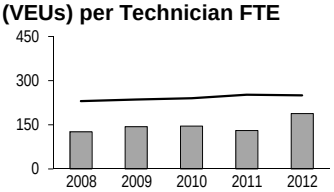
Fleet Maintenance FTEs per 100 Municipal Employees



	2008	2009	2010	2011	2012
Burlington	1.71	1.29	1.53	1.74	1.39
Average	1.57	1.66	1.61	1.55	1.59

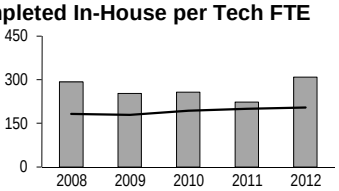
Workload Measures

Number of Vehicle Equivalent Units (VEUs) per Technician FTE



	2008	2009	2010	2011	2012
Burlington	126	143	145	130	188
Average	231	236	240	252	249

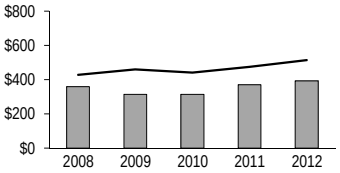
Preventive Maintenances (PMs) Completed In-House per Tech FTE



	2008	2009	2010	2011	2012
Burlington	293	252	257	223	309
Average	182	179	194	200	205

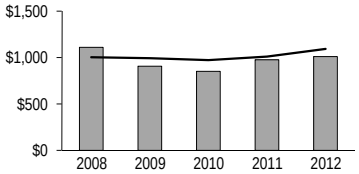
Efficiency Measures

Fleet Maintenance Cost per Work Order



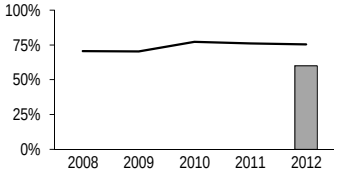
	2008	2009	2010	2011	2012
Burlington	$358	$314	$314	$370	$392
Average	$428	$460	$440	$475	$514

Fleet Maintenance Cost per Vehicle Equivalent Unit (VEU)



	2008	2009	2010	2011	2012
Burlington	$1,110	$908	$853	$977	$1,010
Average	$1,002	$994	$972	$1,009	$1,095

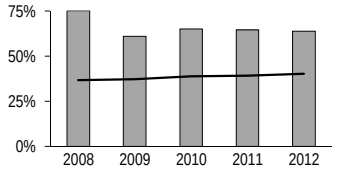
Hours Billed as a Percentage of Total Hours



	2008	2009	2010	2011	2012
Burlington					60%
Average	70%	70%	77%	76%	75%

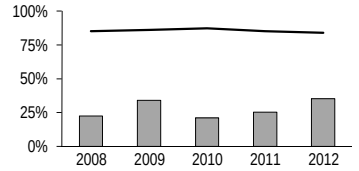
Effectiveness Measures

Preventive Maintenances (PMs) as a Percentage of All Work Orders



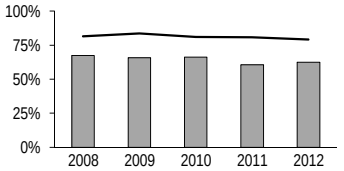
	2008	2009	2010	2011	2012
Burlington	75%	61%	65%	65%	64%
Average	37%	37%	39%	39%	40%

Percentage of Preventive Maintenances (PMs) Completed as Scheduled



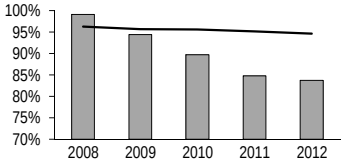
	2008	2009	2010	2011	2012
Burlington	23%	34%	21%	25%	35%
Average	85%	86%	87%	85%	84%

Percentage of Work Orders Completed within 24 Hours



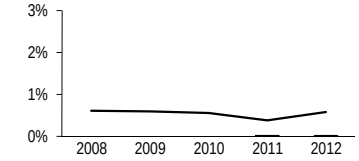
	2008	2009	2010	2011	2012
Burlington	67%	66%	66%	61%	63%
Average	81%	84%	81%	81%	79%

Percentage of Rolling Stock Available per Day



	2008	2009	2010	2011	2012
Burlington	99%	94%	90%	85%	84%
Average	96%	96%	96%	95%	95%

Percentage of Work Orders Requiring Repeat Repair within 30 Days



	2008	2009	2010	2011	2012
Burlington	0.00%	0.00%	0.00%	0.03%	0.03%
Average	0.62%	0.60%	0.56%	0.38%	0.58%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Cary's Fleet Division is located in the Public Works and Utilities Department. It operates as an internal service fund where departments are charged according to actual usage and all expenses and revenues are tracked separately from the general fund.

The division charges $60 an hour for labor on all vehicle types and a 19 percent markup on parts sold. A flat fee of $19 is charged on sublet work.

Cary has a contract with the retail store NAPA where space is provided for a parts warehouse, but parts are only sold to Cary when used. Parts are stocked based on an annual review of parts used and maintenance requirements. NAPA does not charge a stocking/restocking fee.

The following services were contracted out:

- body work
- tire replacement (tires over 16 inches)
- some major transmission work
- some engine overhaul
- striping/decal work for law enforcement and fire vehicles only.

Conditions Affecting Service, Performance, and Costs
Vehicle Equivalent Units (VEUs) are a weighted measure of the maintenance effort associated with different classes of vehicles. A normal-use car is considered equal to one VEU. Vehicles such as fire trucks or police cars have higher VEUs, reflecting greater expected levels of maintenance.

The measure "hours billed as a percentage of total hours" is based on a work year of 2,080 hours and only counts those positions that were filled. It should be noted that technicians have responsibilities that do not result in billable hours and they take normal vacation and sick leave. Therefore this percentage should not be expected to be near 100 percent.

In Cary, the preventive maintenance (PM) completion standard for "percentage of PMs completed as scheduled" is within the same calendar month as the scheduled date or within mileage parameters.

In addition to rolling stock, Cary's fleet services has maintenance responsibilities for riding mowers, weedwackers, rotor tillers, tamps, saws, chippers, rollers, excavators, loaders, salt spreaders, concrete mixers, seeders, aerators, generators, an asphalt heater and trench master, and other town equipment.

Municipal Profile

Population (OSBM 2009)	139,172
Land Area (Square Miles)	54.56
Persons per Square Mile	2,551

Service Profile

FTE Positions—Technician	8.0
FTE Positions—Other	3.0
Work Bays	7

Rolling Stock Maintained	No.	Average Age
Cars—Normal Usage	33	5.3 Years
Cars—Severe Usage	119	4.0 Years
Light Vehicles	259	5.3 Years
Medium Vehicles	61	7.3 Years
Heavy—Sanitation	32	3.7 Years
Heavy—Sewer	4	3.8 Years
Heavy—Fire Apparatus	20	6.8 Years
Heavy—Other	19	7.5 Years
Trailed Equipment	67	7.3 Years
Off-Road/Construction/Tractors	194	5.9 Years
Buses	0	NA
TOTAL	808	

Vehicle Equivalent Units (VEUs)	2,849
Average Rolling Stock Units Available per Day	792
Hours Billed	10,188
Work Orders	4,887
Repeat Repairs within 30 Days	10
Work Orders Completed within 24 hours	4,199
Preventive Maintenance Jobs (PMs)	2,110
PMs Completed as Scheduled	1,689

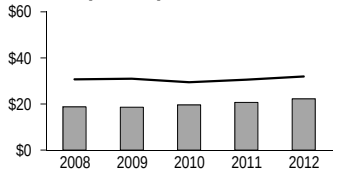
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	24.3%
Operating Costs	71.2%
Capital Costs	4.5%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$748,903
Operating Costs	$2,192,731
Capital Costs	$138,447
TOTAL	$3,080,081

Key: Cary ■ Benchmarking Average — Fiscal Years 2008 through 2012

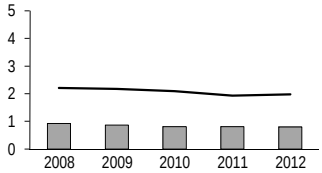
Resource Measures

Fleet Maintenance Services Cost per Capita



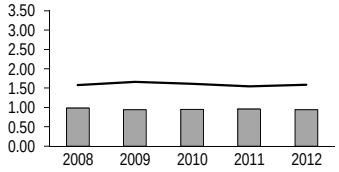
	2008	2009	2010	2011	2012
Cary	$18.64	$18.59	$19.52	$20.59	$22.13
Average	$30.63	$30.88	$29.42	$30.48	$31.83

Fleet Maintenance FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Cary	0.92	0.86	0.81	0.81	0.79
Average	2.21	2.18	2.09	1.93	1.97

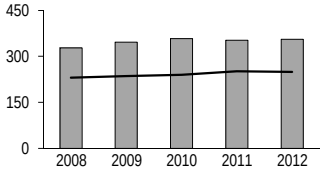
Fleet Maintenance FTEs per 100 Municipal Employees



	2008	2009	2010	2011	2012
Cary	0.98	0.94	0.95	0.96	0.94
Average	1.57	1.66	1.61	1.55	1.59

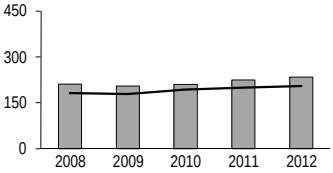
Workload Measures

Number of Vehicle Equivalent Units (VEUs) per Technician FTE



	2008	2009	2010	2011	2012
Cary	327	346	357	353	356
Average	231	236	240	252	249

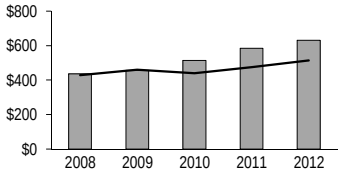
Preventive Maintenances (PMs) Completed In-House per Tech FTE



	2008	2009	2010	2011	2012
Cary	211	204	210	224	235
Average	182	179	194	200	205

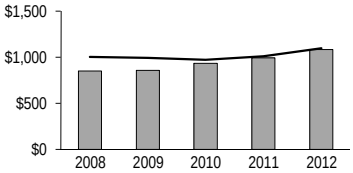
Efficiency Measures

Fleet Maintenance Cost per Work Order



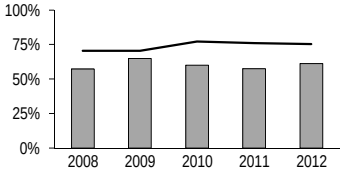
	2008	2009	2010	2011	2012
Cary	$436	$456	$513	$584	$630
Average	$428	$460	$440	$475	$514

Fleet Maintenance Cost per Vehicle Equivalent Unit (VEU)



	2008	2009	2010	2011	2012
Cary	$850	$857	$933	$993	$1,081
Average	$1,002	$994	$972	$1,009	$1,095

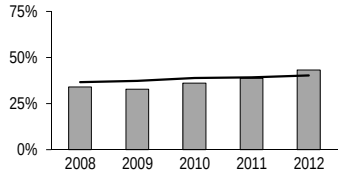
Hours Billed as a Percentage of Total Hours



	2008	2009	2010	2011	2012
Cary	57%	65%	60%	58%	61%
Average	70%	70%	77%	76%	75%

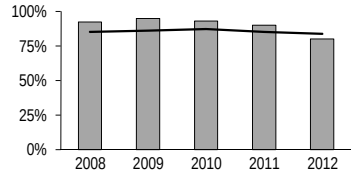
Effectiveness Measures

Preventive Maintenances (PMs) as a Percentage of All Work Orders



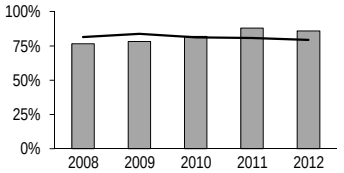
	2008	2009	2010	2011	2012
Cary	34%	33%	36%	39%	43%
Average	37%	37%	39%	39%	40%

Percentage of Preventive Maintenances (PMs) Completed as Scheduled



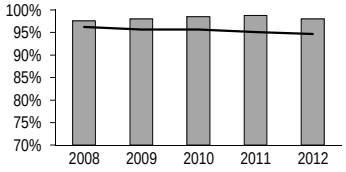
	2008	2009	2010	2011	2012
Cary	92%	95%	93%	90%	80%
Average	85%	86%	87%	85%	84%

Percentage of Work Orders Completed within 24 Hours



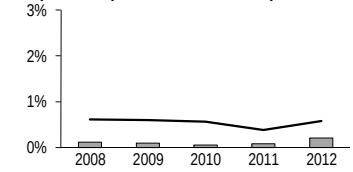
	2008	2009	2010	2011	2012
Cary	77%	78%	82%	88%	86%
Average	81%	84%	81%	81%	79%

Percentage of Rolling Stock Available per Day



	2008	2009	2010	2011	2012
Cary	98%	98%	99%	99%	98%
Average	96%	96%	96%	95%	95%

Percentage of Work Orders Requiring Repeat Repair within 30 Days



	2008	2009	2010	2011	2012
Cary	0.12%	0.10%	0.06%	0.08%	0.20%
Average	0.62%	0.60%	0.56%	0.38%	0.58%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The City of Charlotte and the County of Mecklenburg merged fleet maintenance services under a city-operated program beginning July 1, 2009. The data reported here are inclusive of both fleets. The services are provided by Charlotte's Equipment Management Division, which is part of Business Support Services. All activities for this operation are accounted for in the general fund. The Equipment Management Division currently charges an administrative fee per unit to compensate for the overhead of administrative staff, including tags and title work, specification writing, and fleet analysis. This fee is currently $26 per city vehicle and $28.51 for county vehicles.

Charges for maintenance services included a $50.55-per-hour labor rate, a 22.27 percent markup charge on parts sold, and a 13.68 percent markup charge on sublet work. Part caps are negotiated individually, based on very special and specific needs. All sublet transactions are subject to a $500 cap.

The following services were contracted out during the year: accident repair, body work, spring repairs, front-end alignment, glass replacement, fuel system repair, engine overhauls, transmission overhauls, towing, some tire service, police car preparation, heavy tire replacement and repair, some light-vehicle preventive maintenance, painting/graphic installation, and radio/computer installation or removal.

Conditions Affecting Service, Performance, and Costs
Vehicle Equivalent Units (VEUs) are a weighted measure of the maintenance effort associated with different classes of vehicles. A normal-use car is considered equal to one VEU. Vehicles such as fire trucks or police cars have higher VEUs, reflecting greater expected levels of maintenance.

The measure "hours billed as a percentage of total hours" is based on a work year of 2,080 hours and only counts those positions that were filled. It should be noted that technicians have responsibilities that do not result in billable hours and they take normal vacation and sick leave. Therefore this percentage should not be expected to be near 100 percent. Charlotte indicated that 67.25 technician FTEs were actually available for work during FY 2011–12 for this calculation.

In Charlotte the preventive maintenance (PM) completion standard for "percentage of PMs completed as scheduled" is within thirty days of the scheduled date and within mileage parameters.

In addition to rolling stock, Charlotte's fleet services had maintenance responsibilities for generators, mowers, weedwackers, compressors, saws, blowers, fans, asphalt-tar/kettles, edgers, snow plows, spreaders, tamps, mixers, chippers, posthole diggers, grinders, pressure washers, and other city equipment.

Municipal Profile

Population (OSBM 2009)	751,999
Land Area (Square Miles)	301.48
Persons per Square Mile	2,494

Service Profile

FTE Positions—Technician	73.8
FTE Positions—Other	48.3
Work Bays	86

Rolling Stock Maintained	No.	Average Age
Cars—Normal Usage	861	6.7 Years
Cars—Severe Usage	926	4.3 Years
Light Vehicles	1,515	6.1 Years
Medium Vehicles	177	8.8 Years
Heavy—Sanitation	155	4.7 Years
Heavy—Sewer	25	5.7 Years
Heavy—Fire Apparatus	94	9.5 Years
Heavy—Other	141	8.5 Years
Trailed Equipment	483	9.5 Years
Off-Road/Construction/Tractors	439	6.3 Years
Buses	24	4.1 Years
TOTAL	4,840	

Vehicle Equivalent Units (VEUs)	14,174
Average Rolling Stock Units Available per Day	4,332
Hours Billed	117,675
Work Orders	38,050
Repeat Repairs within 30 Days	9
Work Orders Completed within 24 hours	31,910
Preventive Maintenance Jobs (PMs)	12,187
PMs Completed as Scheduled	9,750

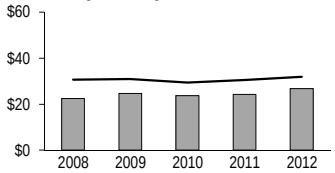
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	42.9%
Operating Costs	55.9%
Capital Costs	1.2%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$8,638,593
Operating Costs	$11,259,158
Capital Costs	$246,551
TOTAL	$20,144,302

Key: Charlotte ■ Benchmarking Average — Fiscal Years 2008 through 2012

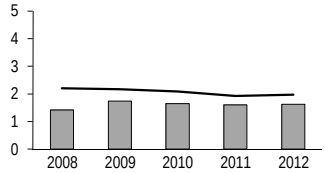
Resource Measures

Fleet Maintenance Services Cost per Capita



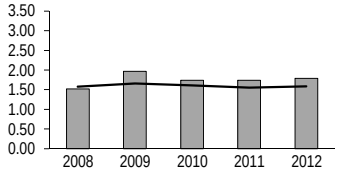
	2008	2009	2010	2011	2012
Charlotte	$22.38	$24.63	$23.72	$24.21	$26.79
Average	$30.63	$30.88	$29.42	$30.48	$31.83

Fleet Maintenance FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Charlotte	1.42	1.74	1.65	1.60	1.62
Average	2.21	2.18	2.09	1.93	1.97

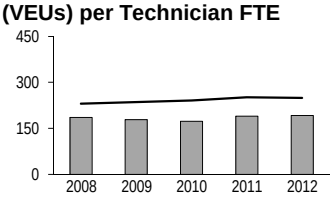
Fleet Maintenance FTEs per 100 Municipal Employees



	2008	2009	2010	2011	2012
Charlotte	1.52	1.96	1.74	1.74	1.79
Average	1.57	1.66	1.61	1.55	1.59

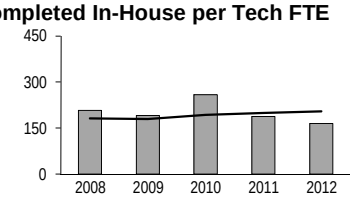
Workload Measures

Number of Vehicle Equivalent Units (VEUs) per Technician FTE



	2008	2009	2010	2011	2012
Charlotte	186	178	173	190	192
Average	231	236	240	252	249

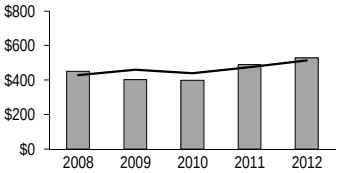
Preventive Maintenances (PMs) Completed In-House per Tech FTE



	2008	2009	2010	2011	2012
Charlotte	207	191	258	188	165
Average	182	179	194	200	205

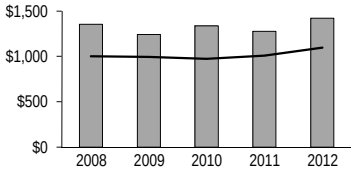
Efficiency Measures

Fleet Maintenance Cost per Work Order



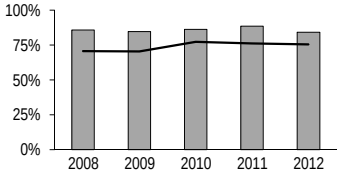
	2008	2009	2010	2011	2012
Charlotte	$450	$403	$399	$490	$529
Average	$428	$460	$440	$475	$514

Fleet Maintenance Cost per Vehicle Equivalent Unit (VEU)



	2008	2009	2010	2011	2012
Charlotte	$1,353	$1,240	$1,337	$1,277	$1,421
Average	$1,002	$994	$972	$1,009	$1,095

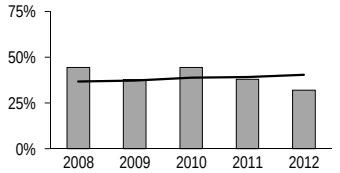
Hours Billed as a Percentage of Total Hours



	2008	2009	2010	2011	2012
Charlotte	86%	84%	86%	88%	84%
Average	70%	70%	77%	76%	75%

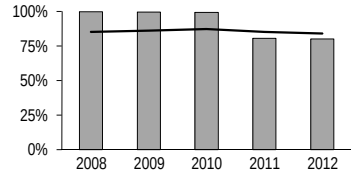
Effectiveness Measures

Preventive Maintenances (PMs) as a Percentage of All Work Orders



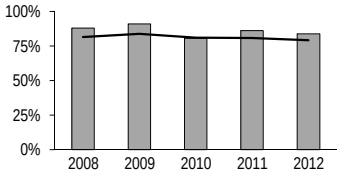
	2008	2009	2010	2011	2012
Charlotte	44%	38%	44%	38%	32%
Average	37%	37%	39%	39%	40%

Percentage of Preventive Maintenances (PMs) Completed as Scheduled



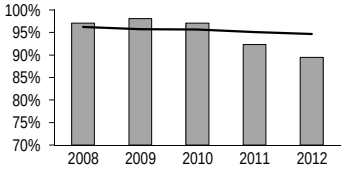
	2008	2009	2010	2011	2012
Charlotte	100%	99%	99%	81%	80%
Average	85%	86%	87%	85%	84%

Percentage of Work Orders Completed within 24 Hours



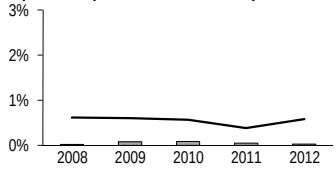
	2008	2009	2010	2011	2012
Charlotte	88%	91%	80%	86%	84%
Average	81%	84%	81%	81%	79%

Percentage of Rolling Stock Available per Day



	2008	2009	2010	2011	2012
Charlotte	97%	98%	97%	92%	90%
Average	96%	96%	96%	95%	95%

Percentage of Work Orders Requiring Repeat Repair within 30 Days



	2008	2009	2010	2011	2012
Charlotte	0.02%	0.08%	0.08%	0.05%	0.02%
Average	0.62%	0.60%	0.56%	0.38%	0.58%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Concord's Fleet Department operates as a separate city department through an internal service fund, charging other departments for services rendered.

A labor rate of $60 per hour is charged for all maintenance services. There is a 25 percent markup charge for parts and a 10 percent markup on sublet work.

The following services were contracted out:

- body repairs
- aerial device repairs
- front-end alignments.

Conditions Affecting Service, Performance, and Costs
Vehicle Equivalent Units (VEUs) are a weighted measure of the maintenance effort associated with different classes of vehicles. A normal-use car is considered equal to one VEU. Vehicles such as fire trucks or police cars have higher VEUs, reflecting greater expected levels of maintenance.

The measure "hours billed as a percentage of total hours" is based on a work year of 2,080 hours and only counts those positions that were filled. It should be noted that technicians have responsibilities that do not result in billable hours and they take normal vacation and sick leave. Therefore this percentage should not be expected to be near 100 percent. Concord indicated that 6.58 technician FTEs were actually working during FY 2011–12 for this calculation.

In Concord, the preventive maintenance (PM) completion standard for "percentage of PMs completed as scheduled" is within thirty days of the scheduled date.

In addition to rolling stock, Concord's fleet services has maintenance responsibilities for generators, mowers, weedeaters, chainsaws, chop saws, leaf blowers, tamps, pumps, power washers, and other city equipment.

Municipal Profile

Population (OSBM 2009)	80,386
Land Area (Square Miles)	60.28
Persons per Square Mile	1,333

Service Profile

FTE Positions—Technician	7.3
FTE Positions—Other	5.0
Work Bays	8

Rolling Stock Maintained	No.	Average Age
Cars—Normal Usage	12	10.2 Years
Cars—Severe Usage	161	4.8 Years
Light Vehicles	222	7.7 Years
Medium Vehicles	49	7.9 Years
Heavy—Sanitation	13	6.2 Years
Heavy—Sewer	3	4.6 Years
Heavy—Fire Apparatus	25	10.4 Years
Heavy—Other	53	6.6 Years
Trailed Equipment	151	10.3 Years
Off-Road/Construction/Tractors	93	8.3 Years
Buses	16	7.9 Years
TOTAL	798	

Vehicle Equivalent Units (VEUs)	2,615
Average Rolling Stock Units Available per Day	790
Hours Billed	8,830
Work Orders	3,690
Repeat Repairs within 30 Days	12
Work Orders Completed within 24 hours	3,655
Preventive Maintenance Jobs (PMs)	1,889
PMs Completed as Scheduled	1,833

Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	42.0%
Operating Costs	55.4%
Capital Costs	2.6%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$796,599
Operating Costs	$1,050,381
Capital Costs	$48,338
TOTAL	$1,895,318

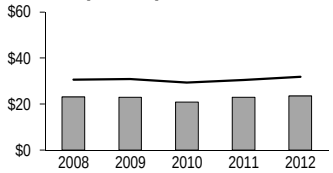
Concord

Fleet Maintenance

Key: Concord ■ Benchmarking Average — Fiscal Years 2008 through 2012

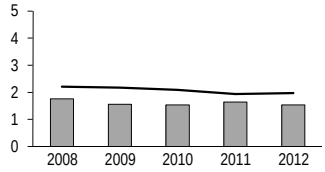
Resource Measures

Fleet Maintenance Services Cost per Capita



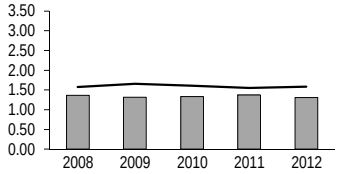
	2008	2009	2010	2011	2012
Concord	$23.07	$22.93	$20.94	$22.91	$23.58
Average	$30.63	$30.88	$29.42	$30.48	$31.83

Fleet Maintenance FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Concord	1.76	1.56	1.53	1.63	1.53
Average	2.21	2.18	2.09	1.93	1.97

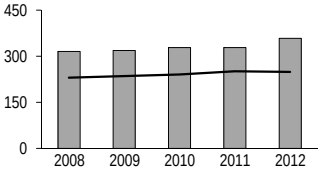
Fleet Maintenance FTEs per 100 Municipal Employees



	2008	2009	2010	2011	2012
Concord	1.36	1.31	1.33	1.37	1.31
Average	1.57	1.66	1.61	1.55	1.59

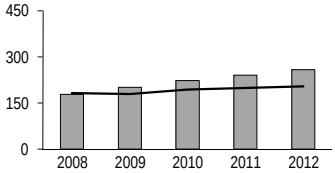
Workload Measures

Number of Vehicle Equivalent Units (VEUs) per Technician FTE



	2008	2009	2010	2011	2012
Concord	315	319	328	328	358
Average	231	236	240	252	249

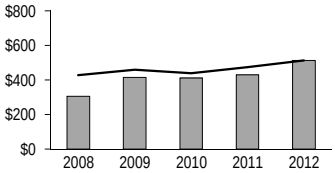
Preventive Maintenances (PMs) Completed In-House per Tech FTE



	2008	2009	2010	2011	2012
Concord	179	202	224	241	259
Average	182	179	194	200	205

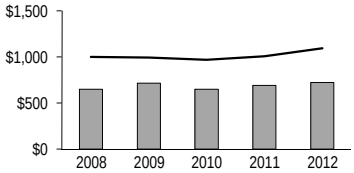
Efficiency Measures

Fleet Maintenance Cost per Work Order



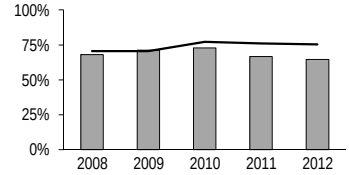
	2008	2009	2010	2011	2012
Concord	$306	$415	$412	$430	$514
Average	$428	$460	$440	$475	$514

Fleet Maintenance Cost per Vehicle Equivalent Unit (VEU)



	2008	2009	2010	2011	2012
Concord	$651	$717	$652	$694	$725
Average	$1,002	$994	$972	$1,009	$1,095

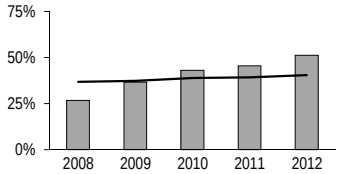
Hours Billed as a Percentage of Total Hours



	2008	2009	2010	2011	2012
Concord	68%	71%	73%	67%	64%
Average	70%	70%	77%	76%	75%

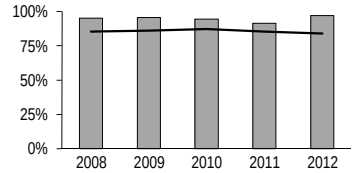
Effectiveness Measures

Preventive Maintenances (PMs) as a Percentage of All Work Orders



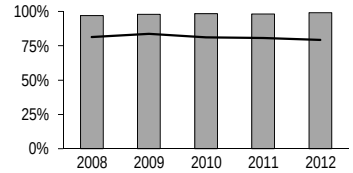
	2008	2009	2010	2011	2012
Concord	27%	37%	43%	46%	51%
Average	37%	37%	39%	39%	40%

Percentage of Preventive Maintenances (PMs) Completed as Scheduled



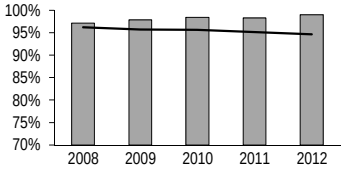
	2008	2009	2010	2011	2012
Concord	95%	95%	94%	91%	97%
Average	85%	86%	87%	85%	84%

Percentage of Work Orders Completed within 24 Hours



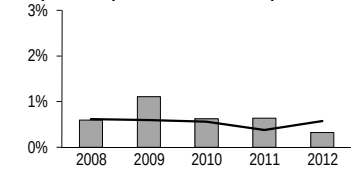
	2008	2009	2010	2011	2012
Concord	97%	98%	98%	98%	99%
Average	81%	84%	81%	81%	79%

Percentage of Rolling Stock Available per Day



	2008	2009	2010	2011	2012
Concord	97%	98%	98%	98%	99%
Average	96%	96%	96%	95%	95%

Percentage of Work Orders Requiring Repeat Repair within 30 Days



	2008	2009	2010	2011	2012
Concord	0.60%	1.11%	0.63%	0.64%	0.33%
Average	0.62%	0.60%	0.56%	0.38%	0.58%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Greensboro's fleet maintenance operation is housed within the Equipment Services Division of the Finance Department. The Division consists of four sections: administration, services, parts, and tires. All activities for this operation are accounted for in an internal service fund, with other departments and programs charged for its maintenance services on a cost recovery basis.

The labor rate for FY 2011–12 was $52 an hour. Charges included a 25 percent markup for parts sold and a 5 percent markup for sublet work.

The following services were contracted out:

- body work
- glass repair
- upholstery repair
- most automotive and light-duty oil changes
- other repairs when workload exceeded in-house capacity.

Conditions Affecting Service, Performance, and Costs
Vehicle Equivalent Units (VEUs) are a weighted measure of the maintenance effort associated with different classes of vehicles. A normal-use car is considered equal to one VEU. Vehicles such as fire trucks or police cars have higher VEUs, reflecting greater expected levels of maintenance.

The measure "hours billed as a percentage of total hours" is based on a work year of 2,080 hours and only counts those positions that were filled. It should be noted that technicians have responsibilities that do not result in billable hours and they take normal vacation and sick leave. Therefore this percentage should not be expected to be near 100 percent.

In Greensboro, the preventive maintenance (PM) completion standard for "percentage of PMs completed as scheduled" uses mileage parameters and scheduled dates within the calendar month or within thirty days of schedule.

The measure "number of repeat repairs within thirty days" is tracked by city fleet management software. This data reflects an inflated number of repeat repairs within thirty days due to repair type coding on the parts and/or shop maintenance that can incorrectly attribute additional maintenance as a repeat repair. This data will be tracked manually going forward with the current year. The average monthly repeat repairs in FY 2010–11 suggest that past reported data may be inflated by an average of 300 repairs annually.

In addition to rolling stock, Greensboro's fleet services has maintenance responsibilities for generators, saws, blowers, various police equipment, asphalt pavers, sprayers, hydraulic hammers, a motor mixer, pumps, snow plows, spreaders, and other equipment.

Municipal Profile

Population (OSBM 2009)	272,196
Land Area (Square Miles)	127.14
Persons per Square Mile	2,141

Service Profile

FTE Positions—Technician	32.0
FTE Positions—Other	16.0
Work Bays	33

Rolling Stock Maintained	No.	Average Age
Cars—Normal Usage	191	5.5 Years
Cars—Severe Usage	349	3.0 Years
Light Vehicles	395	6.5 Years
Medium Vehicles	51	6.0 Years
Heavy—Sanitation	91	4.0 Years
Heavy—Sewer	7	6.0 Years
Heavy—Fire Apparatus	0	NA
Heavy—Other	182	6.0 Years
Trailed Equipment	203	6.5 Years
Off-Road/Construction/Tractors	452	6.0 Years
Buses	0	NA
TOTAL	1,921	

Vehicle Equivalent Units (VEUs)	6,565
Average Rolling Stock Units Available per Day	1,787
Hours Billed	47,097
Work Orders	11,124
Repeat Repairs within 30 Days	52
Work Orders Completed within 24 hours	10,345
Preventive Maintenance Jobs (PMs)	4,895
PMs Completed as Scheduled	4,895

Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	44.0%
Operating Costs	56.0%
Capital Costs	0.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$3,118,690
Operating Costs	$3,971,075
Capital Costs	$0
TOTAL	$7,089,765

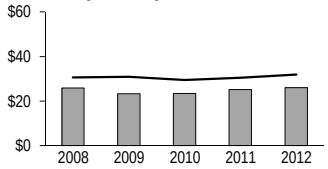
Greensboro

Fleet Maintenance

Key: Greensboro ■ Benchmarking Average — Fiscal Years 2008 through 2012

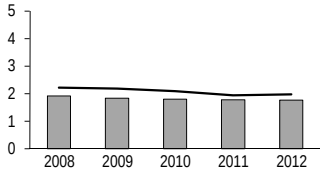
Resource Measures

Fleet Maintenance Services Cost per Capita



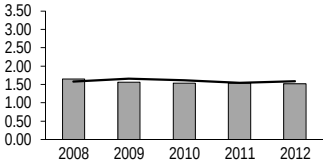
	2008	2009	2010	2011	2012
Greensboro	$25.89	$23.30	$23.37	$25.16	$26.05
Average	$30.63	$30.88	$29.42	$30.48	$31.83

Fleet Maintenance FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Greensboro	1.92	1.83	1.80	1.78	1.76
Average	2.21	2.18	2.09	1.93	1.97

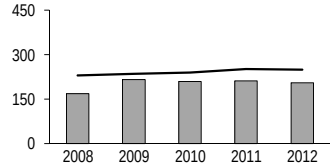
Fleet Maintenance FTEs per 100 Municipal Employees



	2008	2009	2010	2011	2012
Greensboro	1.65	1.56	1.54	1.54	1.51
Average	1.57	1.66	1.61	1.55	1.59

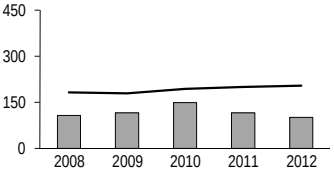
Workload Measures

Number of Vehicle Equivalent Units (VEUs) per Technician FTE



	2008	2009	2010	2011	2012
Greensboro	169	217	210	212	205
Average	231	236	240	252	249

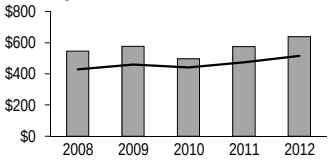
Preventive Maintenances (PMs) Completed In-House per Tech FTE



	2008	2009	2010	2011	2012
Greensboro	107	116	149	116	101
Average	182	179	194	200	205

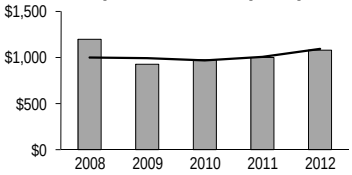
Efficiency Measures

Fleet Maintenance Cost per Work Order



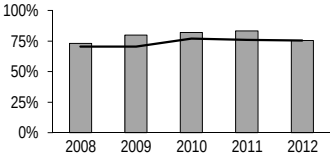
	2008	2009	2010	2011	2012
Greensboro	$546	$578	$496	$574	$637
Average	$428	$460	$440	$475	$514

Fleet Maintenance Cost per Vehicle Equivalent Unit (VEU)



	2008	2009	2010	2011	2012
Greensboro	$1,200	$927	$976	$1,000	$1,080
Average	$1,002	$994	$972	$1,009	$1,095

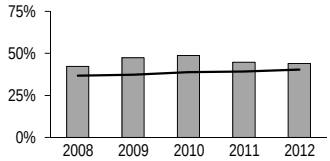
Hours Billed as a Percentage of Total Hours



	2008	2009	2010	2011	2012
Greensboro	73%	80%	82%	83%	75%
Average	70%	70%	77%	76%	75%

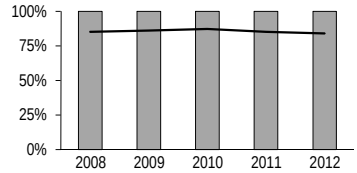
Effectiveness Measures

Preventive Maintenances (PMs) as a Percentage of All Work Orders



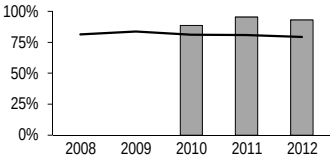
	2008	2009	2010	2011	2012
Greensboro	42%	47%	49%	45%	44%
Average	37%	37%	39%	39%	40%

Percentage of Preventive Maintenances (PMs) Completed as Scheduled



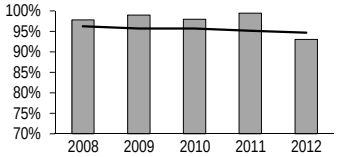
	2008	2009	2010	2011	2012
Greensboro	100%	100%	100%	100%	100%
Average	85%	86%	87%	85%	84%

Percentage of Work Orders Completed within 24 Hours



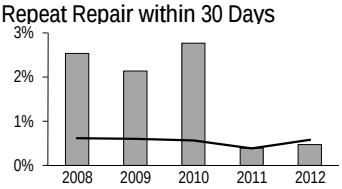
	2008	2009	2010	2011	2012
Greensboro			89%	95%	93%
Average	81%	84%	81%	81%	79%

Percentage of Rolling Stock Available per Day



	2008	2009	2010	2011	2012
Greensboro	98%	99%	98%	99%	93%
Average	96%	96%	96%	95%	95%

Percentage of Work Orders Requiring Repeat Repair within 30 Days



	2008	2009	2010	2011	2012
Greensboro	2.53%	2.13%	2.77%	0.39%	0.47%
Average	0.62%	0.60%	0.56%	0.38%	0.58%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The Fleet Division is a part of Greenville's Public Works Department. All activities for this operation are accounted for as part of the city's general fund.

The division charges the Transit and Sanitation departments a $60-per-hour-labor rate for maintenance services and has a 15 percent markup on parts or sublet work.

The following services were contracted out:

- alignments
- major body and paint repair
- two-way radio installs
- emergency light installs
- exhaust repair
- glass repair or replacement
- transmission overhaul
- major engine repair
- warranty repairs
- towing.

Conditions Affecting Service, Performance, and Costs
Greenville joined the project in 2009, with the first year of reporting being for FY 2008–09.

Vehicle Equivalent Units (VEUs) are a weighted measure of the maintenance effort associated with different classes of vehicles. A normal-use car is considered equal to one VEU. Vehicles such as fire trucks or police cars have higher VEUs, reflecting greater expected levels of maintenance.

In Greenville, the preventive maintenance (PM) completion standard for "percentage of PMs completed as scheduled" is within thirty days of the scheduled date or mileage parameters.

In addition to rolling stock, Greenville's fleet division has maintenance responsibilities for generators, lawnmowers, blowers, weedeaters, light towers, tampers, chainsaws, golf carts, utility carts, bush hogs, sprayers, fog machines, tractors, salt spreaders, leaf vacuums, concrete saws, an asphalt melter, rollers, a stump grinder, trail mowers, and other equipment.

Municipal Profile

Population (OSBM 2009)	85,059
Land Area (Square Miles)	34.70
Persons per Square Mile	2,451

Service Profile

FTE Positions—Technician	12.0
FTE Positions—Other	5.0
Work Bays	12

Rolling Stock Maintained	No.	Average Age
Cars—Normal Usage	40	7.0 Years
Cars—Severe Usage	139	6.5 Years
Light Vehicles	120	8.0 Years
Medium Vehicles	23	7.0 Years
Heavy—Sanitation	42	5.0 Years
Heavy—Sewer	1	6.5 Years
Heavy—Fire Apparatus	13	8.0 Years
Heavy—Other	25	NA
Trailed Equipment	44	NA
Off-Road/Construction/Tractors	57	NA
Buses	11	12.0 Years
TOTAL	515	

Vehicle Equivalent Units (VEUs)	2,085
Average Rolling Stock Units Available per Day	NA
Hours Billed	14,175
Work Orders	6,761
Repeat Repairs within 30 Days	NA
Work Orders Completed within 24 hours	NA
Preventive Maintenance Jobs (PMs)	1,969
PMs Completed as Scheduled	890

Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	36.9%
Operating Costs	39.9%
Capital Costs	23.2%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,186,763
Operating Costs	$1,285,895
Capital Costs	$747,105
TOTAL	$3,219,763

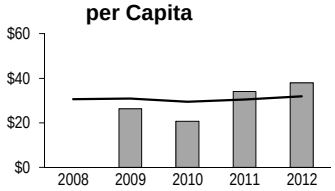
Greenville

Fleet Maintenance

Key: Greenville ■ Benchmarking Average — Fiscal Years 2008 through 2012

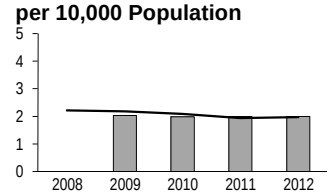
Resource Measures

Fleet Maintenance Services Cost per Capita



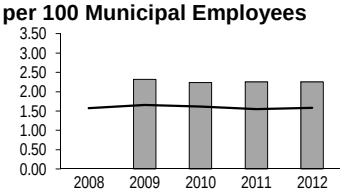
	2008	2009	2010	2011	2012
Greenville		$26.35	$20.66	$34.11	$37.85
Average	$30.63	$30.88	$29.42	$30.48	$31.83

Fleet Maintenance FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Greenville		2.03	1.98	2.00	2.00
Average	2.21	2.18	2.09	1.93	1.97

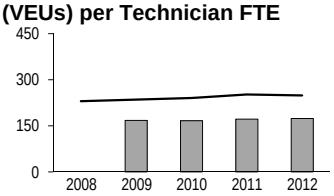
Fleet Maintenance FTEs per 100 Municipal Employees



	2008	2009	2010	2011	2012
Greenville		2.32	2.24	2.25	2.25
Average	1.57	1.66	1.61	1.55	1.59

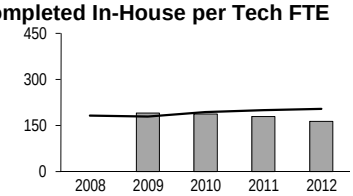
Workload Measures

Number of Vehicle Equivalent Units (VEUs) per Technician FTE



	2008	2009	2010	2011	2012
Greenville		167	167	172	174
Average	231	236	240	252	249

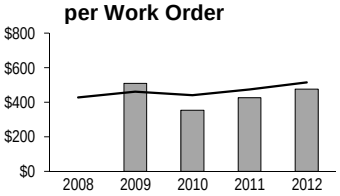
Preventive Maintenances (PMs) Completed In-House per Tech FTE



	2008	2009	2010	2011	2012
Greenville		191	187	179	164
Average	182	179	194	200	205

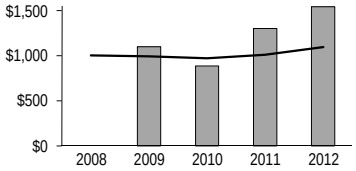
Efficiency Measures

Fleet Maintenance Cost per Work Order



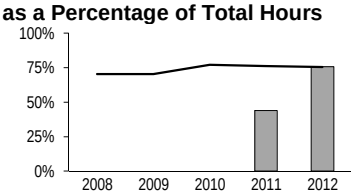
	2008	2009	2010	2011	2012
Greenville		$510	$354	$426	$476
Average	$428	$460	$440	$475	$514

Fleet Maintenance Cost per Vehicle Equivalent Unit (VEU)



	2008	2009	2010	2011	2012
Greenville		$1,098	$886	$1,301	$1,544
Average	$1,002	$994	$972	$1,009	$1,095

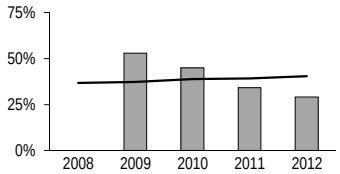
Hours Billed as a Percentage of Total Hours



	2008	2009	2010	2011	2012
Greenville				44%	76%
Average	70%	70%	77%	76%	75%

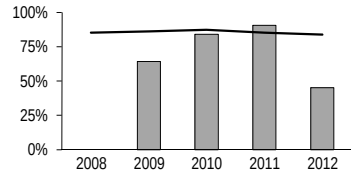
Effectiveness Measures

Preventive Maintenances (PMs) as a Percentage of All Work Orders



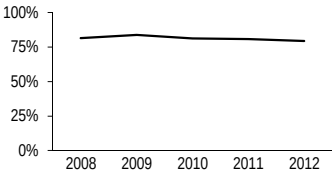
	2008	2009	2010	2011	2012
Greenville		53%	45%	34%	29%
Average	37%	37%	39%	39%	40%

Percentage of Preventive Maintenances (PMs) Completed as Scheduled



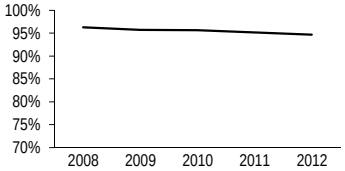
	2008	2009	2010	2011	2012
Greenville		64%	84%	91%	45%
Average	85%	86%	87%	85%	84%

Percentage of Work Orders Completed within 24 Hours



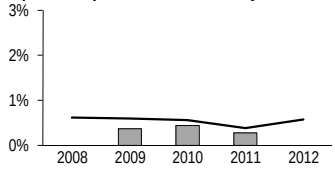
	2008	2009	2010	2011	2012
Greenville					
Average	81%	84%	81%	81%	79%

Percentage of Rolling Stock Available per Day



	2008	2009	2010	2011	2012
Greenville					
Average	96%	96%	96%	95%	95%

Percentage of Work Orders Requiring Repeat Repair within 30 Days



	2008	2009	2010	2011	2012
Greenville		0.37%	0.44%	0.28%	
Average	0.62%	0.60%	0.56%	0.38%	0.58%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Fleet Maintenance is a division of Hickory's Public Services Department and consists of a garage office, a parts warehouse, a welding shop, a maintenance shop, a fleet wash station, a fuel station, and a compressed natural gas station. All activities for this operation are accounted for in an internal service fund.

The division charges a $44.50-per-hour labor rate for maintenance services and a 25 percent markup charge on parts sold. There is no markup charge for sublet work.

The following services were contracted out:

- alignments
- body work
- large wrecker service
- special machine work
- starter/alternator repair
- glass repair or replacement
- transmission repairs.

Conditions Affecting Service, Performance, and Costs
Vehicle Equivalent Units (VEUs) are a weighted measure of the maintenance effort associated with different classes of vehicles. A normal-use car is considered equal to one VEU. Vehicles such as fire trucks or police cars have higher VEUs, reflecting greater expected levels of maintenance.

The measure "hours billed as a percentage of total hours" is based on a work year of 2,080 hours and only counts those positions that were filled. It should be noted that technicians have responsibilities that do not result in billable hours and they take normal vacation and sick leave. Therefore this percentage should not be expected to be near 100 percent.

In Hickory, the preventive maintenance (PM) completion standard for "percentage of PMs completed as scheduled" is within thirty days of the scheduled date.

In addition to rolling stock, Hickory's fleet services has maintenance responsibilities for electronic signs, saws, weedeaters, sewer machines, hole piercing tools, boring machines, pumps, mowers, edgers, a sand blaster, pressure washers, blowers, mules, spreaders, generators, tamps, vacuums, airport equipment, grinders, a fleet wash station, a CNG fuel station, a gasoline and diesel fuel station, and other equipment.

Municipal Profile

Population (OSBM 2009)	40,086
Land Area (Square Miles)	29.72
Persons per Square Mile	1,349

Service Profile

FTE Positions—Technician	6.0
FTE Positions—Other	4.0
Work Bays	14

Rolling Stock Maintained	No.	Average Age
Cars—Normal Usage	21	8.9 Years
Cars—Severe Usage	144	6.3 Years
Light Vehicles	100	8.2 Years
Medium Vehicles	35	11.6 Years
Heavy—Sanitation	29	7.6 Years
Heavy—Sewer	6	10.7 Years
Heavy—Fire Apparatus	0	NA
Heavy—Other	22	13.4 Years
Trailed Equipment	54	12.5 Years
Off-Road/Construction/Tractors	132	14.4 Years
Buses	0	NA
TOTAL	543	

Vehicle Equivalent Units (VEUs)	1,910
Average Rolling Stock Units Available per Day	521
Hours Billed	11,175
Work Orders	5,549
Repeat Repairs within 30 Days	NA
Work Orders Completed within 24 hours	NA
Preventive Maintenance Jobs (PMs)	1,382
PMs Completed as Scheduled	1,382

Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	38.7%
Operating Costs	59.5%
Capital Costs	1.9%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$571,832
Operating Costs	$879,134
Capital Costs	$27,375
TOTAL	$1,478,341

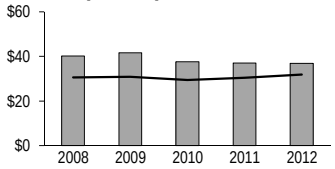
Hickory

Fleet Maintenance

Key: Hickory ■ Benchmarking Average — Fiscal Years 2008 through 2012

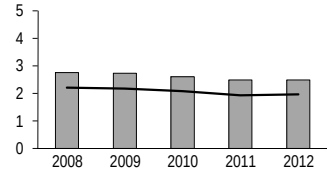
Resource Measures

Fleet Maintenance Services Cost per Capita



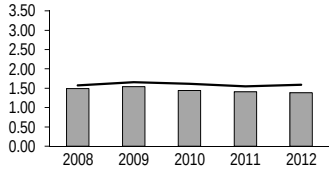
	2008	2009	2010	2011	2012
Hickory	$40.21	$41.58	$37.66	$37.07	$36.88
Average	$30.63	$30.88	$29.42	$30.48	$31.83

Fleet Maintenance FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Hickory	2.76	2.74	2.61	2.49	2.49
Average	2.21	2.18	2.09	1.93	1.97

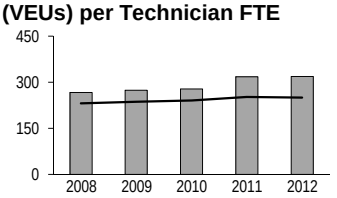
Fleet Maintenance FTEs per 100 Municipal Employees



	2008	2009	2010	2011	2012
Hickory	1.49	1.54	1.44	1.40	1.38
Average	1.57	1.66	1.61	1.55	1.59

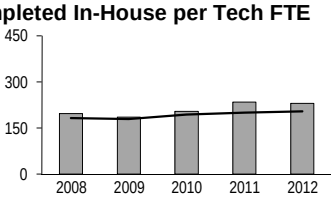
Workload Measures

Number of Vehicle Equivalent Units (VEUs) per Technician FTE



	2008	2009	2010	2011	2012
Hickory	266	273	278	318	318
Average	231	236	240	252	249

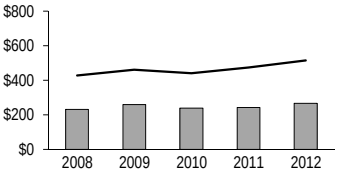
Preventive Maintenances (PMs) Completed In-House per Tech FTE



	2008	2009	2010	2011	2012
Hickory	197	185	204	234	230
Average	182	179	194	200	205

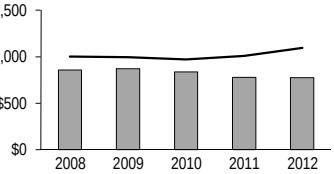
Efficiency Measures

Fleet Maintenance Cost per Work Order



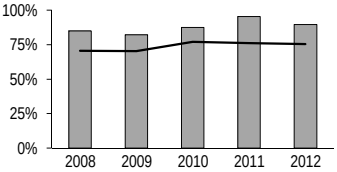
	2008	2009	2010	2011	2012
Hickory	$230	$259	$239	$243	$266
Average	$428	$460	$440	$475	$514

Fleet Maintenance Cost per Vehicle Equivalent Unit (VEU)



	2008	2009	2010	2011	2012
Hickory	$859	$871	$838	$780	$774
Average	$1,002	$994	$972	$1,009	$1,095

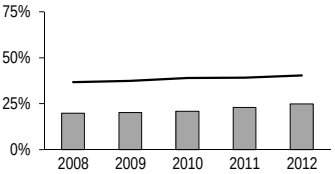
Hours Billed as a Percentage of Total Hours



	2008	2009	2010	2011	2012
Hickory	85%	82%	88%	95%	90%
Average	70%	70%	77%	76%	75%

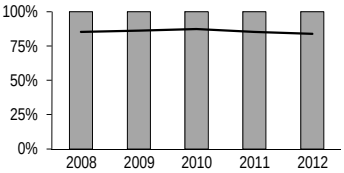
Effectiveness Measures

Preventive Maintenances (PMs) as a Percentage of All Work Orders



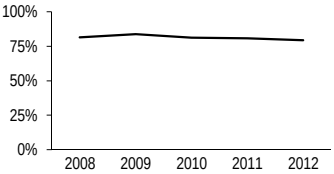
	2008	2009	2010	2011	2012
Hickory	20%	20%	21%	23%	25%
Average	37%	37%	39%	39%	40%

Percentage of Preventive Maintenances (PMs) Completed as Scheduled



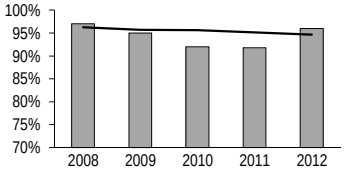
	2008	2009	2010	2011	2012
Hickory	100%	100%	100%	100%	100%
Average	85%	86%	87%	85%	84%

Percentage of Work Orders Completed within 24 Hours



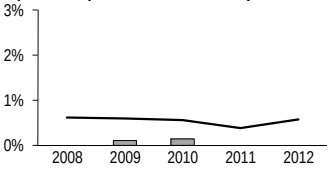
	2008	2009	2010	2011	2012
Hickory					
Average	81%	84%	81%	81%	79%

Percentage of Rolling Stock Available per Day



	2008	2009	2010	2011	2012
Hickory	97%	95%	92%	92%	96%
Average	96%	96%	96%	95%	95%

Percentage of Work Orders Requiring Repeat Repair within 30 Days



	2008	2009	2010	2011	2012
Hickory		0.11%	0.14%		
Average	0.62%	0.60%	0.56%	0.38%	0.58%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
High Point's Fleet Maintenance Department is a separate entity, consisting of a director, administrative staff, support, and technicians. All activities in this operation are accounted for in an internal service fund, where costs are recovered through maintenance and service charges to other city departments.

Labor is billed at $60 per hour. There is no markup charge on parts sold or sublet work. Parts inventory turned over four times during the fiscal year.

The following services were contracted out:

- body work
- windshield/glass replacements
- front-end alignment
- mufflers/exhaust systems
- after-hours towing
- car washes
- refurbishing special equipment
- upholstery repairs
- hydraulic cylinder and pump rebuilds
- 50 percent of engine and transmission overhauls
- tire repairs for heavy equipment
- maintenance and repairs covered under manufacturer warranty.

Conditions Affecting Service, Performance, and Costs
Vehicle Equivalent Units (VEUs) are a weighted measure of the maintenance effort associated with different classes of vehicles. A normal-use car is considered equal to one VEU. Vehicles such as fire trucks or police cars have higher VEUs, reflecting greater expected levels of maintenance.

In High Point, the preventive maintenance (PM) completion standard for "percentage of PMs completed as scheduled" is within certain mileage parameters or every three months, whichever comes first.

Municipal Profile

Population (OSBM 2009)	105,498
Land Area (Square Miles)	53.83
Persons per Square Mile	1,960

Service Profile

FTE Positions—Technician	12.0
FTE Positions—Other	9.0
Work Bays	18

Rolling Stock Maintained	No.	Average Age
Cars—Normal Usage	35	8.0 Years
Cars—Severe Usage	219	8.0 Years
Light Vehicles	264	8.0 Years
Medium Vehicles	28	10.0 Years
Heavy—Sanitation	24	8.0 Years
Heavy—Sewer	3	8.0 Years
Heavy—Fire Apparatus	0	NA
Heavy—Other	59	10.0 Years
Trailed Equipment	125	10.0 Years
Off-Road/Construction/Tractors	178	10.0 Years
Buses	0	NA
TOTAL	935	

Vehicle Equivalent Units (VEUs)	2,787
Average Rolling Stock Units Available per Day	903
Hours Billed	17,472
Work Orders	4,874
Repeat Repairs within 30 Days	48
Work Orders Completed within 24 hours	NA
Preventive Maintenance Jobs (PMs)	2,293
PMs Completed as Scheduled	2,063

Full Cost Profile

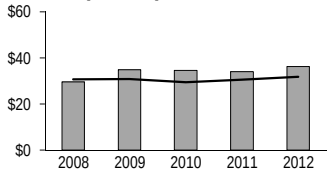
Cost Breakdown by Percentage	
Personal Services	36.3%
Operating Costs	60.1%
Capital Costs	3.6%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,388,677
Operating Costs	$2,302,496
Capital Costs	$138,455
TOTAL	$3,829,628

High Point — Fleet Maintenance

Key: High Point ■ Benchmarking Average — Fiscal Years 2008 through 2012

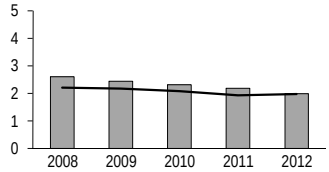
Resource Measures

Fleet Maintenance Services Cost per Capita



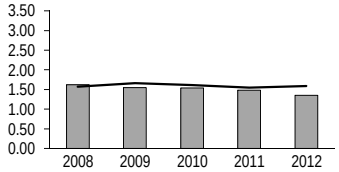
	2008	2009	2010	2011	2012
High Point	$29.56	$34.87	$34.54	$34.05	$36.30
Average	$30.63	$30.88	$29.42	$30.48	$31.83

Fleet Maintenance FTEs per 10,000 Population



	2008	2009	2010	2011	2012
High Point	2.61	2.45	2.32	2.19	1.99
Average	2.21	2.18	2.09	1.93	1.97

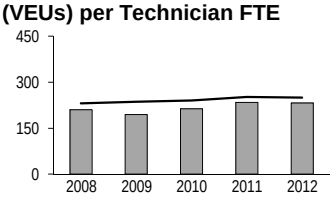
Fleet Maintenance FTEs per 100 Municipal Employees



	2008	2009	2010	2011	2012
High Point	1.62	1.55	1.54	1.48	1.35
Average	1.57	1.66	1.61	1.55	1.59

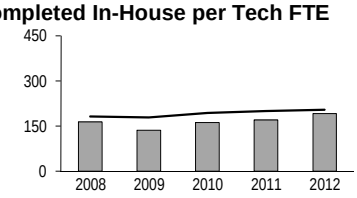
Workload Measures

Number of Vehicle Equivalent Units (VEUs) per Technician FTE



	2008	2009	2010	2011	2012
High Point	210	194	213	234	232
Average	231	236	240	252	249

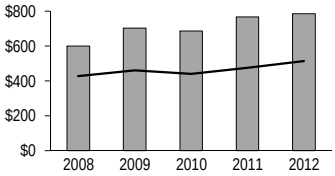
Preventive Maintenances (PMs) Completed In-House per Tech FTE



	2008	2009	2010	2011	2012
High Point	164	136	162	170	191
Average	182	179	194	200	205

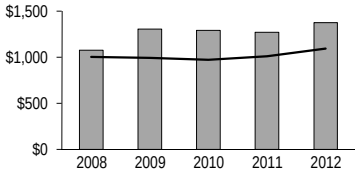
Efficiency Measures

Fleet Maintenance Cost per Work Order



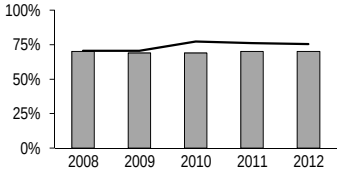
	2008	2009	2010	2011	2012
High Point	$599	$702	$686	$767	$786
Average	$428	$460	$440	$475	$514

Fleet Maintenance Cost per Vehicle Equivalent Unit (VEU)



	2008	2009	2010	2011	2012
High Point	$1,077	$1,306	$1,292	$1,272	$1,374
Average	$1,002	$994	$972	$1,009	$1,095

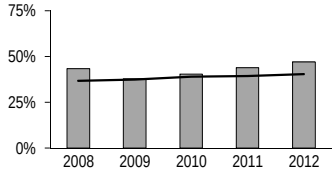
Hours Billed as a Percentage of Total Hours



	2008	2009	2010	2011	2012
High Point	70%	69%	69%	70%	70%
Average	70%	70%	77%	76%	75%

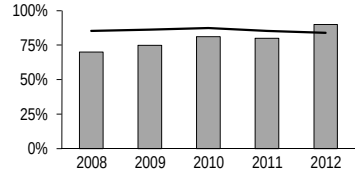
Effectiveness Measures

Preventive Maintenances (PMs) as a Percentage of All Work Orders



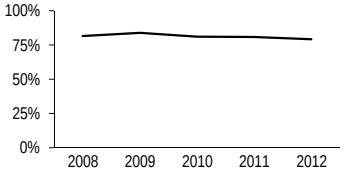
	2008	2009	2010	2011	2012
High Point	43%	38%	40%	44%	47%
Average	37%	37%	39%	39%	40%

Percentage of Preventive Maintenances (PMs) Completed as Scheduled



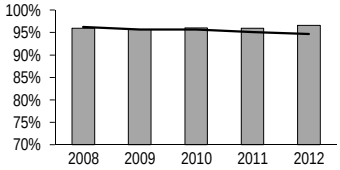
	2008	2009	2010	2011	2012
High Point	70%	75%	81%	80%	90%
Average	85%	86%	87%	85%	84%

Percentage of Work Orders Completed within 24 Hours



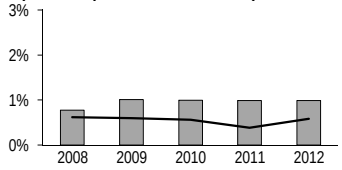
	2008	2009	2010	2011	2012
High Point					
Average	81%	84%	81%	81%	79%

Percentage of Rolling Stock Available per Day



	2008	2009	2010	2011	2012
High Point	96%	96%	96%	96%	97%
Average	96%	96%	96%	95%	95%

Percentage of Work Orders Requiring Repeat Repair within 30 Days



	2008	2009	2010	2011	2012
High Point	0.77%	1.01%	1.00%	0.99%	0.98%
Average	0.62%	0.60%	0.56%	0.38%	0.58%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Fleet Maintenance is a division of the Public Services Department and operates the fleet and transit shops. All activities in this operation are accounted for in Salisbury's general fund.

There is no markup on any parts sold or sublet work performed on city vehicles. However, for work done on vehicles owned by other local governments, such as the county, the city charges for labor and includes a markup on parts and sublet work.

The following services were contracted out:

- body work
- exhaust system repairs
- towing.

In addition to maintenance responsibilities for the city's rolling stock, the fleet maintenance division also maintains vehicles for Rowan County and two trolleys for downtown Salisbury. The division also has responsibility for equipment, including generators, water pumps, hydraulic power units, mowers, tamps, weedwackers, jack hammers, rescue equipment, air compressors, sidewalk sweepers, thermo plastic equipment, hydraulic hammers, pavement saws, chain saws, and other city equipment.

Conditions Affecting Service, Performance, and Costs
Vehicle Equivalent Units (VEUs) are a weighted measure of the maintenance effort associated with different classes of vehicles. A normal-use car is considered equal to one VEU. Vehicles such as fire trucks or police cars have higher VEUs, reflecting greater expected levels of maintenance.

In Salisbury, the preventive maintenance (PM) completion standard for "percentage of PMs completed as scheduled" is within thirty days of scheduled maintenance or within defined mileage parameters.

Municipal Profile

Population (OSBM 2009)	33,704
Land Area (Square Miles)	22.18
Persons per Square Mile	1,519

Service Profile

FTE Positions—Technician	10.0
FTE Positions—Other	3.0
Work Bays	14

Rolling Stock Maintained	No.	Average Age
Cars—Normal Usage	8	7.1 Years
Cars—Severe Usage	91	5.5 Years
Light Vehicles	138	7.9 Years
Medium Vehicles	25	8.2 Years
Heavy—Sanitation	11	8.6 Years
Heavy—Sewer	3	8.3 Years
Heavy—Fire Apparatus	13	13.6 Years
Heavy—Other	27	11.9 Years
Trailed Equipment	92	14.5 Years
Off-Road/Construction/Tractors	80	11.8 Years
Buses	10	14.0 Years
TOTAL	498	

Vehicle Equivalent Units (VEUs)	1,638
Average Rolling Stock Units Available per Day	477
Hours Billed	NA
Work Orders	4,569
Repeat Repairs within 30 Days	8
Work Orders Completed within 24 hours	NA
Preventive Maintenance Jobs (PMs)	1,586
PMs Completed as Scheduled	1,484

Full Cost Profile

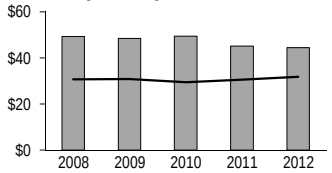
Cost Breakdown by Percentage	
Personal Services	42.1%
Operating Costs	53.1%
Capital Costs	4.7%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$630,514
Operating Costs	$794,974
Capital Costs	$71,078
TOTAL	$1,496,566

Salisbury — Fleet Maintenance

Key: Salisbury ■ Benchmarking Average — Fiscal Years 2008 through 2012

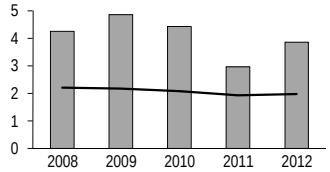
Resource Measures

Fleet Maintenance Services Cost per Capita



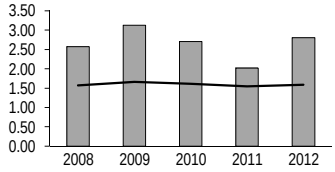
	2008	2009	2010	2011	2012
Salisbury	$49.22	$48.45	$49.40	$45.16	$44.40
Average	$30.63	$30.88	$29.42	$30.48	$31.83

Fleet Maintenance FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Salisbury	4.26	4.86	4.43	2.97	3.86
Average	2.21	2.18	2.09	1.93	1.97

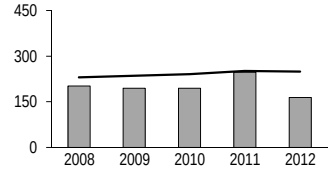
Fleet Maintenance FTEs per 100 Municipal Employees



	2008	2009	2010	2011	2012
Salisbury	2.57	3.13	2.71	2.02	2.81
Average	1.57	1.66	1.61	1.55	1.59

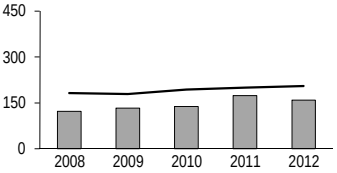
Workload Measures

Number of Vehicle Equivalent Units (VEUs) per Technician FTE



	2008	2009	2010	2011	2012
Salisbury	202	194	194	247	164
Average	231	236	240	252	249

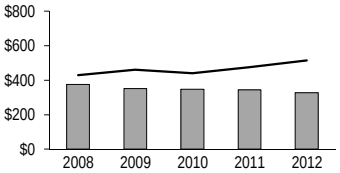
Preventive Maintenances (PMs) Completed In-House per Tech FTE



	2008	2009	2010	2011	2012
Salisbury	122	133	139	174	159
Average	182	179	194	200	205

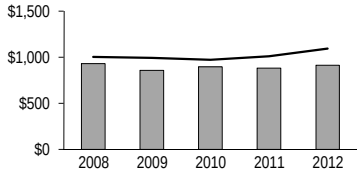
Efficiency Measures

Fleet Maintenance Cost per Work Order



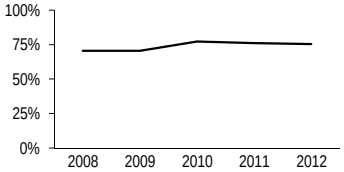
	2008	2009	2010	2011	2012
Salisbury	$375	$351	$347	$343	$328
Average	$428	$460	$440	$475	$514

Fleet Maintenance Cost per Vehicle Equivalent Unit (VEU)



	2008	2009	2010	2011	2012
Salisbury	$932	$858	$894	$880	$913
Average	$1,002	$994	$972	$1,009	$1,095

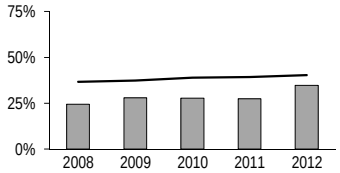
Hours Billed as a Percentage of Total Hours



	2008	2009	2010	2011	2012
Salisbury					
Average	70%	70%	77%	76%	75%

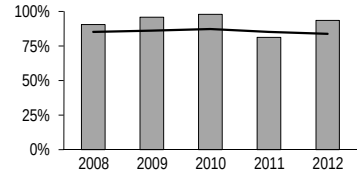
Effectiveness Measures

Preventive Maintenances (PMs) as a Percentage of All Work Orders



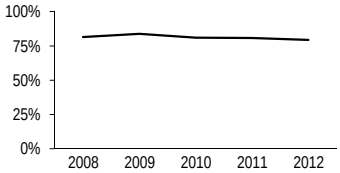
	2008	2009	2010	2011	2012
Salisbury	24%	28%	28%	27%	35%
Average	37%	37%	39%	39%	40%

Percentage of Preventive Maintenances (PMs) Completed as Scheduled



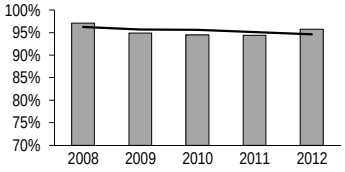
	2008	2009	2010	2011	2012
Salisbury	91%	96%	98%	81%	94%
Average	85%	86%	87%	85%	84%

Percentage of Work Orders Completed within 24 Hours



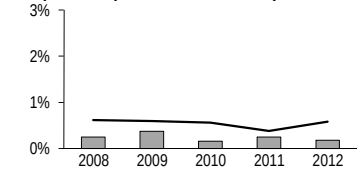
	2008	2009	2010	2011	2012
Salisbury					
Average	81%	84%	81%	81%	79%

Percentage of Rolling Stock Available per Day



	2008	2009	2010	2011	2012
Salisbury	97%	95%	94%	94%	96%
Average	96%	96%	96%	95%	95%

Percentage of Work Orders Requiring Repeat Repair within 30 Days



	2008	2009	2010	2011	2012
Salisbury	0.25%	0.38%	0.16%	0.25%	0.18%
Average	0.62%	0.60%	0.56%	0.38%	0.58%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

The Fleet Management Division is a part of the Finance Department. All activities in this operation are accounted for in an internal service fund, where costs are recovered through maintenance and service charges to other city departments. Fleet Management leases city-owned vehicles to the other city departments for an annual fee that covers all preventive maintenance, insurance, and replacement fund contributions. Repairs that are required because of misuse and abuse are not covered and are billed back to departments. The city also contracts with Cape Fear Public Utility Authority to provide maintenance on over 200 pieces of rolling stock under a service contract with the utililty starting in FY2011–12.

The division charged a $68-per-hour labor rate for all services. There was a 10 percent markup for special order parts sold but no markup for other parts or sublet work. There is a markup on fuel, which is used to support fleet maintenance.

The following services were contracted out: wrecker service, body repairs, transmission repairs, engine overhauls, exhaust repairs, front-end alignments on medium and heavy trucks, some tire repairs, some hydraulic repairs, vehicle washes, and other miscellaneous work when workload is too heavy.

In addition to maintenance responsibilities for rolling stock, the Fleet Management Division in Wilmington maintains some non-rolling pieces of equipment and does some fabrication and welding as needed. Equipment maintained includes small portable generators, pumps, saws, mowers, and other city equipment.

Conditions Affecting Service, Performance, and Costs

Vehicle Equivalent Units (VEUs) are a weighted measure of the maintenance effort associated with different classes of vehicles. A normal-use car is considered equal to one VEU. Vehicles such as fire trucks or police cars have higher VEUs, reflecting greater expected levels of maintenance.

The measure "hours billed as a percentage of total hours" is based on a work year of 2,080 hours and only counts those positions that were filled. It should be noted that technicians have responsibilities that do not result in billable hours and they take normal vacation and sick leave. Therefore this percentage should not be expected to be near 100 percent.

In Wilmington, the preventive maintenance (PM) completion standard for "percentage of PMs completed as scheduled" is within thirty calendar days of scheduled date or within mileage parameters.

Municipal Profile

Population (OSBM 2009)	108,337
Land Area (Square Miles)	51.49
Persons per Square Mile	2,104

Service Profile

FTE Positions—Technician	9.0
FTE Positions—Other	4.0
Work Bays	20

Rolling Stock Maintained	No.	Average Age
Cars—Normal Usage	101	6.8 Years
Cars—Severe Usage	184	5.0 Years
Light Vehicles	124	8.7 Years
Medium Vehicles	39	11.5 Years
Heavy—Sanitation	33	7.8 Years
Heavy—Sewer	3	2.8 Years
Heavy—Fire Apparatus	0	NA
Heavy—Other	18	6.8 Years
Trailed Equipment	9	16.0 Years
Off-Road/Construction/Tractors	40	9.5 Years
Buses	2	5.3 Years
TOTAL	553	

Vehicle Equivalent Units (VEUs)	1,809
Average Rolling Stock Units Available per Day	522
Hours Billed	12,373
Work Orders	4,083
Repeat Repairs within 30 Days	87
Work Orders Completed within 24 hours	2,388
Preventive Maintenance Jobs (PMs)	1,584
PMs Completed as Scheduled	1,382

Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	33.7%
Operating Costs	61.3%
Capital Costs	5.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$780,869
Operating Costs	$1,422,245
Capital Costs	$116,851
TOTAL	$2,319,965

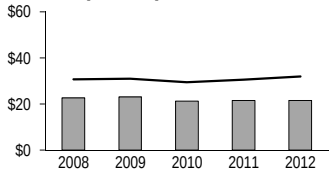
Wilmington

Fleet Maintenance

Key: Wilmington ■ Benchmarking Average — Fiscal Years 2008 through 2012

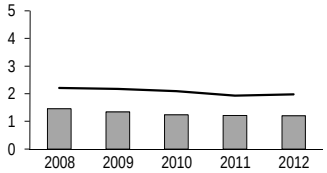
Resource Measures

Fleet Maintenance Services Cost per Capita



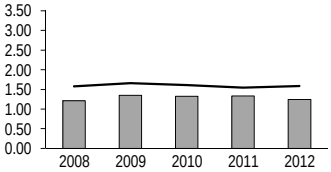
	2008	2009	2010	2011	2012
Wilmington	$22.53	$22.95	$21.22	$21.53	$21.41
Average	$30.63	$30.88	$29.42	$30.48	$31.83

Fleet Maintenance FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Wilmington	1.46	1.34	1.23	1.22	1.20
Average	2.21	2.18	2.09	1.93	1.97

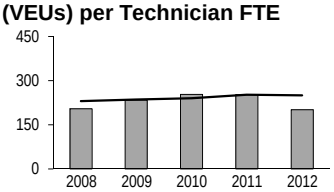
Fleet Maintenance FTEs per 100 Municipal Employees



	2008	2009	2010	2011	2012
Wilmington	1.21	1.35	1.32	1.33	1.25
Average	1.57	1.66	1.61	1.55	1.59

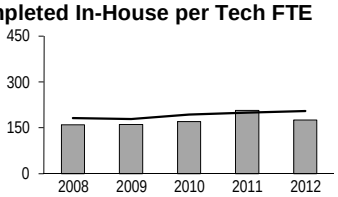
Workload Measures

Number of Vehicle Equivalent Units (VEUs) per Technician FTE



	2008	2009	2010	2011	2012
Wilmington	204	234	253	252	201
Average	231	236	240	252	249

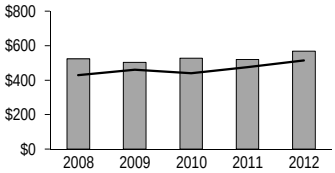
Preventive Maintenances (PMs) Completed In-House per Tech FTE



	2008	2009	2010	2011	2012
Wilmington	159	161	170	207	176
Average	182	179	194	200	205

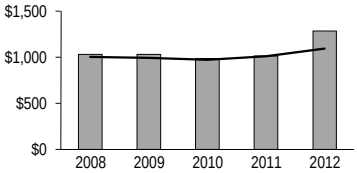
Efficiency Measures

Fleet Maintenance Cost per Work Order



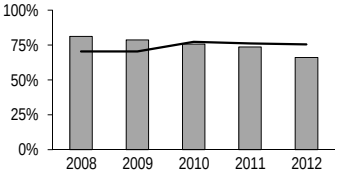
	2008	2009	2010	2011	2012
Wilmington	$524	$502	$527	$520	$568
Average	$428	$460	$440	$475	$514

Fleet Maintenance Cost per Vehicle Equivalent Unit (VEU)



	2008	2009	2010	2011	2012
Wilmington	$1,032	$1,029	$984	$1,014	$1,282
Average	$1,002	$994	$972	$1,009	$1,095

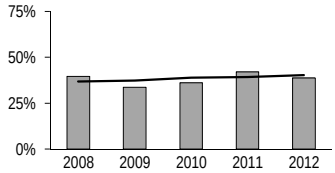
Hours Billed as a Percentage of Total Hours



	2008	2009	2010	2011	2012
Wilmington	81%	79%	76%	74%	66%
Average	70%	70%	77%	76%	75%

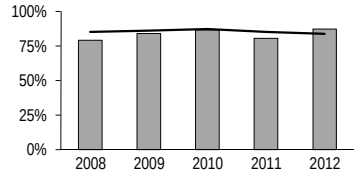
Effectiveness Measures

Preventive Maintenances (PMs) as a Percentage of All Work Orders



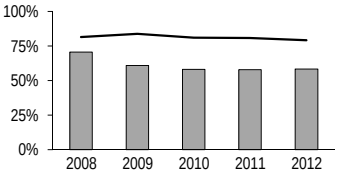
	2008	2009	2010	2011	2012
Wilmington	40%	34%	36%	42%	39%
Average	37%	37%	39%	39%	40%

Percentage of Preventive Maintenances (PMs) Completed as Scheduled



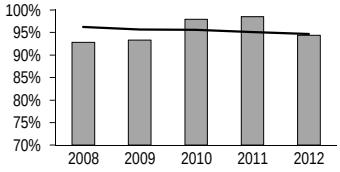
	2008	2009	2010	2011	2012
Wilmington	79%	84%	87%	81%	87%
Average	85%	86%	87%	85%	84%

Percentage of Work Orders Completed within 24 Hours



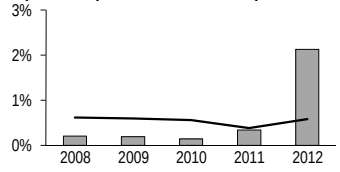
	2008	2009	2010	2011	2012
Wilmington	71%	61%	58%	58%	58%
Average	81%	84%	81%	81%	79%

Percentage of Rolling Stock Available per Day



	2008	2009	2010	2011	2012
Wilmington	93%	93%	98%	98%	94%
Average	96%	96%	96%	95%	95%

Percentage of Work Orders Requiring Repeat Repair within 30 Days



	2008	2009	2010	2011	2012
Wilmington	0.20%	0.19%	0.14%	0.34%	2.13%
Average	0.62%	0.60%	0.56%	0.38%	0.58%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Fleet maintenance is a division housed within the Department of Public Services. All activities in this operation are accounted for in the general fund.

Charges for maintenance services included a $44-per-hour labor rate, a 25 percent markup charge on parts sold, and a 5 percent markup charge on sublet work.

The following services were contracted out:

- body repairs
- paint work
- wrecker service
- radiator repairs
- alignment
- muffler repairs

In addition to rolling stock, Wilson's fleet services has maintenance responsibilities for generators, mowers, tamps, leaf machines, water pumps, and other city equipment.

Conditions Affecting Service, Performance, and Costs
Vehicle Equivalent Units (VEUs) are a weighted measure of the maintenance effort associated with different classes of vehicles. A normal-use car is considered equal to one VEU. Vehicles such as fire trucks or police cars have higher VEUs, reflecting greater expected levels of maintenance.

The measure "hours billed as a percentage of total hours" is based on a work year of 2,080 hours and only counts those positions that were filled. It should be noted that technicians have responsibilities that do not result in billable hours and they take normal vacation and sick leave. Therefore this percentage should not be expected to be near 100 percent.

In Wilson, the preventive maintenance (PM) completion standard for "percentage of PMs completed as scheduled" varies, including both calendar and mileage standards.

Municipal Profile

Population (OSBM 2009)	49,122
Land Area (Square Miles)	28.78
Persons per Square Mile	1,707

Service Profile

FTE Positions—Technician	11.0
FTE Positions—Other	5.0
Work Bays	15

Rolling Stock Maintained	No.	Average Age
Cars—Normal Usage	33	10.8 Years
Cars—Severe Usage	110	7.0 Years
Light Vehicles	175	9.0 Years
Medium Vehicles	36	12.0 Years
Heavy—Sanitation	34	7.8 Years
Heavy—Sewer	8	8.5 Years
Heavy—Fire Apparatus	11	11.6 Years
Heavy—Other	68	8.4 Years
Trailed Equipment	137	8.6 Years
Off-Road/Construction/Tractors	148	11.0 Years
Buses	6	6.8 Years
TOTAL	766	

Vehicle Equivalent Units (VEUs)	2,708
Average Rolling Stock Units Available per Day	728
Hours Billed	17,638
Work Orders	6,285
Repeat Repairs within 30 Days	31
Work Orders Completed within 24 hours	5,342
Preventive Maintenance Jobs (PMs)	1,426
PMs Completed as Scheduled	1,255

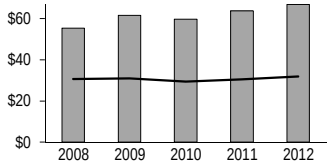
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	33.6%
Operating Costs	61.6%
Capital Costs	4.8%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,101,862
Operating Costs	$2,023,206
Capital Costs	$157,532
TOTAL	$3,282,600

Key: Wilson ■ Benchmarking Average — Fiscal Years 2008 through 2012

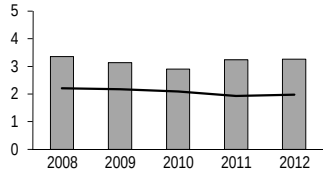
Resource Measures

Fleet Maintenance Services Cost per Capita



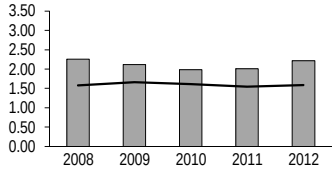
	2008	2009	2010	2011	2012
Wilson	$55.25	$61.55	$59.69	$63.76	$66.83
Average	$30.63	$30.88	$29.42	$30.48	$31.83

Fleet Maintenance FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Wilson	3.35	3.13	2.90	3.24	3.26
Average	2.21	2.18	2.09	1.93	1.97

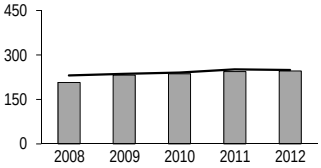
Fleet Maintenance FTEs per 100 Municipal Employees



	2008	2009	2010	2011	2012
Wilson	2.26	2.11	1.98	2.01	2.22
Average	1.57	1.66	1.61	1.55	1.59

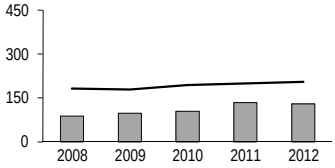
Workload Measures

Number of Vehicle Equivalent Units (VEUs) per Technician FTE



	2008	2009	2010	2011	2012
Wilson	207	231	236	244	246
Average	231	236	240	252	249

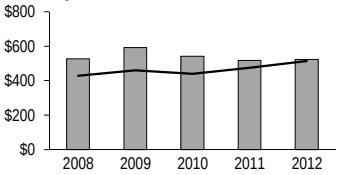
Preventive Maintenances (PMs) Completed In-House per Tech FTE



	2008	2009	2010	2011	2012
Wilson	88	98	105	134	130
Average	182	179	194	200	205

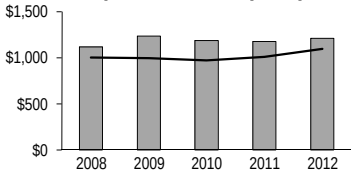
Efficiency Measures

Fleet Maintenance Cost per Work Order



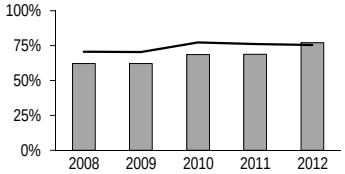
	2008	2009	2010	2011	2012
Wilson	$527	$592	$542	$517	$522
Average	$428	$460	$440	$475	$514

Fleet Maintenance Cost per Vehicle Equivalent Unit (VEU)



	2008	2009	2010	2011	2012
Wilson	$1,117	$1,236	$1,187	$1,175	$1,212
Average	$1,002	$994	$972	$1,009	$1,095

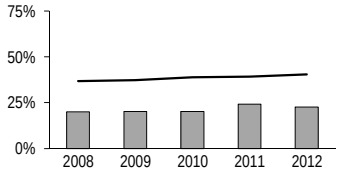
Hours Billed as a Percentage of Total Hours



	2008	2009	2010	2011	2012
Wilson	62%	62%	68%	69%	77%
Average	70%	70%	77%	76%	75%

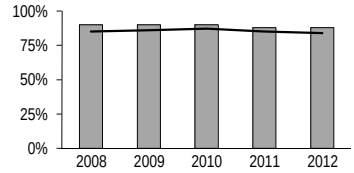
Effectiveness Measures

Preventive Maintenances (PMs) as a Percentage of All Work Orders



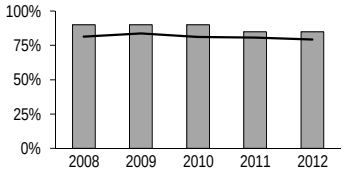
	2008	2009	2010	2011	2012
Wilson	20%	20%	20%	24%	23%
Average	37%	37%	39%	39%	40%

Percentage of Preventive Maintenances (PMs) Completed as Scheduled



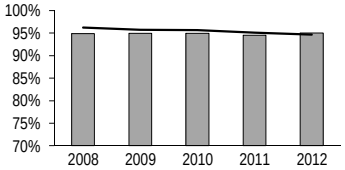
	2008	2009	2010	2011	2012
Wilson	90%	90%	90%	88%	88%
Average	85%	86%	87%	85%	84%

Percentage of Work Orders Completed within 24 Hours



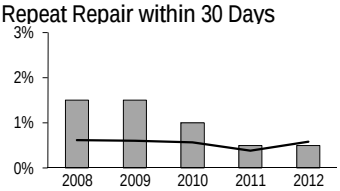
	2008	2009	2010	2011	2012
Wilson	90%	90%	90%	85%	85%
Average	81%	84%	81%	81%	79%

Percentage of Rolling Stock Available per Day



	2008	2009	2010	2011	2012
Wilson	95%	95%	95%	95%	95%
Average	96%	96%	96%	95%	95%

Percentage of Work Orders Requiring Repeat Repair within 30 Days



	2008	2009	2010	2011	2012
Wilson	1.50%	1.50%	1.00%	0.49%	0.49%
Average	0.62%	0.60%	0.56%	0.38%	0.58%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Fleet Services is a division of the Property and Facilities Management Department, consisting of eight units: vehicle maintenance administration, contract monitoring administration, heavy equipment, service station, vehicle leasing, parts, light equipment, and tire shop. All activities in this operation are accounted for in an internal service fund.

Charges for maintenance services included a $50-per-hour labor rate, a 26 percent markup charge for parts sold, and a 13 percent markup charge for sublet work.

The following services were contracted out:

- body work
- welding
- hydraulic cylinder and pump repair
- glass repair
- towing
- transmission repair

In addition to rolling stock, Winston-Salem's Fleet Services has maintenance responsibilities for mowers, weedeaters, water pumps, chain saws, wacker tamps, pavement stripers, tractor implements, leaf blowers, power trimmers, salt spreaders, snow plows, and other city equipment.

Conditions Affecting Service, Performance, and Costs
Vehicle Equivalent Units (VEUs) are a weighted measure of the maintenance effort associated with different classes of vehicles. A normal-use car is considered equal to one VEU. Vehicles such as fire trucks or police cars have higher VEUs, reflecting greater expected levels of maintenance.

The measure "hours billed as a percentage of total hours" is based on a work year of 2,080 hours and only counts those positions that were filled. It should be noted that technicians have responsibilities that do not result in billable hours and they take normal vacation and sick leave. Therefore this percentage should not be expected to be near 100 percent.

results for the measures "percentage of PMs completed as scheduled" and "percentage of work orders requiring repeat repairs within 30 days" were not available.

Municipal Profile

Population (OSBM 2009)	232,143
Land Area (Square Miles)	132.45
Persons per Square Mile	1,753

Service Profile

FTE Positions—Technician	16.0
FTE Positions—Other	13.0
Work Bays	31

Rolling Stock Maintained	No.	Average Age
Cars—Normal Usage	253	6.5 Years
Cars—Severe Usage	425	5.1 Years
Light Vehicles	426	7.4 Years
Medium Vehicles	129	10.2 Years
Heavy—Sanitation	63	7.9 Years
Heavy—Sewer	7	12.3 Years
Heavy—Fire Apparatus	0	NA
Heavy—Other	50	8.6 Years
Trailed Equipment	143	15.7 Years
Off-Road/Construction/Tractors	258	12.7 Years
Buses	0	NA
TOTAL	1,754	

Vehicle Equivalent Units (VEUs)	5,179
Average Rolling Stock Units Available per Day	1,720
Hours Billed	25,961
Work Orders	10,416
Repeat Repairs within 30 Days	NA
Work Orders Completed within 24 hours	7,604
Preventive Maintenance Jobs (PMs)	5,344
PMs Completed as Scheduled	NA

Full Cost Profile

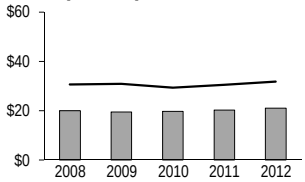
Cost Breakdown by Percentage	
Personal Services	29.6%
Operating Costs	68.6%
Capital Costs	1.7%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,450,852
Operating Costs	$3,362,139
Capital Costs	$84,801
TOTAL	$4,897,792

Winston-Salem Fleet Maintenance

Key: Winston-Salem ■ Benchmarking Average — Fiscal Years 2008 through 2012

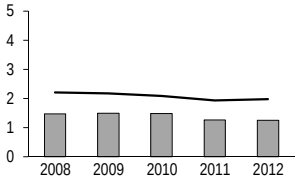
Resource Measures

Fleet Maintenance Services Cost per Capita



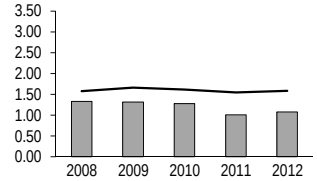
	2008	2009	2010	2011	2012
Winston-Salem	$19.98	$19.55	$19.82	$20.27	$21.10
Average	$30.63	$30.88	$29.42	$30.48	$31.83

Fleet Maintenance FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Winston-Salem	1.47	1.49	1.48	1.26	1.25
Average	2.21	2.18	2.09	1.93	1.97

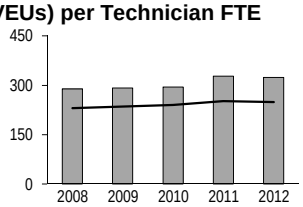
Fleet Maintenance FTEs per 100 Municipal Employees



	2008	2009	2010	2011	2012
Winston-Salem	1.33	1.31	1.28	1.01	1.08
Average	1.57	1.66	1.61	1.55	1.59

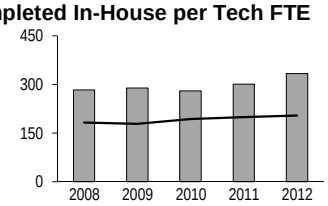
Workload Measures

Number of Vehicle Equivalent Units (VEUs) per Technician FTE



	2008	2009	2010	2011	2012
Winston-Salem	289	291	294	328	324
Average	231	236	240	252	249

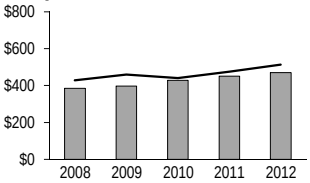
Preventive Maintenances (PMs) Completed In-House per Tech FTE



	2008	2009	2010	2011	2012
Winston-Salem	283	290	280	302	334
Average	182	179	194	200	205

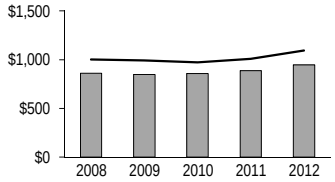
Efficiency Measures

Fleet Maintenance Cost per Work Order



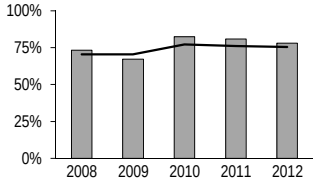
	2008	2009	2010	2011	2012
Winston-Salem	$385	$397	$428	$452	$470
Average	$428	$460	$440	$475	$514

Fleet Maintenance Cost per Vehicle Equivalent Unit (VEU)



	2008	2009	2010	2011	2012
Winston-Salem	$861	$849	$859	$889	$946
Average	$1,002	$994	$972	$1,009	$1,095

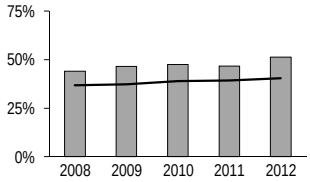
Hours Billed as a Percentage of Total Hours



	2008	2009	2010	2011	2012
Winston-Salem	73%	67%	82%	81%	78%
Average	70%	70%	77%	76%	75%

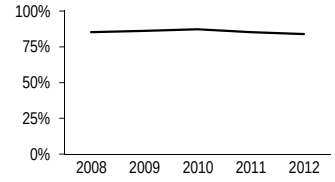
Effectiveness Measures

Preventive Maintenances (PMs) as a Percentage of All Work Orders



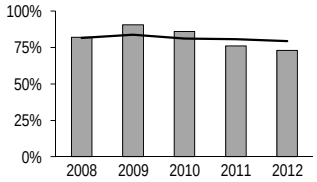
	2008	2009	2010	2011	2012
Winston-Salem	44%	47%	47%	47%	51%
Average	37%	37%	39%	39%	40%

Percentage of Preventive Maintenances (PMs) Completed as Scheduled



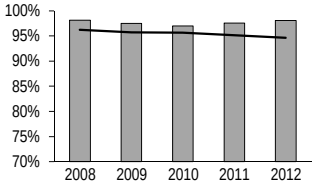
	2008	2009	2010	2011	2012
Winston-Salem					
Average	85%	86%	87%	85%	84%

Percentage of Work Orders Completed within 24 Hours



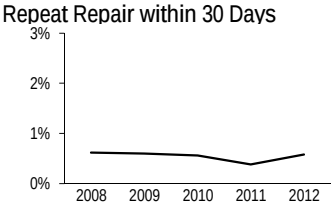
	2008	2009	2010	2011	2012
Winston-Salem	82%	91%	86%	76%	73%
Average	81%	84%	81%	81%	79%

Percentage of Rolling Stock Available per Day



	2008	2009	2010	2011	2012
Winston-Salem	98%	97%	97%	98%	98%
Average	96%	96%	96%	95%	95%

Percentage of Work Orders Requiring Repeat Repair within 30 Days



	2008	2009	2010	2011	2012
Winston-Salem					
Average	0.62%	0.60%	0.56%	0.38%	0.58%

UNC
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Performance and Cost Data

CENTRAL HUMAN RESOURCES

UNC
SCHOOL OF
GOVERNMENT

PERFORMANCE MEASURES FOR CENTRAL HUMAN RESOURCES

SERVICE DEFINITION

Central human resources represents an internal support service. It is characterized by various functions related to the daily management of human capital or personnel, including compensation analysis; position classification; benefits administration; management of employee training and development; employee relations; position control; employee performance evaluations; recruitment and selection; occupational health, wellness, and safety programs; administration of a Human Resources Information System (HRIS); and general administration of the central human resources office. Excluded from the counts here are staff who may be assisting with certain human resource functions but who are not in the central human resources department, such as employees who might be assigned to individual departments. Also excluded from this service area is risk financing, including general liability insurance and workers' compensation.

NOTES ON PERFORMANCE MEASURES

1. Total Workforce FTEs per 10,000 Population

The number of full-time equivalent (FTE) positions includes all permanent full-time and permanent part-time employees budgeted for the municipality. One FTE equates to 2,080 hours of work per year. Any combination of employees providing 2,080 hours of annual work equals one FTE.

2. Number of Applications Received per 100 Employees

Human resources is responsible for the recruitment and selection of applicants to fill new or vacant positions.

3. Number of Position Requisitions per 100 Employees

Position requisitions are submitted to the human resources office by departments seeking to fill vacant positions.

4. Cost per Employee

This measure represents the total cost of human resources for the fiscal year ending June 30 and is calculated using the project's full cost accounting model, which captures direct, indirect, and capital costs. Cost per employee is the primary measure of cost efficiency for this service area.

5. Ratio of Human Resources Staff to Total Workforce

This is a calculation of human resource FTEs divided by the total number of permanent municipal workforce, including full- and part-time staff.

6. Probationary Period Completion Rate (New Hires)

Most organizations require that new employees complete a probationary employment period, typically lasting three to eighteen months from the hire date, depending on the job classification. This effectiveness measure is calculated by dividing the total number of employees that completed the probationary period by the number of employees eligible to complete the probationary period during the fiscal year.

7. Employee Total Turnover Rate
The employee turnover rate is calculated by dividing the total number of separated staff during the fiscal year by the total number of authorized positions.

8. Employee Voluntary Turnover Rate
The voluntary employee turnover rate is calculated by dividing the number of voluntarily separated staff during the fiscal year by the total number of authorized positions. Voluntary separations include retirements and resignations.

9. Percentage of Grievances Resolved at Department Level
Most jurisdictions have a process in place for handling formal grievances filed by employees. This effectiveness measure is calculated by dividing the number of formal grievances that were resolved within the respective department (prior to going to a higher level or third party for resolution) by the total number of grievances filed during the fiscal year.

10. Average Number of Days from Position Post Date to Hire Date
This includes the number of working days from the date a job is posted to the hire date (first day of employment). It includes only recruitments for permanent full-time and part-time positions that were completed during the fiscal year. This measure excludes recruitment of temporary workers.

Central Human Resources

Summary of Key Dimensions of Service

City or Town	Total Number of Authorized Municipal Positions	Average Length of Service (in Years)	Number of Position Requisitions	Number of Employment Applications Processed	Number of Retirees Serviced	Probationary Period	Turnover Rate	Number of HR FTEs
Apex	325	8.4	35	2,073	24	6 & 12 months	8.3%	2.8
Asheville	1,140	9.1	197	5,453	274	6 months	11.7%	15.7
Burlington	1,010	11.0	43	947	18	6 & 12 months	9.0%	4.0
Cary	1,172	10.1	348	7,503	147	6 & 12 months	5.4%	12.3
Charlotte	6,815	11.1	413	83,199	2,370	6 & 12 months	5.9%	32.8
Concord	940	10.0	47	5,315	294	6 & 12 months	6.4%	8.6
Greensboro	3,171	11.7	238	7,502	1,372	6 & 12 months	7.4%	38.0
Greenville	755	10.0	53	6,163	129	6 & 12 months	5.0%	9.0
Hickory	725	9.9	60	3,854	75	12 months	6.1%	5.0
High Point	1,558	10.9	288	2,839	92	12 months	7.1%	12.5
Salisbury	463	10.5	53	2,015	39	6 months	11.4%	6.0
Wilmington	1,042	9.8	122	5,344	137	12 & 18 months	8.7%	7.5
Wilson	722	10.1	63	1,025	220	12 months	9.3%	5.0
Winston-Salem	2,696	11.4	273	22,718	444	None	9.3%	18.8

NOTES

For municipalities with varying probationary periods, typically fire and/or police personnel have longer probationary periods.

EXPLANATORY FACTORS

These are factors that the project found affected human resources performance and cost in one or more of the municipalities:

Decentralization of HR functions
Personnel policies
External economic climate
Unemployment rate
Extent of contracting out for services
Departmental discretion regarding vacancies
Hiring freezes
State and/or federal mandates

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The Human Resources Department for Apex provides a comprehensive assortment of services, including occupational health and wellness, benefits, recruitment and selection, compensation, employee relations, and training and development programs.

One employee compensation study was completed during the fiscal year covering thirty-two postions. The Town of Apex tries to study one-third of the job classifications every three years and uses a consultant to assist in this process.

The town's probationary period for new employees was six months for general employees and twelve months for sworn police, fire, and EMS personnel.

Conditions Affecting Service, Performance, and Costs
Apex began participation in the benchmarking project in July 2011, with FY 2010–11 being the first reporting year.

Municipal Profile

Population (OSBM 2011)	38,696
Land Area (Square Miles)	15.63
Persons per Square Mile	2,477
Median Family Income U.S. Census 2010	$97,201
County Unemployment Rate (2011) N.C. Employment Security Commission	8.3%

Service Profile

Central HR FTE Positions	
Administration	1.0
Generalist/Specialist	1.0
Staff Support/Clerical	0.8
Total Authorized Workforce	325.0
Authorized FTEs	323.6
Average Length of Service (Months)	100.44
Number of Position Requisitions	35
Employment Applications Processed	2,073
Length of Probationary Employment Period	6 or 12 months
Compensation Studies Completed	1
Positions Studied	32
Employee Turnover	
Voluntary Separations	20
Involuntary Separations	7
TOTAL SEPARATIONS	27
Formal Grievances Filed by Employees	1
Equal Employment Opportunity Commission (EEOC) Complaints Filed	1

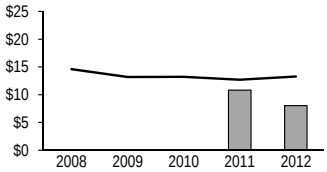
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	61.6%
Operating Costs	35.3%
Capital Costs	3.1%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$191,911
Operating Costs	$109,836
Capital Costs	$9,620
TOTAL	$311,367

Key: Apex ■ Benchmarking Average — Fiscal Years 2008 through 2012

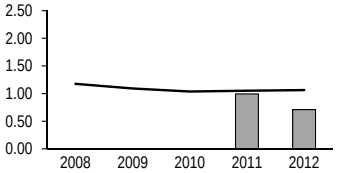
Resource Measures

Human Resources Services Cost per Capita



	2008	2009	2010	2011	2012
Apex				$10.83	$8.05
Average	$14.59	$13.19	$13.21	$12.71	$13.26

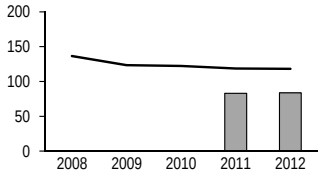
Human Resources FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Apex				0.99	0.71
Average	1.18	1.09	1.04	1.05	1.06

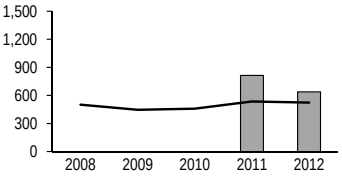
Workload Measures

Total Municipal FTEs per 10,000 Population



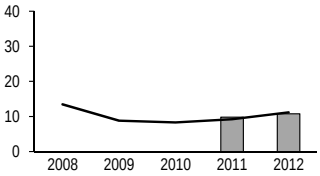
	2008	2009	2010	2011	2012
Apex				83	84
Average	136	123	122	119	118

Applications Processed per 100 Municipal Employees



	2008	2009	2010	2011	2012
Apex				814	638
Average	501	447	459	535	524

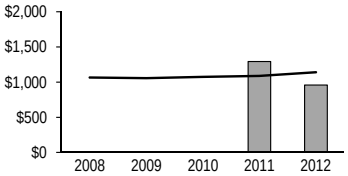
Position Requisitions per 100 Municipal Employees



	2008	2009	2010	2011	2012
Apex				9.8	10.8
Average	13.5	8.8	8.3	9.2	11.2

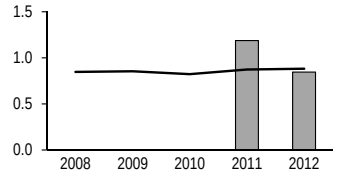
Efficiency Measures

Human Resources Cost per Municipal Employee



	2008	2009	2010	2011	2012
Apex				$1,293	$958
Average	$1,066	$1,056	$1,075	$1,088	$1,140

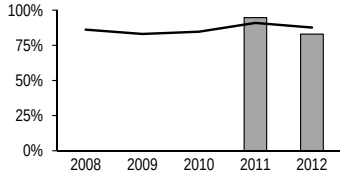
Ratio of Human Resources Staff to 100 Municipal Employees



	2008	2009	2010	2011	2012
Apex				1.19	0.85
Average	0.85	0.85	0.82	0.87	0.88

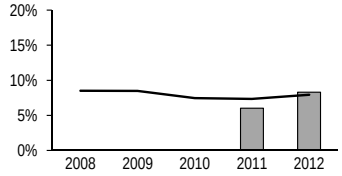
Effectiveness Measures

Probationary Period Completion Rate (New Hires)



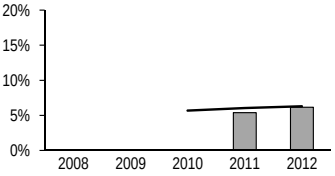
	2008	2009	2010	2011	2012
Apex				95%	83%
Average	86%	83%	85%	91%	88%

Employee Turnover Rate (All Separations)



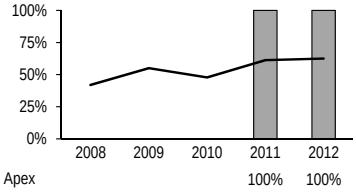
	2008	2009	2010	2011	2012
Apex				6.0%	8.3%
Average	8.5%	8.5%	7.5%	7.3%	7.9%

Employee Turnover Rate (Voluntary Separations)



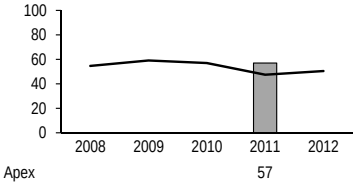
	2008	2009	2010	2011	2012
Apex				5.4%	6.2%
Average			5.7%	6.0%	6.3%

Percentage of Grievances Resolved at Department Level



	2008	2009	2010	2011	2012
Apex				100%	100%
Average	42%	55%	48%	61%	63%

Average Days from Post Date to Hire Date (First Day of Employment)



	2008	2009	2010	2011	2012
Apex				57	
Average	55	59	57	47	50

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The Human Resources Department provides a comprehensive assortment of services, including occupational health and wellness, benefits, recruitment and selection, compensation, employee relations, and youth development programs.

The city's probationary period for new employees is six months.

Conditions Affecting Service, Performance, and Costs
The city's data include the following positions (and related costs) as part of the city's Human Resources Department: Health Services Supervisor, registered nurse, and administrative staff.

Employee relations issues are resolved through the city's administration.

All advertising costs for vacant positions are now paid for out of the Human Resources budget, with the exception of industry-specific websites or publications specifically requested by the individual departments. Prior to FY 2007–08, departments in Asheville paid for advertising individually. This has raised costs in HR somewhat.

Municipal Profile

Population (OSBM 2011)	85,646
Land Area (Square Miles)	45.40
Persons per Square Mile	1,886
Median Family Income U.S. Census 2010	$53,350
County Unemployment Rate (2011) N.C. Employment Security Commission	8.2%

Service Profile

Central HR FTE Positions	
Administration	3.8
Generalist/Specialist	10.3
Staff Support/Clerical	1.6
Total Authorized Workforce	1,140.0
Authorized FTEs	1,140.0
Average Length of Service (Months)	109
Number of Position Requisitions	197
Employment Applications Processed	5,453
Length of Probationary Employment Period	6 months
Compensation Studies Completed	NA
Positions Studied	NA
Employee Turnover	
Voluntary Separations	109
Involuntary Separations	24
TOTAL SEPARATIONS	133
Formal Grievances Filed by Employees	10
Equal Employment Opportunity Commission (EEOC) Complaints Filed	2

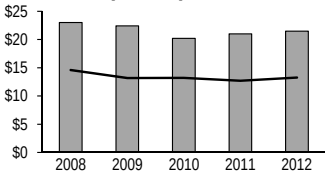
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	60.1%
Operating Costs	38.6%
Capital Costs	1.3%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,106,072
Operating Costs	$709,401
Capital Costs	$23,934
TOTAL	$1,839,407

Key: Asheville ■ Benchmarking Average — Fiscal Years 2008 through 2012

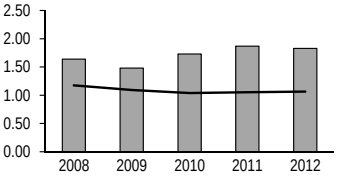
Resource Measures

Human Resources Services Cost per Capita



	2008	2009	2010	2011	2012
Asheville	$23.00	$22.41	$20.20	$20.99	$21.48
Average	$14.59	$13.19	$13.21	$12.71	$13.26

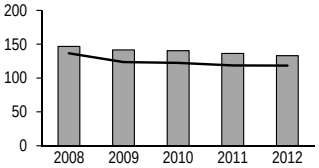
Human Resources FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Asheville	1.64	1.48	1.73	1.87	1.83
Average	1.18	1.09	1.04	1.05	1.06

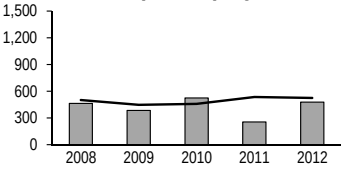
Workload Measures

Total Municipal FTEs per 10,000 Population



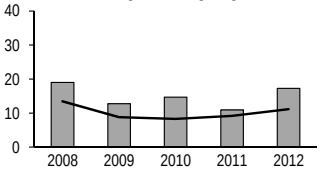
	2008	2009	2010	2011	2012
Asheville	147	142	140	136	133
Average	136	123	122	119	118

Applications Processed per 100 Municipal Employees



	2008	2009	2010	2011	2012
Asheville	463	386	524	255	478
Average	501	447	459	535	524

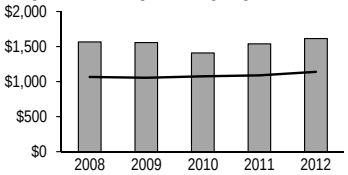
Position Requisitions per 100 Municipal Employees



	2008	2009	2010	2011	2012
Asheville	19.0	12.8	14.7	10.9	17.3
Average	13.5	8.8	8.3	9.2	11.2

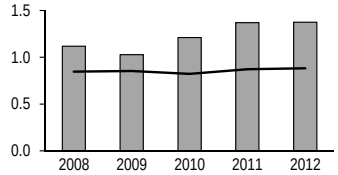
Efficiency Measures

Human Resources Cost per Municipal Employee



	2008	2009	2010	2011	2012
Asheville	$1,567	$1,557	$1,410	$1,539	$1,614
Average	$1,066	$1,056	$1,075	$1,088	$1,140

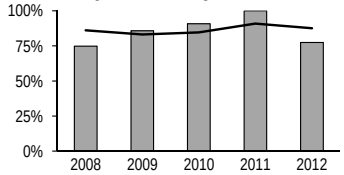
Ratio of Human Resources Staff to 100 Municipal Employees



	2008	2009	2010	2011	2012
Asheville	1.12	1.03	1.21	1.37	1.38
Average	0.85	0.85	0.82	0.87	0.88

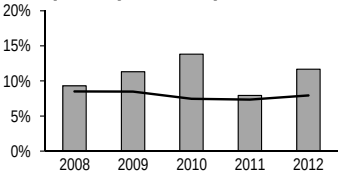
Effectiveness Measures

Probationary Period Completion Rate (New Hires)



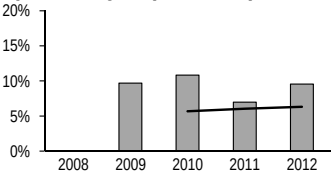
	2008	2009	2010	2011	2012
Asheville	75%	86%	91%	100%	77%
Average	86%	83%	85%	91%	88%

Employee Turnover Rate (All Separations)



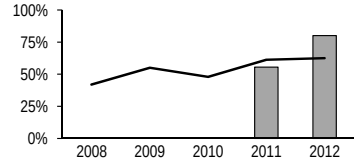
	2008	2009	2010	2011	2012
Asheville	9.3%	11.3%	13.8%	7.9%	11.7%
Average	8.5%	8.5%	7.5%	7.3%	7.9%

Employee Turnover Rate (Voluntary Separations)



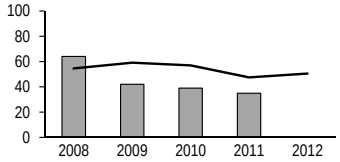
	2008	2009	2010	2011	2012
Asheville		9.7%	10.8%	7.0%	9.6%
Average			5.7%	6.0%	6.3%

Percentage of Grievances Resolved at Department Level



	2008	2009	2010	2011	2012
Asheville				56%	80%
Average	42%	55%	48%	61%	63%

Average Days from Post Date to Hire Date (First Day of Employment)



	2008	2009	2010	2011	2012
Asheville	64	42	39	35	
Average	55	59	57	47	50

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

The City of Burlington's Human Resources Department is a separate department consisting of four full-time positions: an HR director, two HR specialists, and a staff support person.

The city's probationary period for new employees is twelve months for police and six months for all other employees.

Conditions Affecting Service, Performance, and Costs

Municipal Profile

Population (OSBM 2011)	51,263
Land Area (Square Miles)	25.21
Persons per Square Mile	2,034
Median Family Income U.S. Census 2010	$46,461
County Unemployment Rate (2011) N.C. Employment Security Commission	10.7%

Service Profile

Central HR FTE Positions	
Administration	1.0
Generalist/Specialist	2.0
Staff Support/Clerical	1.0
Total Authorized Workforce	1,010.0
Authorized FTEs	779.0
Average Length of Service (Months)	132
Number of Position Requisitions	43
Employment Applications Processed	947
Length of Probationary Employment Period	6 or 12 months
Compensation Studies Completed	7
Positions Studied	1,010
Employee Turnover	
Voluntary Separations	84
Involuntary Separations	7
TOTAL SEPARATIONS	91
Formal Grievances Filed by Employees	2
Equal Employment Opportunity Commission (EEOC) Complaints Filed	1

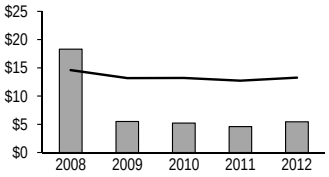
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	82.6%
Operating Costs	17.4%
Capital Costs	0.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$230,633
Operating Costs	$48,572
Capital Costs	$0
TOTAL	$279,205

Key: Burlington ■ Benchmarking Average — Fiscal Years 2008 through 2012

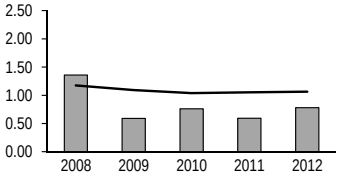
Resource Measures

Human Resources Services Cost per Capita



	2008	2009	2010	2011	2012
Burlington	$18.31	$5.49	$5.22	$4.59	$5.45
Average	$14.59	$13.19	$13.21	$12.71	$13.26

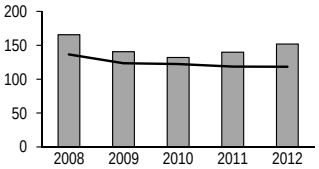
Human Resources FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Burlington	1.36	0.59	0.76	0.59	0.78
Average	1.18	1.09	1.04	1.05	1.06

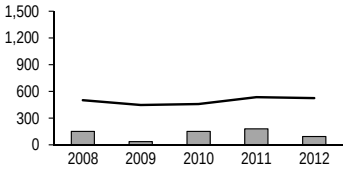
Workload Measures

Total Municipal FTEs per 10,000 Population



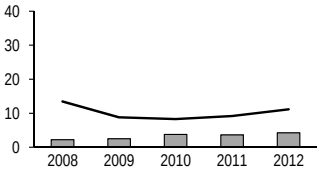
	2008	2009	2010	2011	2012
Burlington	166	141	132	140	152
Average	136	123	122	119	118

Applications Processed per 100 Municipal Employees



	2008	2009	2010	2011	2012
Burlington	151	35	152	179	94
Average	501	447	459	535	524

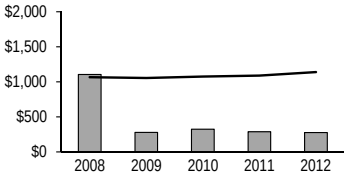
Position Requisitions per 100 Municipal Employees



	2008	2009	2010	2011	2012
Burlington	2.2	2.5	3.8	3.6	4.3
Average	13.5	8.8	8.3	9.2	11.2

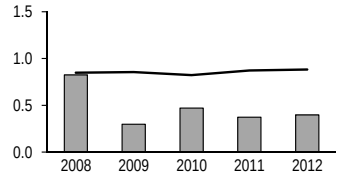
Efficiency Measures

Human Resources Cost per Municipal Employee



	2008	2009	2010	2011	2012
Burlington	$1,106	$279	$324	$288	$276
Average	$1,066	$1,056	$1,075	$1,088	$1,140

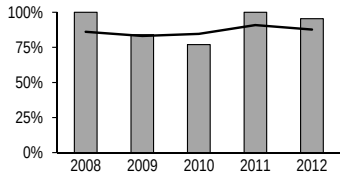
Ratio of Human Resources Staff to 100 Municipal Employees



	2008	2009	2010	2011	2012
Burlington	0.82	0.30	0.47	0.37	0.40
Average	0.85	0.85	0.82	0.87	0.88

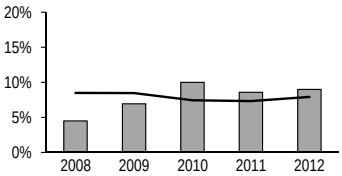
Effectiveness Measures

Probationary Period Completion Rate (New Hires)



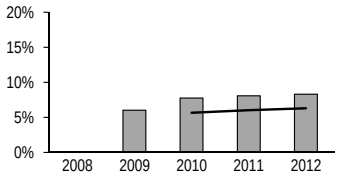
	2008	2009	2010	2011	2012
Burlington	100%	84%	77%	100%	95%
Average	86%	83%	85%	91%	88%

Employee Turnover Rate (All Separations)



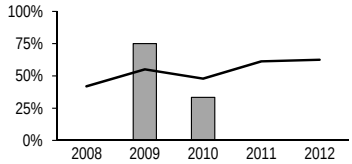
	2008	2009	2010	2011	2012
Burlington	4.5%	6.9%	10.0%	8.6%	9.0%
Average	8.5%	8.5%	7.5%	7.3%	7.9%

Employee Turnover Rate (Voluntary Separations)



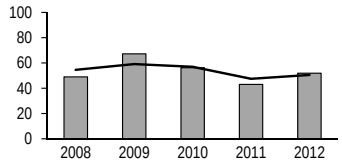
	2008	2009	2010	2011	2012
Burlington		6.0%	7.8%	8.1%	8.3%
Average			5.7%	6.0%	6.3%

Percentage of Grievances Resolved at Department Level



	2008	2009	2010	2011	2012
Burlington		75%	33%	0%	
Average	42%	55%	48%	61%	63%

Average Days from Post Date to Hire Date (First Day of Employment)



	2008	2009	2010	2011	2012
Burlington	49	67	56	43	52
Average	55	59	57	47	50

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The Town of Cary's Human Resources Department includes the following: a director, an employee relations manager, an employee benefits manager, a training and development program administrator, an employee safety coordinator, three human resources consultants who handle all recruitment and day-to-day employee issues, two human resources assistants who support each of the consultants, one safety technician, and two administrative secretaries.

The town conducted one compensation study during FY 2011–12 that involved the study of 246 positions.

The town's probationary period for new employees is six months for non–public safety employees and twelve months for public safety employees.

Conditions Affecting Service, Performance, and Costs
The employee benefits manager also administers workers' compensation. In many other organizations, this function is performed within a risk-management department. The HR assistants also handle many payroll tasks which in other organizations might be handled within the finance department.

Municipal Profile

Population (OSBM 2011)	139,172
Land Area (Square Miles)	54.56
Persons per Square Mile	2,551
Median Family Income U.S. Census 2010	$108,956
County Unemployment Rate (2011) N.C. Employment Security Commission	8.3%

Service Profile

Central HR FTE Positions	
Administration	3.0
Generalist/Specialist	5.0
Staff Support/Clerical	4.3
Total Authorized Workforce	1,172.0
Authorized FTEs	161.9
Average Length of Service (Months)	121
Number of Position Requisitions	348
Employment Applications Processed	7,503
Length of Probationary Employment Period	6 or 12 months
Compensation Studies Completed	1
Positions Studied	246
Employee Turnover	
Voluntary Separations	57
Involuntary Separations	6
TOTAL SEPARATIONS	63
Formal Grievances Filed by Employees	1
Equal Employment Opportunity Commission (EEOC) Complaints Filed	1

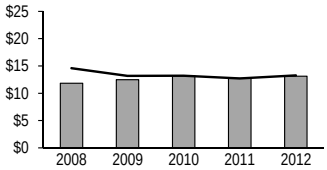
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	61.3%
Operating Costs	37.0%
Capital Costs	1.7%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,121,088
Operating Costs	$675,601
Capital Costs	$30,752
TOTAL	$1,827,441

Key: Cary ■ Benchmarking Average — Fiscal Years 2008 through 2012

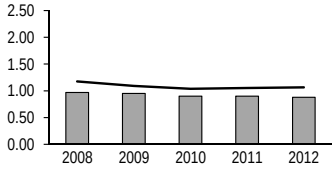
Resource Measures

Human Resources Services Cost per Capita



	2008	2009	2010	2011	2012
Cary	$11.83	$12.47	$13.19	$12.71	$13.13
Average	$14.59	$13.19	$13.21	$12.71	$13.26

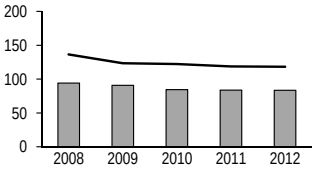
Human Resources FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Cary	0.97	0.95	0.90	0.90	0.88
Average	1.18	1.09	1.04	1.05	1.06

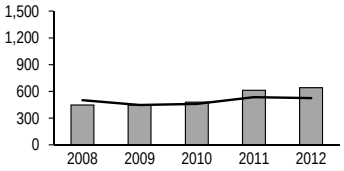
Workload Measures

Total Municipal FTEs per 10,000 Population



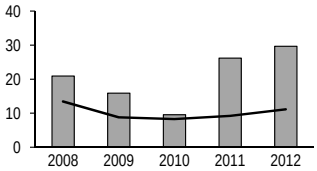
	2008	2009	2010	2011	2012
Cary	94	91	84	84	83
Average	136	123	122	119	118

Applications Processed per 100 Municipal Employees



	2008	2009	2010	2011	2012
Cary	446	445	480	613	640
Average	501	447	459	535	524

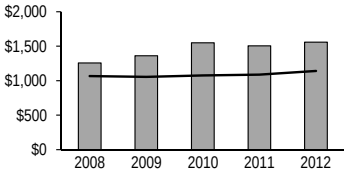
Position Requisitions per 100 Municipal Employees



	2008	2009	2010	2011	2012
Cary	20.9	15.9	9.5	26.2	29.7
Average	13.5	8.8	8.3	9.2	11.2

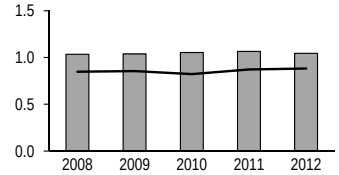
Efficiency Measures

Human Resources Cost per Municipal Employee



	2008	2009	2010	2011	2012
Cary	$1,257	$1,361	$1,549	$1,505	$1,559
Average	$1,066	$1,056	$1,075	$1,088	$1,140

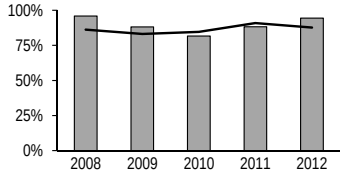
Ratio of Human Resources Staff to 100 Municipal Employees



	2008	2009	2010	2011	2012
Cary	1.03	1.04	1.05	1.07	1.05
Average	0.85	0.85	0.82	0.87	0.88

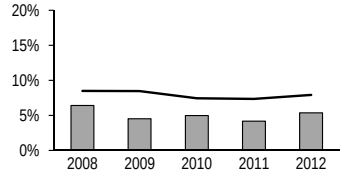
Effectiveness Measures

Probationary Period Completion Rate (New Hires)



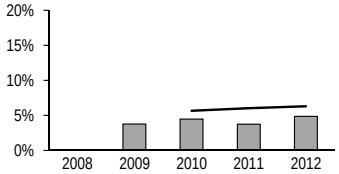
	2008	2009	2010	2011	2012
Cary	96%	88%	82%	88%	94%
Average	86%	83%	85%	91%	88%

Employee Turnover Rate (All Separations)



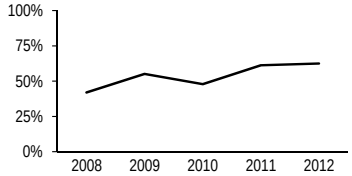
	2008	2009	2010	2011	2012
Cary	6.4%	4.5%	5.0%	4.2%	5.4%
Average	8.5%	8.5%	7.5%	7.3%	7.9%

Employee Turnover Rate (Voluntary Separations)



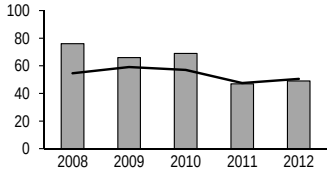
	2008	2009	2010	2011	2012
Cary		3.8%	4.5%	3.7%	4.9%
Average			5.7%	6.0%	6.3%

Percentage of Grievances Resolved at Department Level



	2008	2009	2010	2011	2012
Cary	0%		0%	0%	
Average	42%	55%	48%	61%	63%

Average Days from Post Date to Hire Date (First Day of Employment)



	2008	2009	2010	2011	2012
Cary	76	66	69	47	49
Average	55	59	57	47	50

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Charlotte's Human Resources Business Unit is organized into five core services: benefits, compensations, business unit services, HRMS/payroll, and organizational development and learning. These functional areas perform a variety of strategic, tactical, and transactional services. Some of the transactional services are outsourced.

During FY 2011–12, eight compensation studies were conducted covering 520 positions. Surveys were done on the basis of national, regional, and other larger city comparisons. There were 83,199 applications processed electronically or online. All applicants (except sworn police and fire positions) must use the PeopleSoft online job application software for each position for which they wish to apply.

The city is self-insured for medical and dental insurance, and third-party administrators are retained to administer the plans. The wellness program, Wellness Works, includes a number of programs, such as tobacco cessation, annual flu shots, blood pressure screenings, onsite education programs, and weight loss programs. The city partners with Provant to administer health coaching and health risk assessments. New in 2011, the city offered a premium differential to employees who take a health screening, complete a health assessment, and engage with a health coach on an ongoing basis.

Conditions Affecting Service, Performance, and Costs
Charlotte has a very robust wellness program. Many resources are devoted to the sucess of this program. There are wellness ambassadors in every department in the city.

One of the HR positions was frozen during the year and was not open to be filled. The payroll function in many cities is located in finance; it resides in Human Resources in Charlotte. The computation of indirect costs for Human Resources was changed in Fiscal Year 2011–2012, resulting in somewhat higher total costs than would have been the case using the method from prior years.

Municipal Profile

Population (OSBM 2011)	751,999
Land Area (Square Miles)	301.48
Persons per Square Mile	2,494
Median Family Income U.S. Census 2010	$61,405
County Unemployment rate (2011) N.C. Employment Security Commission	10.7%

Service Profile

Central HR FTE Positions	
Administration	2.5
Generalist/Specialist	28.5
Staff Support/Clerical	1.8
Total Authorized Workforce	6,815.0
Authorized FTEs	6,804.3
Average Length of Service (Months)	133
Number of Position Requisitions	413
Employment Applications Processed	83,199
Length of Probationary Employment Period	6 or 12 months
Compensation Studies Completed	8
Positions Studied	520
Employee Turnover	
Voluntary Separations	328
Involuntary Separations	76
TOTAL SEPARATIONS	404
Formal Grievances Filed by Employees	33
Equal Employment Opportunity Commission (EEOC) Complaints Filed	56

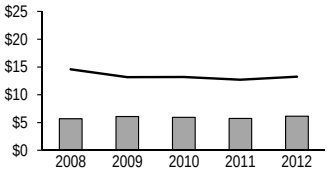
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	65.9%
Operating Costs	33.9%
Capital Costs	0.2%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$3,048,338
Operating Costs	$1,568,579
Capital Costs	$7,040
TOTAL	$4,623,957

Key: Charlotte ■ Benchmarking Average — Fiscal Years 2008 through 2012

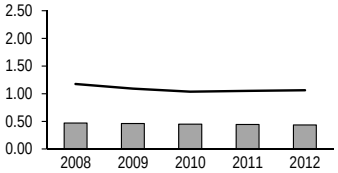
Resource Measures

Human Resources Services Cost per Capita



	2008	2009	2010	2011	2012
Charlotte	$5.70	$6.09	$5.94	$5.74	$6.15
Average	$14.59	$13.19	$13.21	$12.71	$13.26

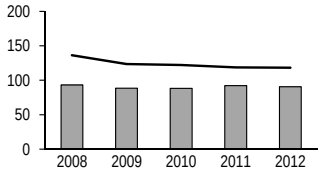
Human Resources FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Charlotte	0.47	0.46	0.45	0.44	0.44
Average	1.18	1.09	1.04	1.05	1.06

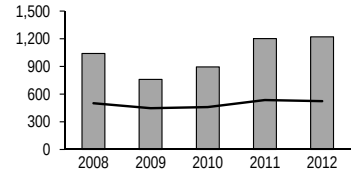
Workload Measures

Total Municipal FTEs per 10,000 Population



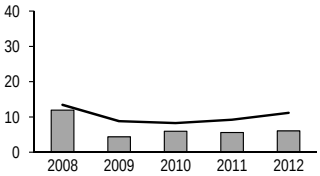
	2008	2009	2010	2011	2012
Charlotte	93	88	88	92	90
Average	136	123	122	119	118

Applications Processed per 100 Municipal Employees



	2008	2009	2010	2011	2012
Charlotte	1,040	760	895	1,202	1,221
Average	501	447	459	535	524

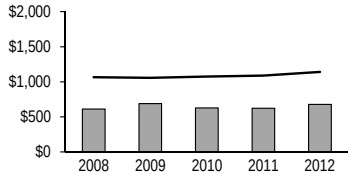
Position Requisitions per 100 Municipal Employees



	2008	2009	2010	2011	2012
Charlotte	12.0	4.4	5.9	5.6	6.1
Average	13.5	8.8	8.3	9.2	11.2

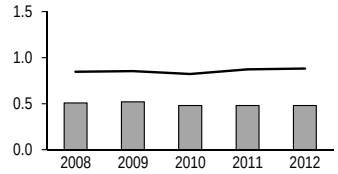
Efficiency Measures

Human Resources Cost per Municipal Employee



	2008	2009	2010	2011	2012
Charlotte	$611	$688	$627	$623	$678
Average	$1,066	$1,056	$1,075	$1,088	$1,140

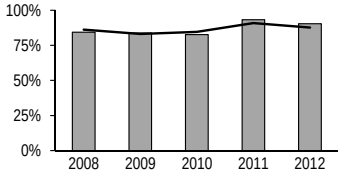
Ratio of Human Resources Staff to 100 Municipal Employees



	2008	2009	2010	2011	2012
Charlotte	0.51	0.52	0.48	0.48	0.48
Average	0.85	0.85	0.82	0.87	0.88

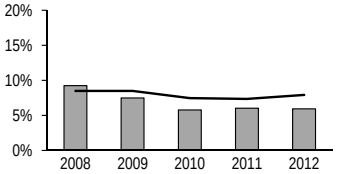
Effectiveness Measures

Probationary Period Completion Rate (New Hires)



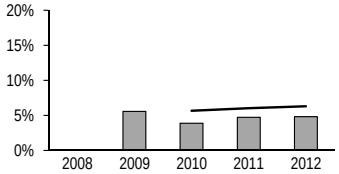
	2008	2009	2010	2011	2012
Charlotte	84%	84%	83%	93%	90%
Average	86%	83%	85%	91%	88%

Employee Turnover Rate (All Separations)



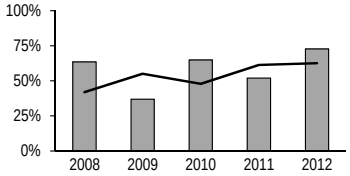
	2008	2009	2010	2011	2012
Charlotte	9.3%	7.5%	5.8%	6.0%	5.9%
Average	8.5%	8.5%	7.5%	7.3%	7.9%

Employee Turnover Rate (Voluntary Separations)



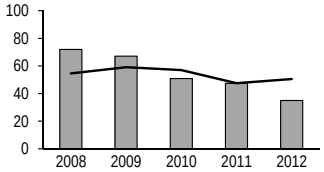
	2008	2009	2010	2011	2012
Charlotte		5.6%	3.9%	4.7%	4.8%
Average			5.7%	6.0%	6.3%

Percentage of Grievances Resolved at Department Level



	2008	2009	2010	2011	2012
Charlotte	63%	37%	65%	52%	73%
Average	42%	55%	48%	61%	63%

Average Days from Post Date to Hire Date (First Day of Employment)



	2008	2009	2010	2011	2012
Charlotte	72	67	51	47	35
Average	55	59	57	47	50

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

The Human Resources Department for the City of Concord is responsible for the following functions: departmental management, policy design and administration, classification and compensation design and administration, benefits plan design and administration, employee relations, grievance and disciplinary actions, and employee rewards.

The department conducted six compensation studies during FY 2011–12 covering forty-three positions.

The city's probationary period for new employees is six months for non–public safety employees and twelve months for public safety employees.

Conditions Affecting Service, Performance, and Costs

Municipal Profile

Population (OSBM 2011)	80,386
Land Area (Square Miles)	60.28
Persons per Square Mile	1,333
Median Family Income U.S. Census 2010	$63,643
County Unemployment Rate (2011) N.C. Employment Security Commission	10.1%

Service Profile

Central HR FTE Positions	
Administration	2.8
Generalist/Specialist	3.8
Staff Support/Clerical	2.0
Total Authorized Workforce	940.0
Authorized FTEs	917.5
Average Length of Service (Months)	120
Number of Position Requisitions	47
Employment Applications Processed	5,315
Length of Probationary Employment Period	6 or 12 months
Compensation Studies Completed	6
Positions Studied	43
Employee Turnover	
Voluntary Separations	55
Involuntary Separations	5
TOTAL SEPARATIONS	60
Formal Grievances Filed by Employees	11
Equal Employment Opportunity Commission (EEOC) Complaints Filed	2

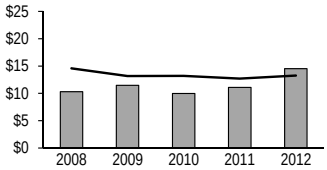
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	47.3%
Operating Costs	50.5%
Capital Costs	2.2%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$551,616
Operating Costs	$589,485
Capital Costs	$25,210
TOTAL	$1,166,311

Key: Concord ■ Benchmarking Average — Fiscal Years 2008 through 2012

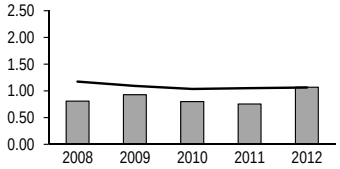
Resource Measures

Human Resources Services Cost per Capita



	2008	2009	2010	2011	2012
Concord	$10.30	$11.47	$9.98	$11.10	$14.51
Average	$14.59	$13.19	$13.21	$12.71	$13.26

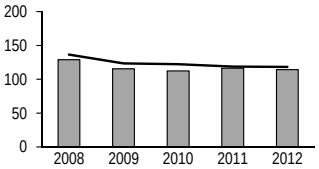
Human Resources FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Concord	0.81	0.93	0.80	0.75	1.07
Average	1.18	1.09	1.04	1.05	1.06

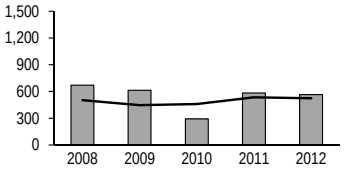
Workload Measures

Total Municipal FTEs per 10,000 Population



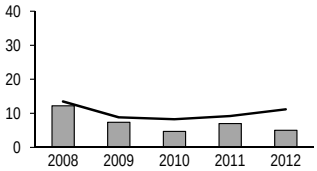
	2008	2009	2010	2011	2012
Concord	129	115	112	116	114
Average	136	123	122	119	118

Applications Processed per 100 Municipal Employees



	2008	2009	2010	2011	2012
Concord	671	614	293	584	565
Average	501	447	459	535	524

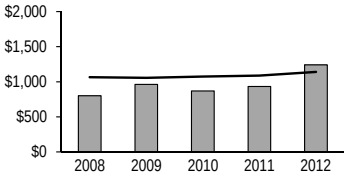
Position Requisitions per 100 Municipal Employees



	2008	2009	2010	2011	2012
Concord	12.2	7.4	4.7	7.0	5.0
Average	13.5	8.8	8.3	9.2	11.2

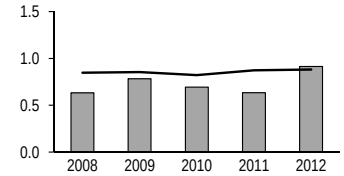
Efficiency Measures

Human Resources Cost per Municipal Employee



	2008	2009	2010	2011	2012
Concord	$799	$963	$868	$932	$1,241
Average	$1,066	$1,056	$1,075	$1,088	$1,140

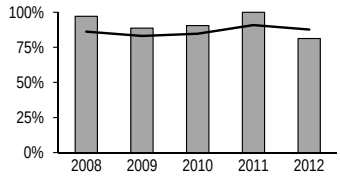
Ratio of Human Resources Staff to 100 Municipal Employees



	2008	2009	2010	2011	2012
Concord	0.63	0.78	0.69	0.63	0.91
Average	0.85	0.85	0.82	0.87	0.88

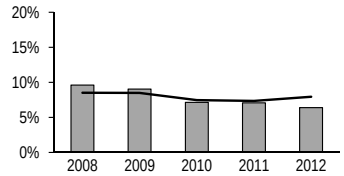
Effectiveness Measures

Probationary Period Completion Rate (New Hires)



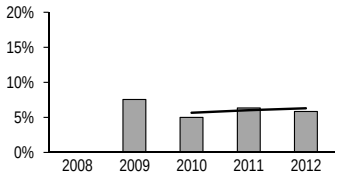
	2008	2009	2010	2011	2012
Concord	97%	89%	90%	100%	81%
Average	86%	83%	85%	91%	88%

Employee Turnover Rate (All Separations)



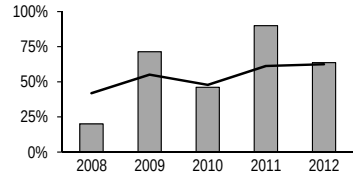
	2008	2009	2010	2011	2012
Concord	9.6%	9.0%	7.1%	7.1%	6.4%
Average	8.5%	8.5%	7.5%	7.3%	7.9%

Employee Turnover Rate (Voluntary Separations)



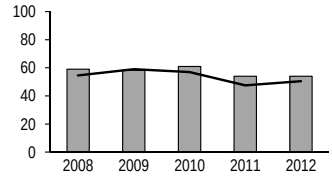
	2008	2009	2010	2011	2012
Concord		7.6%	5.0%	6.3%	5.9%
Average			5.7%	6.0%	6.3%

Percentage of Grievances Resolved at Department Level



	2008	2009	2010	2011	2012
Concord	20%	71%	46%	90%	64%
Average	42%	55%	48%	61%	63%

Average Days from Post Date to Hire Date (First Day of Employment)



	2008	2009	2010	2011	2012
Concord	59	58	61	54	54
Average	55	59	57	47	50

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

The Human Resources Department for the City of Greensboro provides comprehensive personnel services, including recruitment and selection, compensation, benefits, employee relations, safety, and occupational health and wellness. The total number of FTE positions includes staff from the Training Division, which is housed in a separate department from Human Resources. The HR Department has a staff attorney who is able to provide legal consultation on a variety of issues confronting the HR department.

The department completed one large compensation study during FY 2011–12. Market reviews were done affecting 3,200 positions.

The city's probationary period for new employees is six months for non–public safety employees and twelve months for public safety employees.

Conditions Affecting Service, Performance, and Costs

Municipal Profile

Population (OSBM 2011)	272,196
Land Area (Square Miles)	127.14
Persons per Square Mile	2,141
Median Family Income U.S. Census 2010	$52,752
County Unemployment Rate (2011) N.C. Employment Security Commission	10.8%

Service Profile

Central HR FTE Positions	
Administration	8.0
Generalist/Specialist	22.0
Staff Support/Clerical	8.0
Total Authorized Workforce	3,171.0
Authorized FTEs	3,163.0
Average Length of Service (Months)	141
Number of Position Requisitions	238
Employment Applications Processed	7,502
Length of Probationary Employment Period	6 or 12 months
Compensation Studies Completed	1
Positions Studied	3,200
Employee Turnover	
Voluntary Separations	183
Involuntary Separations	52
TOTAL SEPARATIONS	235
Formal Grievances Filed by Employees	48
Equal Employment Opportunity Commission (EEOC) Complaints Filed	28

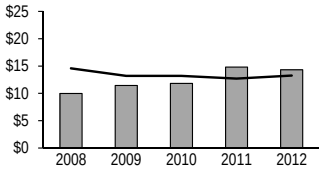
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	72.1%
Operating Costs	27.9%
Capital Costs	0.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$2,807,920
Operating Costs	$1,087,737
Capital Costs	$0
TOTAL	$3,895,657

Key: Greensboro ■ Benchmarking Average — Fiscal Years 2008 through 2012

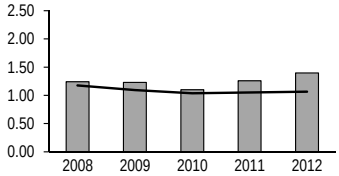
Resource Measures

Human Resources Services Cost per Capita



	2008	2009	2010	2011	2012
Greensboro	$9.99	$11.44	$11.81	$14.82	$14.31
Average	$14.59	$13.19	$13.21	$12.71	$13.26

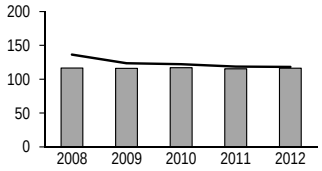
Human Resources FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Greensboro	1.24	1.23	1.10	1.26	1.40
Average	1.18	1.09	1.04	1.05	1.06

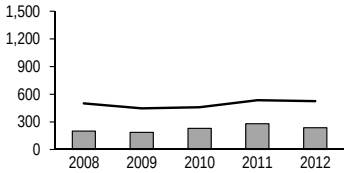
Workload Measures

Total Municipal FTEs per 10,000 Population



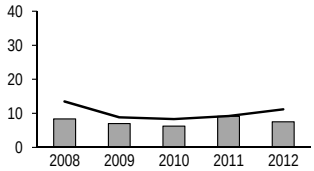
	2008	2009	2010	2011	2012
Greensboro	116	116	117	115	116
Average	136	123	122	119	118

Applications Processed per 100 Municipal Employees



	2008	2009	2010	2011	2012
Greensboro	201	187	230	280	237
Average	501	447	459	535	524

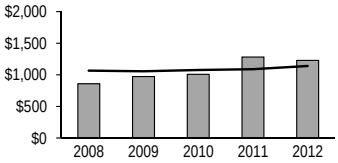
Position Requisitions per 100 Municipal Employees



	2008	2009	2010	2011	2012
Greensboro	8.3	7.0	6.2	9.1	7.5
Average	13.5	8.8	8.3	9.2	11.2

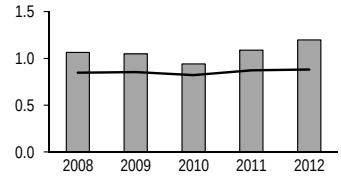
Efficiency Measures

Human Resources Cost per Municipal Employee



	2008	2009	2010	2011	2012
Greensboro	$858	$972	$1,008	$1,281	$1,229
Average	$1,066	$1,056	$1,075	$1,088	$1,140

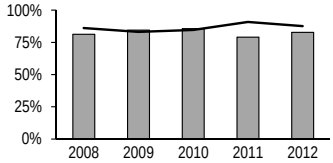
Ratio of Human Resources Staff to 100 Municipal Employees



	2008	2009	2010	2011	2012
Greensboro	1.06	1.05	0.94	1.09	1.20
Average	0.85	0.85	0.82	0.87	0.88

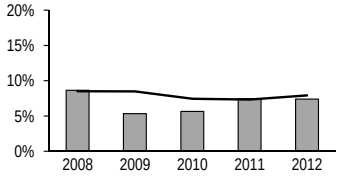
Effectiveness Measures

Probationary Period Completion Rate (New Hires)



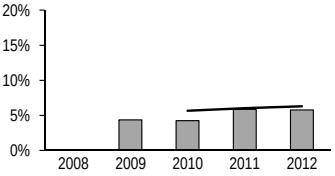
	2008	2009	2010	2011	2012
Greensboro	81%	84%	86%	79%	83%
Average	86%	83%	85%	91%	88%

Employee Turnover Rate (All Separations)



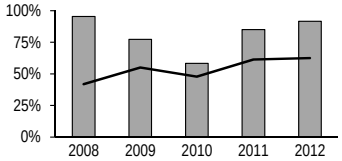
	2008	2009	2010	2011	2012
Greensboro	8.7%	5.3%	5.6%	7.5%	7.4%
Average	8.5%	8.5%	7.5%	7.3%	7.9%

Employee Turnover Rate (Voluntary Separations)



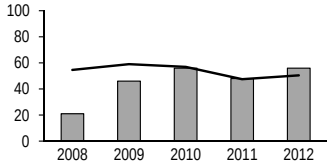
	2008	2009	2010	2011	2012
Greensboro		4.4%	4.2%	5.9%	5.8%
Average			5.7%	6.0%	6.3%

Percentage of Grievances Resolved at Department Level



	2008	2009	2010	2011	2012
Greensboro	95%	77%	58%	85%	92%
Average	42%	55%	48%	61%	63%

Average Days from Post Date to Hire Date (First Day of Employment)



	2008	2009	2010	2011	2012
Greensboro	21	46	56	48	56
Average	55	59	57	47	50

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The Human Resources Department for the City of Greenville is responsible for recruitment and selection, salary and benefits administration, position classification, employee relations, affirmative action and equal employment opportunity, training and development, risk administration, and safety.

The city's probationary period is twelve months for all law enforcement personnel and employees in a trainee status, such as fire/rescue trainees. All other employees serve a six-month probationary period.

Nearly all employment applications are done online. The Human Resources Department screens applications to ensure that applicants meet the position minimum qualifications. Applications are only accepted for positions that are open for recruitment.

Greenville has a voluntary wellness program focusing on education, fitness, mental health, nutrition, weight management, personal health, and personal safety. A safety specialist provides technical safety and occupational illness and injury prevention training.

A formal grievance in Greenville requires a written notice given to a supervisor appealing a disciplinary action. The grievance process is an internal one, moving up the chain of command with specific timeframes for responses and appeals to the next level.

Conditions Affecting Service, Performance, and Costs
Greenville joined the project in 2009, with the first year of reporting being for FY 2008–09.

Municipal Profile

Population (OSBM 2011)	85,059
Land Area (Square Miles)	34.70
Persons per Square Mile	2,451
Median Family Income U.S. Census 2010	$50,395
County Unemployment Rate (2011) N.C. Employment Security Commission	10.8%

Service Profile

Central HR FTE Positions	
Administration	4.0
Generalist/Specialist	2.0
Staff Support/Clerical	3.0
Total Authorized Workforce	755.0
Authorized FTEs	752.5
Average Length of Service (Months)	120
Number of Position Requisitions	53
Employment Applications Processed	6,163
Length of Probationary Employment Period	6 or 12 months
Compensation Studies Completed	0
Positions Studied	0
Employee Turnover	
Voluntary Separations	37
Involuntary Separations	1
TOTAL SEPARATIONS	38
Formal Grievances Filed by Employees	6
Equal Employment Opportunity Commission (EEOC) Complaints Filed	0

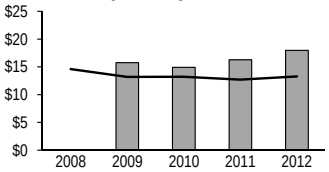
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	57.2%
Operating Costs	42.5%
Capital Costs	0.3%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$875,134
Operating Costs	$650,538
Capital Costs	$3,876
TOTAL	$1,529,548

Key: Greenville ■ Benchmarking Average — Fiscal Years 2008 through 2012

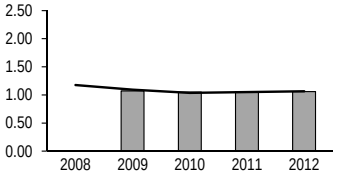
Resource Measures

Human Resources Services Cost per Capita



	2008	2009	2010	2011	2012
Greenville		$15.75	$14.92	$16.27	$17.98
Average	$14.59	$13.19	$13.21	$12.71	$13.26

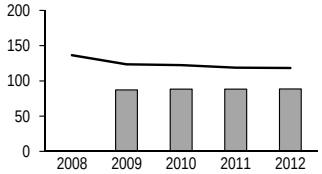
Human Resources FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Greenville		1.07	1.05	1.06	1.06
Average	1.18	1.09	1.04	1.05	1.06

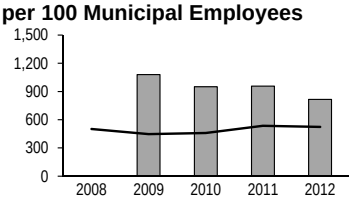
Workload Measures

Total Municipal FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Greenville		87	88	88	88
Average	136	123	122	119	118

Applications Processed per 100 Municipal Employees



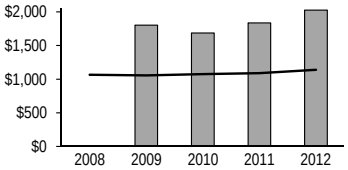
	2008	2009	2010	2011	2012
Greenville		1,080	950	957	816
Average	501	447	459	535	524

Position Requisitions per 100 Municipal Employees

	2008	2009	2010	2011	2012
Greenville		6.6	8.2	6.9	7.0
Average	13.5	8.8	8.3	9.2	11.2

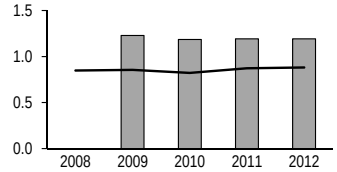
Efficiency Measures

Human Resources Cost per Municipal Employee



	2008	2009	2010	2011	2012
Greenville		$1,802	$1,685	$1,835	$2,026
Average	$1,066	$1,056	$1,075	$1,088	$1,140

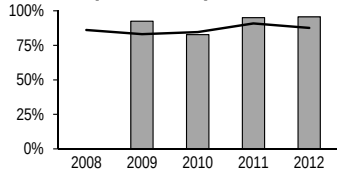
Ratio of Human Resources Staff to 100 Municipal Employees



	2008	2009	2010	2011	2012
Greenville		1.23	1.19	1.19	1.19
Average	0.85	0.85	0.82	0.87	0.88

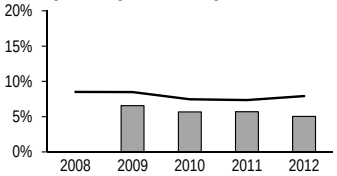
Effectiveness Measures

Probationary Period Completion Rate (New Hires)



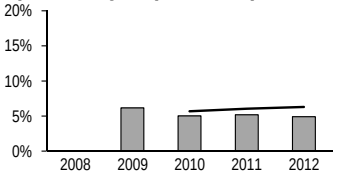
	2008	2009	2010	2011	2012
Greenville		93%	83%	95%	96%
Average	86%	83%	85%	91%	88%

Employee Turnover Rate (All Separations)



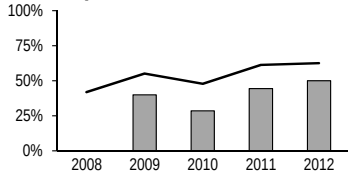
	2008	2009	2010	2011	2012
Greenville		6.6%	5.7%	5.7%	5.0%
Average	8.5%	8.5%	7.5%	7.3%	7.9%

Employee Turnover Rate (Voluntary Separations)



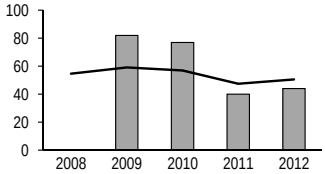
	2008	2009	2010	2011	2012
Greenville		6.1%	5.0%	5.2%	4.9%
Average			5.7%	6.0%	6.3%

Percentage of Grievances Resolved at Department Level



	2008	2009	2010	2011	2012
Greenville		40%	29%	44%	50%
Average	42%	55%	48%	61%	63%

Average Days from Post Date to Hire Date (First Day of Employment)



	2008	2009	2010	2011	2012
Greenville		82	77	40	44
Average	55	59	57	47	50

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

The human resources function for the City of Hickory contains a director, an organizational development coordinator, a city nurse, two human resources analysts (one oversees benefits administration and the other oversees general employment), and one clerical position. Risk management is a division of the human resources function, which includes a risk manager and a clerical support position.

The city's probationary period is twelve months for all new city employees. The city conducted six compensation studies covering six positions during the year.

Conditions Affecting Service, Performance, and Costs

Municipal Profile

Population (OSBM 2011)	40,086
Land Area (Square Miles)	29.72
Persons per Square Mile	1,349
Median Family Income U.S. Census 2010	$54,093
County Unemployment rate (2011) N.C. Employment Security Commission	12.7%

Service Profile

Central HR FTE Positions	
Administration	0.3
Generalist/Specialist	4.0
Staff Support/Clerical	0.8
Total Authorized Workforce	725.0
Authorized FTEs	685.5
Average Length of Service (Months)	119
Number of Position Requisitions	60
Employment Applications Processed	3,854
Length of Probationary Employment Period	12 months
Compensation Studies Completed	6
Positions Studied	6
Employee Turnover	
Voluntary Separations	37
Involuntary Separations	7
TOTAL SEPARATIONS	44
Formal Grievances Filed by Employees	7
Equal Employment Opportunity Commission (EEOC) Complaints Filed	0

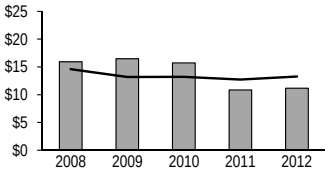
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	69.3%
Operating Costs	29.6%
Capital Costs	1.1%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$310,576
Operating Costs	$132,517
Capital Costs	$5,105
TOTAL	$448,198

Key: Hickory ■ Benchmarking Average — Fiscal Years 2008 through 2012

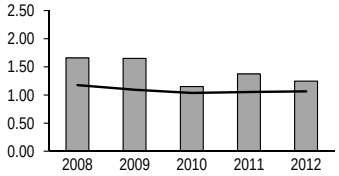
Resource Measures

Human Resources Services Cost per Capita



	2008	2009	2010	2011	2012
Hickory	$15.93	$16.48	$15.71	$10.86	$11.18
Average	$14.59	$13.19	$13.21	$12.71	$13.26

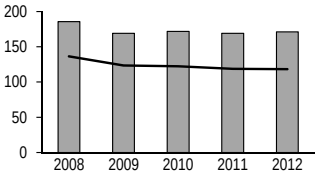
Human Resources FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Hickory	1.66	1.65	1.15	1.37	1.25
Average	1.18	1.09	1.04	1.05	1.06

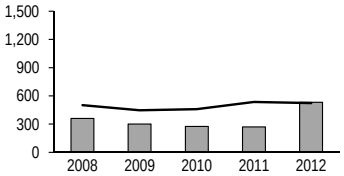
Workload Measures

Total Municipal FTEs per 10,000 Population



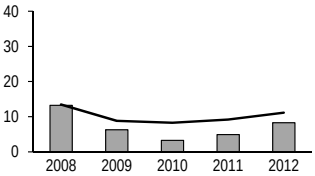
	2008	2009	2010	2011	2012
Hickory	186	169	172	169	171
Average	136	123	122	119	118

Applications Processed per 100 Municipal Employees



	2008	2009	2010	2011	2012
Hickory	360	301	274	271	532
Average	501	447	459	535	524

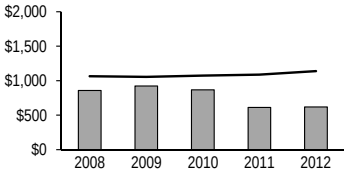
Position Requisitions per 100 Municipal Employees



	2008	2009	2010	2011	2012
Hickory	13.3	6.3	3.3	4.9	8.3
Average	13.5	8.8	8.3	9.2	11.2

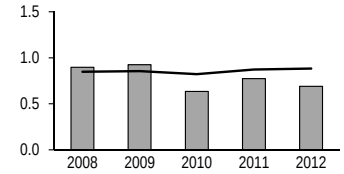
Efficiency Measures

Human Resources Cost per Municipal Employee



	2008	2009	2010	2011	2012
Hickory	$858	$922	$867	$611	$618
Average	$1,066	$1,056	$1,075	$1,088	$1,140

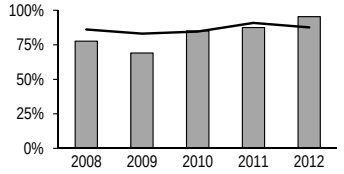
Ratio of Human Resources Staff to 100 Municipal Employees



	2008	2009	2010	2011	2012
Hickory	0.90	0.92	0.63	0.77	0.69
Average	0.85	0.85	0.82	0.87	0.88

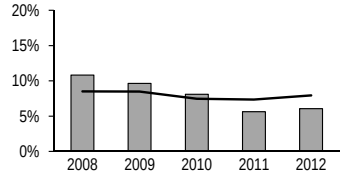
Effectiveness Measures

Probationary Period Completion Rate (New Hires)



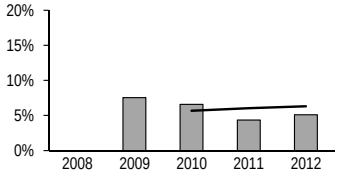
	2008	2009	2010	2011	2012
Hickory	78%	69%	85%	88%	95%
Average	86%	83%	85%	91%	88%

Employee Turnover Rate (All Separations)



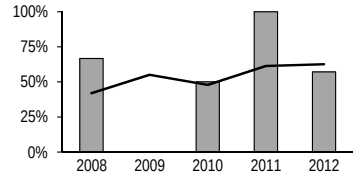
	2008	2009	2010	2011	2012
Hickory	10.8%	9.6%	8.1%	5.6%	6.1%
Average	8.5%	8.5%	7.5%	7.3%	7.9%

Employee Turnover Rate (Voluntary Separations)



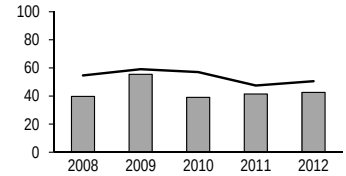
	2008	2009	2010	2011	2012
Hickory		7.5%	6.6%	4.4%	5.1%
Average			5.7%	6.0%	6.3%

Percentage of Grievances Resolved at Department Level



	2008	2009	2010	2011	2012
Hickory	67%	0%	50%	100%	57%
Average	42%	55%	48%	61%	63%

Average Days from Post Date to Hire Date (First Day of Employment)



	2008	2009	2010	2011	2012
Hickory	40	55	39	41	43
Average	55	59	57	47	50

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

The City of High Point Human Resources Department is organized into two divisions. The Administrative Division's organizational objectives consist of personnel and fringe benefits budgeting; workforce planning; recruitment, selection, EEO, ADA, FMLA, FLSA, and HIPPA compliance; fringe benefit competitiveness and cost containment; employee benefits education and awareness; maintaining a competitive and equitable salary and classification plan; offering professional training opportunities for employees; development of intervention strategies to address workplace problems; and facilitation services to employee groups. The director of human resources reports directly to the city manager.

The Safety and Health Division's organizational objectives consist of assisting city departments in providing a safe work environment, promoting a healthier workforce through job fitness assessments and wellness programs, coordination of the city's substance abuse program, workers' compensation cost containment and compliance with OSHA, HIPPA, EPA, and DOT; and compliance with North Carolina workers' compensation regulations.

No compensation studies were conducted in FY 2011–12.

The city's probationary period is twelve months for new employees. Department directors may extend probationary periods for up to ninety additional days if approved by the human resources director.

Conditions Affecting Service, Performance, and Costs

Municipal Profile

Population (OSBM 2011)	105,498
Land Area (Square Miles)	53.83
Persons per Square Mile	1,960
Median Family Income U.S. Census 2010	$49,720
County Unemployment Rate (2011) N.C. Employment Security Commission	10.8%

Service Profile

Central HR FTE Positions	
Administration	5.0
Generalist/Specialist	6.5
Staff Support/Clerical	1.0
Total Authorized Workforce	1,558.0
Authorized FTEs	1,429.0
Average Length of Service (Months)	131
Number of Position Requisitions	288
Employment Applications Processed	2,839
Length of Probationary Employment Period	12 months
Compensation Studies Completed	0
Positions Studied	0
Employee Turnover	
Voluntary Separations	93
Involuntary Separations	18
TOTAL SEPARATIONS	111
Formal Grievances Filed by Employees	7
Equal Employment Opportunity Commission (EEOC) Complaints Filed	4

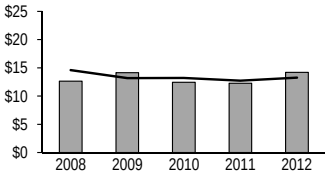
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	74.7%
Operating Costs	23.8%
Capital Costs	1.6%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,117,418
Operating Costs	$355,779
Capital Costs	$23,448
TOTAL	$1,496,645

Key: High Point ■ Benchmarking Average — Fiscal Years 2008 through 2012

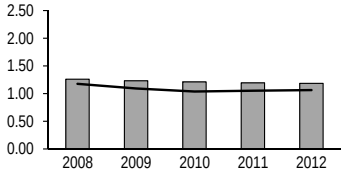
Resource Measures

Human Resources Services Cost per Capita



	2008	2009	2010	2011	2012
High Point	$12.64	$14.14	$12.45	$12.27	$14.19
Average	$14.59	$13.19	$13.21	$12.71	$13.26

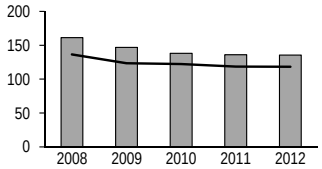
Human Resources FTEs per 10,000 Population



	2008	2009	2010	2011	2012
High Point	1.26	1.23	1.21	1.19	1.18
Average	1.18	1.09	1.04	1.05	1.06

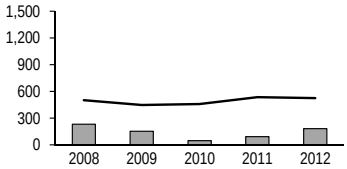
Workload Measures

Total Municipal FTEs per 10,000 Population



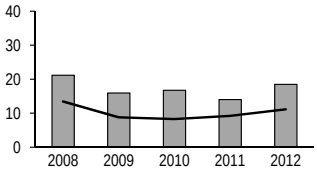
	2008	2009	2010	2011	2012
High Point	161	147	138	136	135
Average	136	123	122	119	118

Applications Processed per 100 Municipal Employees



	2008	2009	2010	2011	2012
High Point	231	153	47	91	182
Average	501	447	459	535	524

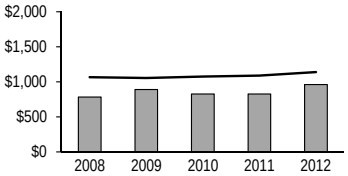
Position Requisitions per 100 Municipal Employees



	2008	2009	2010	2011	2012
High Point	21.2	16.0	16.7	14.0	18.5
Average	13.5	8.8	8.3	9.2	11.2

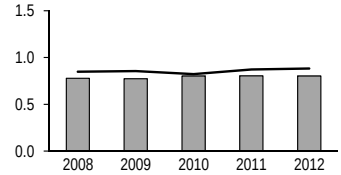
Efficiency Measures

Human Resources Cost per Municipal Employee



	2008	2009	2010	2011	2012
High Point	$784	$891	$827	$828	$961
Average	$1,066	$1,056	$1,075	$1,088	$1,140

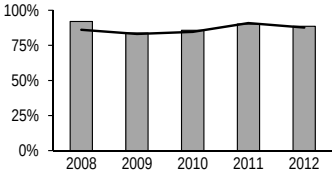
Ratio of Human Resources Staff to 100 Municipal Employees



	2008	2009	2010	2011	2012
High Point	0.78	0.77	0.80	0.80	0.80
Average	0.85	0.85	0.82	0.87	0.88

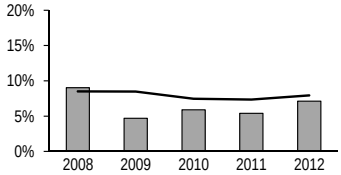
Effectiveness Measures

Probationary Period Completion Rate (New Hires)



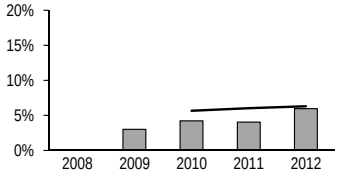
	2008	2009	2010	2011	2012
High Point	92%	84%	86%	90%	89%
Average	86%	83%	85%	91%	88%

Employee Turnover Rate (All Separations)



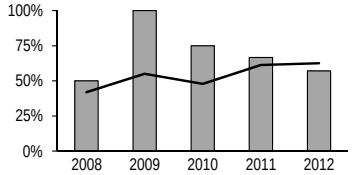
	2008	2009	2010	2011	2012
High Point	9.0%	4.7%	5.9%	5.4%	7.1%
Average	8.5%	8.5%	7.5%	7.3%	7.9%

Employee Turnover Rate (Voluntary Separations)



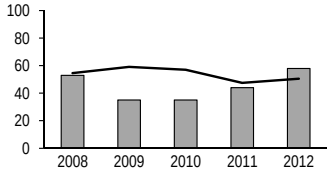
	2008	2009	2010	2011	2012
High Point		3.0%	4.2%	4.1%	6.0%
Average			5.7%	6.0%	6.3%

Percentage of Grievances Resolved at Department Level



	2008	2009	2010	2011	2012
High Point	50%	100%	75%	67%	57%
Average	42%	55%	48%	61%	63%

Average Days from Post Date to Hire Date (First Day of Employment)



	2008	2009	2010	2011	2012
High Point	53	35	35	44	58
Average	55	59	57	47	50

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

The human resources function in Salisbury is a centralized unit that provides internal support and assistance with six staff members: the director (administration, equal employment opportunity and grievance, and special investigations), an analyst II (benefits administration, HRIS, policy interpretation, and wellness), an analyst II (training and development), an analyst I (recruitment, compensation, classification, and position control), an analyst I (multiculturalism program), and a technician (applicant flow, administrative support, budget preparation, and corporate giving).

The human resources department has been the lead agency in the development of customer service provisions identified by the city council as the top priority goal for the city.

The city's probationary period for new employees is six months.

Conditions Affecting Service, Performance, and Costs

Municipal Profile

Population (OSBM 2011)	33,704
Land Area (Square Miles)	22.18
Persons per Square Mile	1,519
Median Family Income U.S. Census 2010	$40,192
County Unemployment Rate (2011) N.C. Employment Security Commission	11.6%

Service Profile

Central HR FTE Positions	
Administration	2.0
Generalist/Specialist	2.0
Staff Support/Clerical	2.0
Total Authorized Workforce	463.0
Authorized FTEs	460.0
Average Length of Service (Months)	126
Number of Position Requisitions	53
Employment Applications Processed	2,015
Length of Probationary Employment Period	6 or 12 months
Compensation Studies Completed	NA
Positions Studied	23
Employee Turnover	
Voluntary Separations	38
Involuntary Separations	15
TOTAL SEPARATIONS	53
Formal Grievances Filed by Employees	4
Equal Employment Opportunity Commission (EEOC) Complaints Filed	1

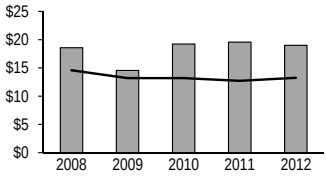
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	67.9%
Operating Costs	29.8%
Capital Costs	2.3%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$434,949
Operating Costs	$190,773
Capital Costs	$14,682
TOTAL	$640,404

Key: Salisbury ■ Benchmarking Average — Fiscal Years 2008 through 2012

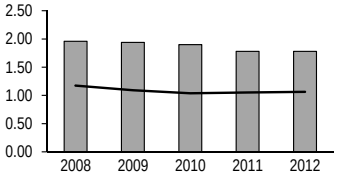
Resource Measures

Human Resources Services Cost per Capita



	2008	2009	2010	2011	2012
Salisbury	$18.57	$14.56	$19.22	$19.58	$19.00
Average	$14.59	$13.19	$13.21	$12.71	$13.26

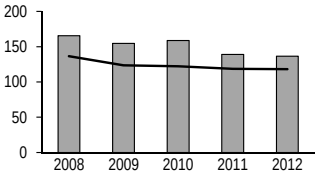
Human Resources FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Salisbury	1.96	1.94	1.90	1.78	1.78
Average	1.18	1.09	1.04	1.05	1.06

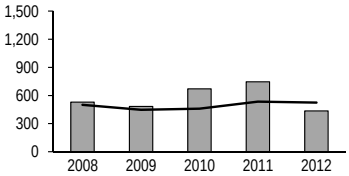
Workload Measures

Total Municipal FTEs per 10,000 Population



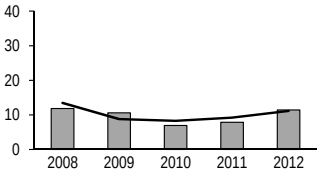
	2008	2009	2010	2011	2012
Salisbury	166	155	159	139	136
Average	136	123	122	119	118

Applications Processed per 100 Municipal Employees



	2008	2009	2010	2011	2012
Salisbury	529	483	671	747	435
Average	501	447	459	535	524

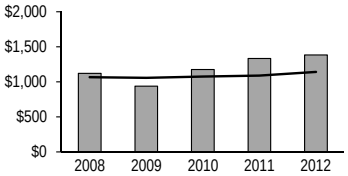
Position Requisitions per 100 Municipal Employees



	2008	2009	2010	2011	2012
Salisbury	11.9	10.6	7.0	7.9	11.4
Average	13.5	8.8	8.3	9.2	11.2

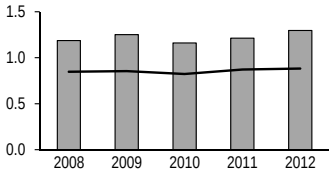
Efficiency Measures

Human Resources Cost per Municipal Employee



	2008	2009	2010	2011	2012
Salisbury	$1,121	$937	$1,176	$1,334	$1,383
Average	$1,066	$1,056	$1,075	$1,088	$1,140

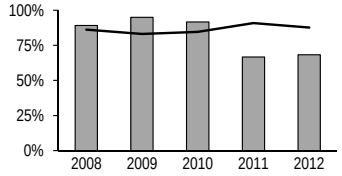
Ratio of Human Resources Staff to 100 Municipal Employees



	2008	2009	2010	2011	2012
Salisbury	1.19	1.25	1.16	1.21	1.30
Average	0.85	0.85	0.82	0.87	0.88

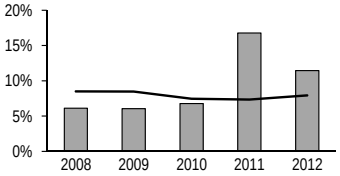
Effectiveness Measures

Probationary Period Completion Rate (New Hires)



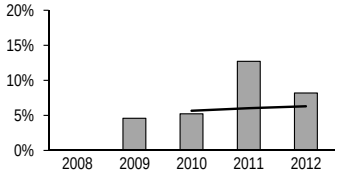
	2008	2009	2010	2011	2012
Salisbury	89%	95%	92%	67%	68%
Average	86%	83%	85%	91%	88%

Employee Turnover Rate (All Separations)



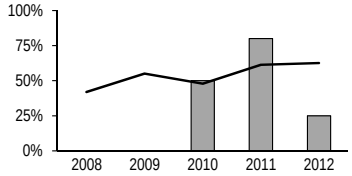
	2008	2009	2010	2011	2012
Salisbury	6.1%	6.0%	6.8%	16.8%	11.4%
Average	8.5%	8.5%	7.5%	7.3%	7.9%

Employee Turnover Rate (Voluntary Separations)



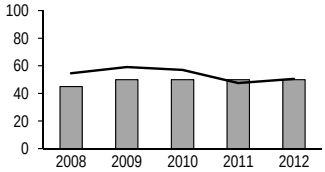
	2008	2009	2010	2011	2012
Salisbury		4.6%	5.2%	12.7%	8.2%
Average			5.7%	6.0%	6.3%

Percentage of Grievances Resolved at Department Level



	2008	2009	2010	2011	2012
Salisbury		0%	50%	80%	25%
Average	42%	55%	48%	61%	63%

Average Days from Post Date to Hire Date (First Day of Employment)



	2008	2009	2010	2011	2012
Salisbury	45	50	50	50	50
Average	55	59	57	47	50

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

Wilmington had eight employees during FY 2011–12 performing human resource functions. The director had administrative oversight responsibilities and was responsible for policy and compliance matters. In early 2007, Human Resources implemented a Business Partner concept to provide human resource services to city departments. Service delivery is centralized, with business partners serving as content experts on issues like benefits, recruiting, policies, compensation, learning and development, and safety management.

Wilmington is undergoing a change in its management model, moving to more employee engagement and a results-oriented approach. This culture change seeks to empower employees and improve accountability and performance for citizens.

Wilimington conducted no compensation studies during the fiscal year.

The city's probationary period for new employees is twelve months for non–public safety employees and eighteen months for public safety employees.

Conditions Affecting Service, Performance, and Costs

Municipal Profile

Population (OSBM 2011)	108,337
Land Area (Square Miles)	51.49
Persons per Square Mile	2,104
Median Family Income U.S. Census 2010	$57,892
County Unemployment Rate (2011) N.C. Employment Security Commission	9.9%

Service Profile

Central HR FTE Positions	
Administration	1.0
Generalist/Specialist	3.0
Staff Support/Clerical	3.5
Total Authorized Workforce	1,042.0
Authorized FTEs	1,017.0
Average Length of Service (Months)	118
Number of Position Requisitions	122
Employment Applications Processed	5,344
Length of Probationary Employment Period	12 or 18 months
Compensation Studies Completed	0
Positions Studied	0
Employee Turnover	
Voluntary Separations	73
Involuntary Separations	18
TOTAL SEPARATIONS	91
Formal Grievances Filed by Employees	1
Equal Employment Opportunity Commission (EEOC) Complaints Filed	3

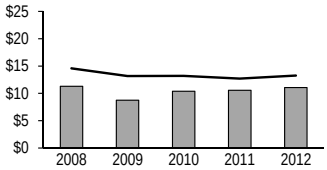
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	47.2%
Operating Costs	52.2%
Capital Costs	0.5%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$566,609
Operating Costs	$626,216
Capital Costs	$6,461
TOTAL	$1,199,286

Key: Wilmington ■ Benchmarking Average — Fiscal Years 2008 through 2012

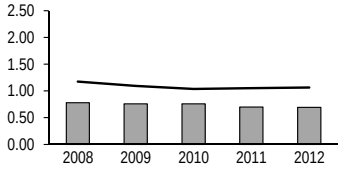
Resource Measures

Human Resources Services Cost per Capita



	2008	2009	2010	2011	2012
Wilmington	$11.31	$8.75	$10.39	$10.56	$11.07
Average	$14.59	$13.19	$13.21	$12.71	$13.26

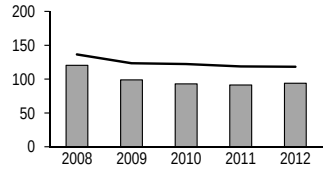
Human Resources FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Wilmington	0.78	0.76	0.76	0.70	0.69
Average	1.18	1.09	1.04	1.05	1.06

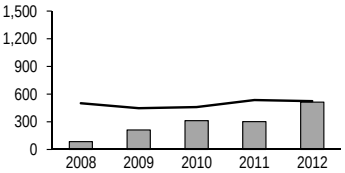
Workload Measures

Total Municipal FTEs per 10,000 Population



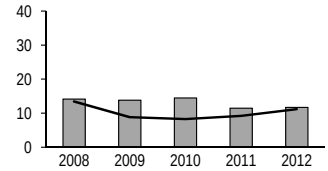
	2008	2009	2010	2011	2012
Wilmington	120	99	93	91	94
Average	136	123	122	119	118

Applications Processed per 100 Municipal Employees



	2008	2009	2010	2011	2012
Wilmington	84	210	311	301	513
Average	501	447	459	535	524

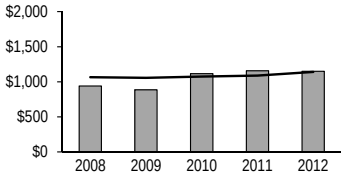
Position Requisitions per 100 Municipal Employees



	2008	2009	2010	2011	2012
Wilmington	14.1	13.8	14.5	11.5	11.7
Average	13.5	8.8	8.3	9.2	11.2

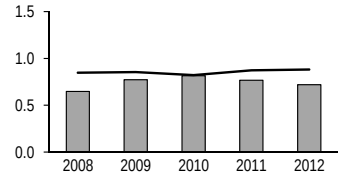
Efficiency Measures

Human Resources Cost per Municipal Employee



	2008	2009	2010	2011	2012
Wilmington	$941	$885	$1,116	$1,157	$1,151
Average	$1,066	$1,056	$1,075	$1,088	$1,140

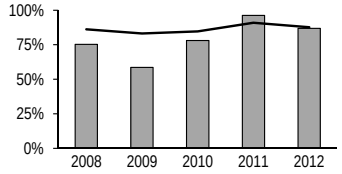
Ratio of Human Resources Staff to 100 Municipal Employees



	2008	2009	2010	2011	2012
Wilmington	0.65	0.77	0.81	0.77	0.72
Average	0.85	0.85	0.82	0.87	0.88

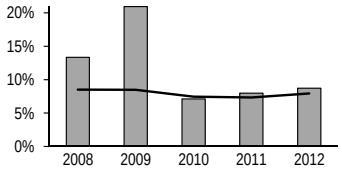
Effectiveness Measures

Probationary Period Completion Rate (New Hires)



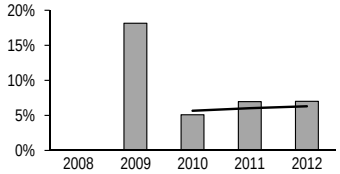
	2008	2009	2010	2011	2012
Wilmington	75%	59%	78%	96%	87%
Average	86%	83%	85%	91%	88%

Employee Turnover Rate (All Separations)



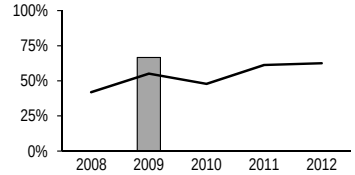
	2008	2009	2010	2011	2012
Wilmington	13.3%	20.9%	7.1%	8.0%	8.7%
Average	8.5%	8.5%	7.5%	7.3%	7.9%

Employee Turnover Rate (Voluntary Separations)



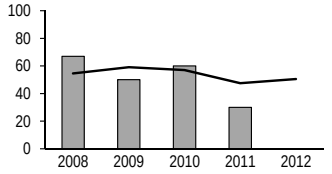
	2008	2009	2010	2011	2012
Wilmington		18.1%	5.1%	7.0%	7.0%
Average			5.7%	6.0%	6.3%

Percentage of Grievances Resolved at Department Level



	2008	2009	2010	2011	2012
Wilmington	0%	67%			
Average	42%	55%	48%	61%	63%

Average Days from Post Date to Hire Date (First Day of Employment)



	2008	2009	2010	2011	2012
Wilmington	67	50	60	30	
Average	55	59	57	47	50

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The City of Wilson has a centralized Human Resources Department comprised of policy development and implementation, classification and pay administration, recruitment and selection, benefits administration, and employee relations. The safety and health program is a function of the Risk Management Division under another department. Occupational health needs are met through a contract with the Wilson Medical Center.

The city conducted no compensation studies during FY 2011–12.

The city's probationary period is twelve months for new city employees.

Conditions Affecting Service, Performance, and Costs
Dental insurance was not available during the year. The city offered dental reimbursement, at no charge, for employees with a limit of $500 per employee if they chose to participate. Employees had the option of signing up for the same $500 reimbursement for dependents for a cost of $8.13 per pay period.

Municipal Profile

Population (OSBM 2011)	49,122
Land Area (Square Miles)	28.78
Persons per Square Mile	1,707
Median Family Income U.S. Census 2010	$43,442
County Unemployment Rate (2011) N.C. Employment Security Commission	13.5%

Service Profile

Central HR FTE Positions	
Administration	0.5
Generalist/Specialist	3.5
Staff Support/Clerical	1.0
Total Authorized Workforce	722.0
Authorized FTEs	717.0
Average Length of Service (Months)	121
Number of Position Requisitions	63
Employment Applications Processed	1,025
Length of Probationary Employment Period	12 months
Compensation Studies Completed	0
Positions Studied	0
Employee Turnover	
Voluntary Separations	46
Involuntary Separations	21
TOTAL SEPARATIONS	67
Formal Grievances Filed by Employees	0
Equal Employment Opportunity Commission (EEOC) Complaints Filed	2

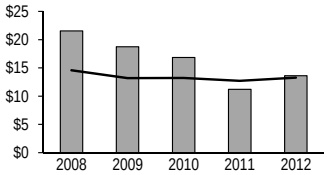
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	76.3%
Operating Costs	21.9%
Capital Costs	1.8%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$510,106
Operating Costs	$146,039
Capital Costs	$12,119
TOTAL	$668,264

Key: Wilson ■ Benchmarking Average — Fiscal Years 2008 through 2012

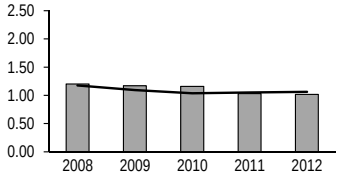
Resource Measures

Human Resources Services Cost per Capita



	2008	2009	2010	2011	2012
Wilson	$21.54	$18.74	$16.85	$11.22	$13.60
Average	$14.59	$13.19	$13.21	$12.71	$13.26

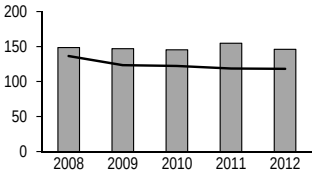
Human Resources FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Wilson	1.20	1.17	1.16	1.03	1.02
Average	1.18	1.09	1.04	1.05	1.06

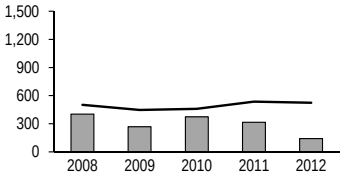
Workload Measures

Total Municipal FTEs per 10,000 Population



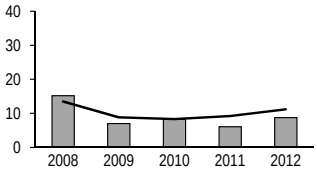
	2008	2009	2010	2011	2012
Wilson	148	147	145	155	146
Average	136	123	122	119	118

Applications Processed per 100 Municipal Employees



	2008	2009	2010	2011	2012
Wilson	403	267	374	315	142
Average	501	447	459	535	524

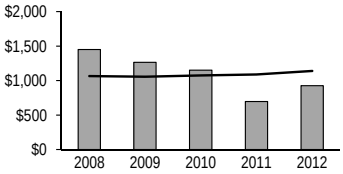
Position Requisitions per 100 Municipal Employees



	2008	2009	2010	2011	2012
Wilson	15.2	7.0	8.2	6.0	8.7
Average	13.5	8.8	8.3	9.2	11.2

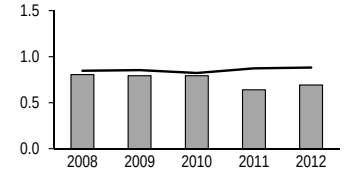
Efficiency Measures

Human Resources Cost per Municipal Employee



	2008	2009	2010	2011	2012
Wilson	$1,451	$1,265	$1,151	$696	$926
Average	$1,066	$1,056	$1,075	$1,088	$1,140

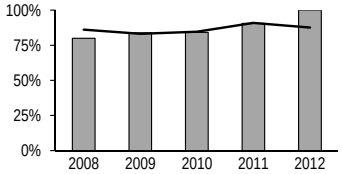
Ratio of Human Resources Staff to 100 Municipal Employees



	2008	2009	2010	2011	2012
Wilson	0.81	0.79	0.79	0.64	0.69
Average	0.85	0.85	0.82	0.87	0.88

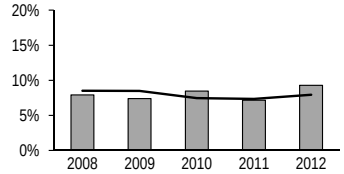
Effectiveness Measures

Probationary Period Completion Rate (New Hires)



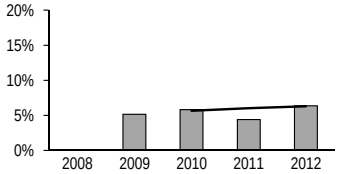
	2008	2009	2010	2011	2012
Wilson	80%	84%	84%	91%	100%
Average	86%	83%	85%	91%	88%

Employee Turnover Rate (All Separations)



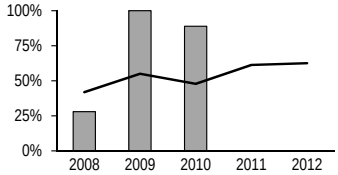
	2008	2009	2010	2011	2012
Wilson	7.9%	7.4%	8.5%	7.2%	9.3%
Average	8.5%	8.5%	7.5%	7.3%	7.9%

Employee Turnover Rate (Voluntary Separations)



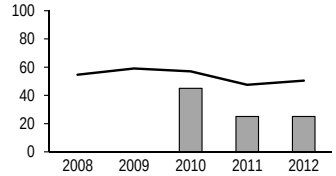
	2008	2009	2010	2011	2012
Wilson		5.2%	5.8%	4.4%	6.4%
Average			5.7%	6.0%	6.3%

Percentage of Grievances Resolved at Department Level



	2008	2009	2010	2011	2012
Wilson	28%	100%	89%		
Average	42%	55%	48%	61%	63%

Average Days from Post Date to Hire Date (First Day of Employment)



	2008	2009	2010	2011	2012
Wilson			45	25	25
Average	55	59	57	47	50

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The human resources function is housed under two separate departments: Human Resources and Finance. The finance department is responsible for benefits administration and employee safety. The human resources department has three separate sections: general human resources management, employee health, and employee training.

The city conducted no compensation studies during FY 2011–12.

Winston-Salem did not use a probationary period. As a result, no data are available for the measure "probationary period completion rate (new hires)."

Conditions Affecting Service, Performance, and Costs
Winston-Salem has added the alternative of submitting applications online rather than on paper. This process has made it substantially easier to apply for jobs, pushing up the number of applications. Roughly 90 percent of applications to the city were done online. The slump in the economy and layoffs have also generated more applications for city jobs.

The city has two health insurance plans: a basic plan and the Basic Plus Plan, which has richer benefits and more expensive premiums for employees.

The City Attorney's Office handles all Equal Employment Opportunity Commission (EEOC) charges.

Municipal Profile

Population (OSBM 2011)	232,143
Land Area (Square Miles)	132.45
Persons per Square Mile	1,753
Median Family Income U.S. Census 2010	$51,491
County Unemployment Rate (2011) N.C. Employment Security Commission	10.0%

Service Profile

Central HR FTE Positions	
Administration	3.0
Generalist/Specialist	10.8
Staff Support/Clerical	5.0
Total Authorized Workforce	2,696.0
Authorized FTEs	2,581.5
Average Length of Service (Months)	136
Number of Position Requisitions	273
Employment Applications Processed	22,718
Length of Probationary Employment Period	No probation
Compensation Studies Completed	0
Positions Studied	0
Employee Turnover	
Voluntary Separations	144
Involuntary Separations	106
TOTAL SEPARATIONS	250
Formal Grievances Filed by Employees	64
Equal Employment Opportunity Commission (EEOC) Complaints Filed	4

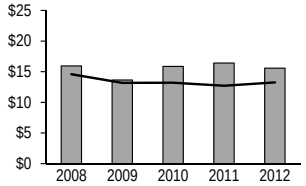
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	34.2%
Operating Costs	61.4%
Capital Costs	4.4%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,238,911
Operating Costs	$2,220,598
Capital Costs	$159,125
TOTAL	$3,618,634

Key: Winston-Salem ■ Benchmarking Average — Fiscal Years 2008 through 2012

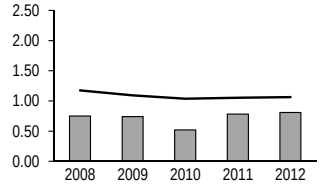
Resource Measures

Human Resources Services Cost per Capita



	2008	2009	2010	2011	2012
Winston-Salem	$15.94	$13.65	$15.87	$16.42	$15.59
Average	$14.59	$13.19	$13.21	$12.71	$13.26

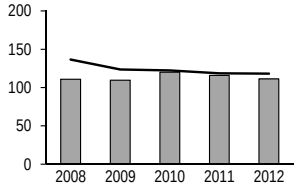
Human Resources FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Winston-Salem	0.75	0.74	0.52	0.78	0.81
Average	1.18	1.09	1.04	1.05	1.06

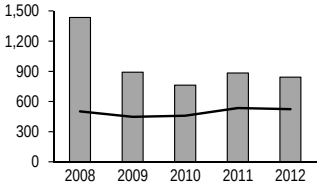
Workload Measures

Total Municipal FTEs per 10,000 Population



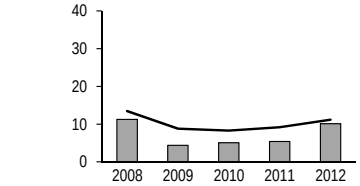
	2008	2009	2010	2011	2012
Winston-Salem	111	110	120	116	111
Average	136	123	122	119	118

Applications Processed per 100 Municipal Employees



	2008	2009	2010	2011	2012
Winston-Salem	1,435	891	762	883	843
Average	501	447	459	535	524

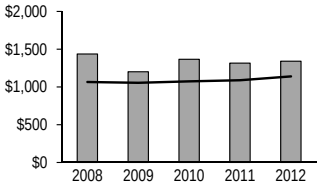
Position Requisitions per 100 Municipal Employees



	2008	2009	2010	2011	2012
Winston-Salem	11.3	4.4	5.1	5.4	10.1
Average	13.5	8.8	8.3	9.2	11.2

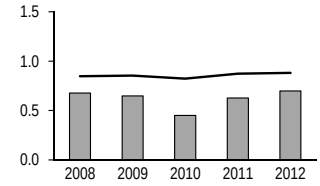
Efficiency Measures

Human Resources Cost per Municipal Employee



	2008	2009	2010	2011	2012
Winston-Salem	$1,436	$1,201	$1,367	$1,316	$1,342
Average	$1,066	$1,056	$1,075	$1,088	$1,140

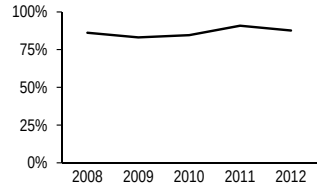
Ratio of Human Resources Staff to 100 Municipal Employees



	2008	2009	2010	2011	2012
Winston-Salem	0.68	0.65	0.45	0.63	0.70
Average	0.85	0.85	0.82	0.87	0.88

Effectiveness Measures

Probationary Period Completion Rate (New Hires)

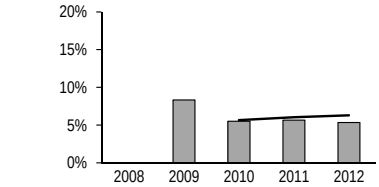


	2008	2009	2010	2011	2012
Winston-Salem					
Average	86%	83%	85%	91%	88%

Employee Turnover Rate (All Separations)

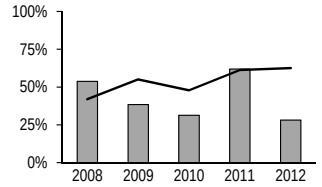
	2008	2009	2010	2011	2012
Winston-Salem	7.1%	10.3%	7.6%	6.9%	9.3%
Average	8.5%	8.5%	7.5%	7.3%	7.9%

Employee Turnover Rate (Voluntary Separations)



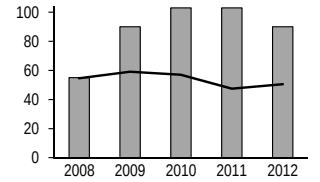
	2008	2009	2010	2011	2012
Winston-Salem		8.3%	5.5%	5.7%	5.3%
Average			5.7%	6.0%	6.3%

Percentage of Grievances Resolved at Department Level



	2008	2009	2010	2011	2012
Winston-Salem	54%	38%	31%	62%	28%
Average	42%	55%	48%	61%	63%

Average Days from Post Date to Hire Date (First Day of Employment)



	2008	2009	2010	2011	2012
Winston-Salem	55	90	103	103	90
Average	55	59	57	47	50

UNC
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GOVERNMENT

Performance and Cost Data

WATER SERVICES

UNC
SCHOOL OF
GOVERNMENT

PERFORMANCE MEASURES FOR WATER SERVICES

SERVICE DEFINITION

This service area includes the collection, treatment, distribution, and billing related to drinking water services. It includes reservoirs where appropriate, pumping stations, pipes to and from treatment plants, storage tanks, and treatment plants. Activities and costs include the operation, maintenance, and installation of infrastructure. Also included are costs and activities associated with the installation, upkeep, and reading of meters; billing and collection costs for drinking water services; and administrative activities such as planning, engineering, and testing. Excluded are reclaimed water, sewer collection, and wastewater treatment services.

NOTES ON PERFORMANCE MEASURES

1. Thousands of Gallons Billed Water per Meter

This workload measure captures the amount of water provided per meter in the system. Water that does not make it to customer taps is not included.

2. Miles of Main Line Pipe per Square Mile of Service Area

The amount of pipe per square mile shows the density of the pipe infrastructure to be maintained relative to the geographic size of the area served.

3. Total Cost per 1,000 Gallons of Billed Water

This efficiency measure shows the total system costs per thousand gallons of water that is actually billed to customers.

4. Million Gallons of Billed Water per All Staff FTEs

Large numbers of staff are required to bring drinking water to customer taps, including treatment staff, line maintenance staff, meter readers, billing staff, and others. Based on all staff who help support the delivery of drinking water to customers, this efficiency measure shows how much billable water is produced per full-time equivalent (FTE) staff member.

5. Billed Water as a Percentage of Finished Water

Not all water produced at treatment plants makes it to customer meters. Some water is lost through leaks or breaks in the system. Other water is unbilled but authorized for uses such as fighting fires or flushing lines. This efficiency measure shows the percentage of water produced that makes it to customer taps.

6. Percentage of Existing Pipeline Renewed

Replacement or rehabilitation of existing pipeline is needed to ensure that the distribution infrastructure can continue to function. This effectiveness measure shows the percentage of existing water lines that are renewed each year.

7. Percentage of Bills Not Collected
Collection of water bills sent to customers is necessary to ensure revenues for system operation. Adjustments to bills reflecting water loss adjustments are not included in the amount of billings.

8. Peak Daily Demand as a Percentage of Treatment Capacity
A water system needs sufficient capacity to not only meet average demands, but also peak demands. This measure looks at peak historical demand relative to the water system treatment capacity in a day.

9. Breaks and Leaks per Mile of Main Line Pipe
Breaks or leaks in water distribution lines mean the loss of treated water.

10. Customer Complaints about Water Quality per 1,000 Meters
Concerns for the adequacy of water are matched with the quality of the water delivered to customers. This effectiveness measure assesses customers' perceptions about their water quality.

Water Services

Summary of Key Dimensions of Service

City or Town	Estimated Residential Population in Service Area	Service Area (in Square Miles)	Average Daily Demand for Water (in MGD)	Operating Treatment Plants	Total Treatment Capacity for Finished Water (in MGD)	Miles of Water Main Lines	Number of Water Meters	Water System FTE Positions
Apex	39,412	17.7	**3.0**	Shared with Cary	NA	176.7	13,587	27.5
Asheville	124,300	183.0	**21.1**	3	43.5	1,666.0	56,419	147.0
Burlington	58,113	41.9	12.2	2	34.0	417.0	22,291	46.0
Cary	164,300	94.1	14.1	1	40.0	966.0	61,942	58.9
Charlotte	950,000	546.0	100.8	3	242.0	4,206.0	267,397	359.0
Concord	87,750	169.3	9.2	2	24.0	681.0	36,579	74.0
Greensboro	263,000	146.9	33.6	2	54.0	1,479.0	102,643	158.7
Hickory	92,000	326.0	10.9	1	32.0	915.7	28,200	60.5
High Point	106,000	64.0	11.3	1	24.0	709.2	43,290	56.5
Salisbury	51,900	46.9	8.7	1	25.0	440.0	19,049	43.5
Wilson	50,947	99.0	9.0	2	22.0	419.0	22,046	42.0
Winston-Salem	315,000	325.0	36.0	3	91.0	2,227.8	122,919	162.0

NOTES

MGD stands for millions of gallons per day.

EXPLANATORY FACTORS

These are factors that the project found affected water services performance and cost in one or more of the municipalities:

Topography
Water quality of source water
Size of service area
Population density
Age of infrastructure
Growth of population and businesses

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The Town of Apex Water Distribution Division is housed within the Department of Public Works. It consists of repairs, preventive maintenance, meter installation and replacement, and testing. The town is co-owner of the Cary/Apex water treatment facility, which draws raw water from Jordan Lake. The Town of Cary provides the operational staff for the treatment plant but Apex shares in the costs of operation and capital.

Apex bases replacement of water lines on customer complaints, frequency of repairs, street rehabilitation needs, age and material of pipes, and flow concerns.

Currently, about 71.1 percent of water meters are read by varying automatic means. Replacement of meters is based on a combination of factors as with water line replacement.

Conditions Affecting Service, Performance, and Costs
Apex began participation in the benchmarking project in July 2011, with FY 2010–11 being the first reporting year.

The costs of water services as captured here do not include debt service but do capture depreciation.

Municipal Profile

Estimated Service Population	39,412
Service Land Area (Square Miles)	17.7
Persons per Square Mile	2,227
Topography	Flat; gently rolling
Climate	Temperate; little ice and snow
Median Family Income U.S. Census 2010	$97,201

Service Profile

FTE Staff Positions	
Treatment Plant	0.0
Line Crews	12.5
Meter Readers	2.5
Billing/Collection	1.0
Other	2.0
Total	18.0
Number of Treatment Plants	NA
Total Treatment Capacity	NA
Average Daily Demand	3.0 MG
Miles of Main Line Pipe	177
Average Age of Main Line Pipe	35 years
Number of Breaks/Leaks	16
Number of Water Meters	13,587
Percent of Meters Read Automatically	71.1%
Total Revenues Collected	$6,163,339

Full Cost Profile

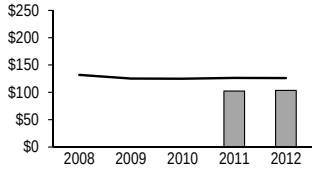
Cost Breakdown by Percentage	
Personal Services	28.0%
Operating Costs	41.3%
Capital Costs	30.7%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,142,571
Operating Costs	$1,684,505
Capital Costs	$1,250,978
TOTAL	$4,078,054

Apex — Water Services

Key: Apex ■ Benchmarking Average — Fiscal Years 2008 through 2012

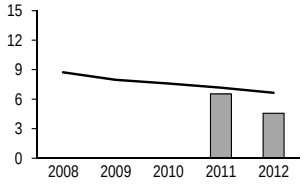
Resource Measures

Water Services Cost per Capita



	2008	2009	2010	2011	2012
Apex				$102	$103
Average	$132	$125	$125	$126	$126

Water Services FTEs per 10,000 Population



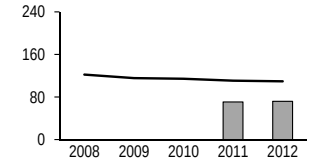
	2008	2009	2010	2011	2012
Apex				6.5	4.6
Average	8.7	8.0	7.6	7.2	6.7

Water Services Cost per Meter

	2008	2009	2010	2011	2012
Apex				$294	$300
Average	$325	$331	$330	$333	$330

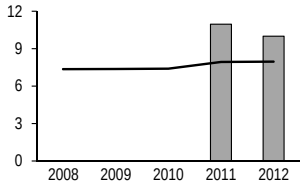
Workload Measures

Thousands of Gallons of Billed Water per Meter



	2008	2009	2010	2011	2012
Apex				70.7	71.9
Average	122.0	115.6	114.2	110.6	109.5

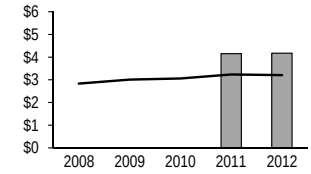
Miles of Main Line Pipe per Square Mile of Service Area



	2008	2009	2010	2011	2012
Apex				11.0	10.0
Average	7.4	7.4	7.4	7.9	8.0

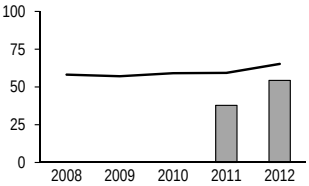
Efficiency Measures

Total Cost per Thousand Gallons of Billed Water



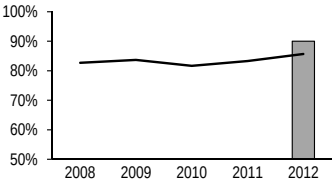
	2008	2009	2010	2011	2012
Apex				$4.15	$4.17
Average	$2.83	$3.01	$3.06	$3.24	$3.20

Million Gallons of Billed Water per Water Services FTEs



	2008	2009	2010	2011	2012
Apex				37.8	54.3
Average	58.2	57.1	59.1	59.3	65.3

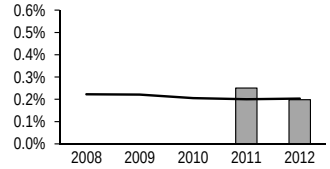
Billed Water as a Percentage of Finished Water



	2008	2009	2010	2011	2012
Apex					90%
Average	83%	84%	82%	83%	86%

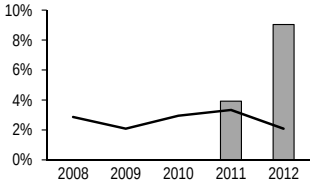
Effectiveness Measures

Percentage of Existing Pipeline Replaced or Rehabbed



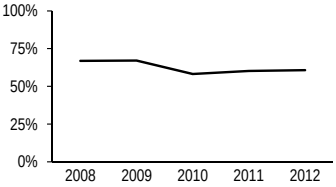
	2008	2009	2010	2011	2012
Apex				0.25%	0.20%
Average	0.22%	0.22%	0.21%	0.20%	0.20%

Percentage of Water Bills Not Collected



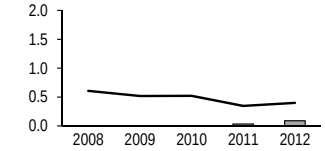
	2008	2009	2010	2011	2012
Apex				3.92%	9.04%
Average	2.86%	2.08%	2.94%	3.33%	2.08%

Peak Daily Demand as a Percentage of Treatment Capacity



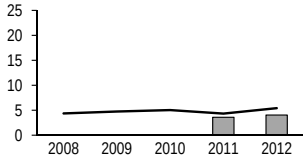
	2008	2009	2010	2011	2012
Apex					
Average	67%	67%	58%	60%	61%

Breaks and Leaks per Mile of Main Line Pipe



	2008	2009	2010	2011	2012
Apex				0.03	0.09
Average	0.61	0.52	0.52	0.35	0.40

Customer Complaints about Water Quality per 1,000 Meters



	2008	2009	2010	2011	2012
Apex				3.59	4.05
Average	4.38	4.76	5.03	4.34	5.42

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

The City of Asheville Water Resources Department is a publicly owned water utility that produces and supplies water for residential, business, industrial, and wholesale bulk customers. The utility serves the city of Asheville, approximately 27 percent of Buncombe County, and approximately 2 percent of Henderson County. Approximately 124,000 people are served over a 183-square-mile area.

Asheville has three water treatment plants drawing from a city reservoir, the Mills River, and may also take water from the French Broad River as needed. The estimated safe yield for water is 35 million gallons per day. The utilility has three treatment plants.

Asheville has an asset management program in place to assist with identifying replacement and refurbishment needs. The goal is for water main lines to be replaced every eighty years.

Currently about 74.3 percent of water meters are read by varying automatic systems, including radio-read and touch-read meters. The goal is to replace all meters in the next few years years with radio-read installation at 100 percent.

Conditions Affecting Service, Performance, and Costs

The costs of water services as captured here do not include debt service but do capture depreciation.

The topography and climate in Asheville creates a number of problems for water systems operation. The mountainous terrain makes it difficult to install water lines. The utility has thirty-eight pressure zones, ranging from 20 to 643 psi, with an average from 180 to 200 psi. Colder temperatures can also make maintenance harder to complete and lead to breaks due to freezing. Due to the Sullivan Acts, Asheville is not allowed to refuse water line installation in any areas of Buncombe County or charge differential rates.

The number of breaks and leaks in the system has been declining. The Water Resources Department has worked actively to better identify situations with repeated leaks in time and, when identified, to replace pipe for a more permanent solution.

In February 2011, there was a major break on a large transmission line which affected water quality for a period. Additionally, there was a water quality problem near downtown. Complaints about water quality were much higher due to these two problems.

Municipal Profile

Estimated Service Population	124,300
Service Land Area (Square Miles)	183.0
Persons per Square Mile	679
Topography	Flat; gently rolling
Climate	Moderate; ice and snow
Median Family Income U.S. Census 2010	$53,350

Service Profile

FTE Staff Positions	
Treatment Plant	41.0
Line Crews	49.0
Meter Readers	10.0
Billing/Collection	23.0
Other	24.0
Total	147.0
Number of Treatment Plants	3
Total Treatment Capacity	43.5 MG
Average Daily Demand	21.1 MG
Miles of Main Line Pipe	1,666
Average Age of Main Line Pipe	52 years
Number of Breaks/Leaks	748
Number of Water Meters	56,419
Percent of Meters Read Automatically	74.3%
Total Revenues Collected	$34,636,301

Full Cost Profile

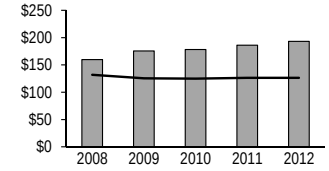
Cost Breakdown by Percentage	
Personal Services	35.2%
Operating Costs	35.5%
Capital Costs	29.3%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$8,455,294
Operating Costs	$8,524,537
Capital Costs	$7,043,009
TOTAL	$24,022,840

Asheville Water Services

Key: Asheville ■ Benchmarking Average — Fiscal Years 2008 through 2012

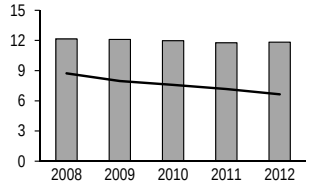
Resource Measures

Water Services Cost per Capita



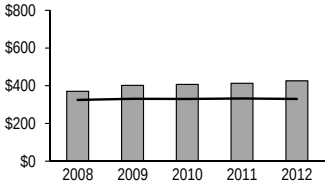
	2008	2009	2010	2011	2012
Asheville	$160	$176	$178	$186	$193
Average	$132	$125	$125	$126	$126

Water Services FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Asheville	12.2	12.1	12.0	11.8	11.8
Average	8.7	8.0	7.6	7.2	6.7

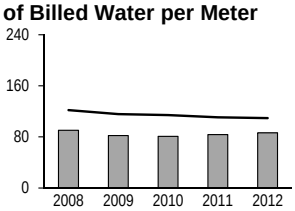
Water Services Cost per Meter



	2008	2009	2010	2011	2012
Asheville	$370	$402	$407	$413	$426
Average	$325	$331	$330	$333	$330

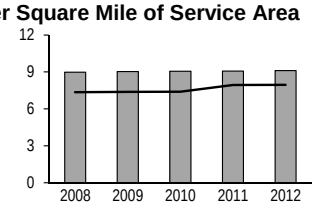
Workload Measures

Thousands of Gallons of Billed Water per Meter



	2008	2009	2010	2011	2012
Asheville	90.4	82.0	80.9	83.7	86.5
Average	122.0	115.6	114.2	110.6	109.5

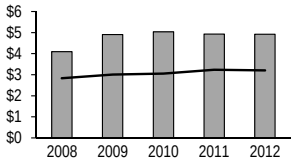
Miles of Main Line Pipe per Square Mile of Service Area



	2008	2009	2010	2011	2012
Asheville	9.0	9.0	9.1	9.1	9.1
Average	7.4	7.4	7.4	7.9	8.0

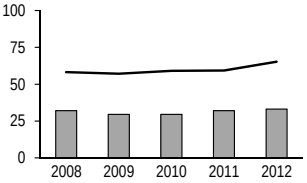
Efficiency Measures

Total Cost per Thousand Gallons of Billed Water



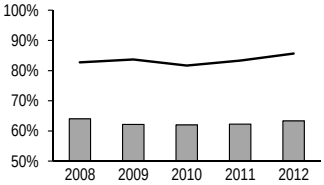
	2008	2009	2010	2011	2012
Asheville	$4.10	$4.91	$5.03	$4.93	$4.92
Average	$2.83	$3.01	$3.06	$3.24	$3.20

Million Gallons of Billed Water per Water Services FTEs



	2008	2009	2010	2011	2012
Asheville	32.1	29.6	29.6	32.1	33.2
Average	58.2	57.1	59.1	59.3	65.3

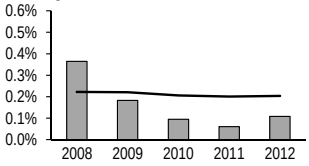
Billed Water as a Percentage of Finished Water



	2008	2009	2010	2011	2012
Asheville	64%	62%	62%	62%	63%
Average	83%	84%	82%	83%	86%

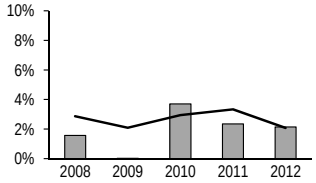
Effectiveness Measures

Percentage of Existing Pipeline Replaced or Rehabbed



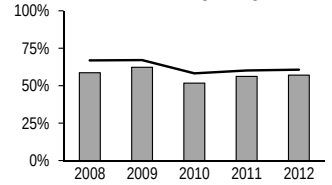
	2008	2009	2010	2011	2012
Asheville	0.36%	0.18%	0.09%	0.06%	0.11%
Average	0.22%	0.22%	0.21%	0.20%	0.20%

Percentage of Water Bills Not Collected



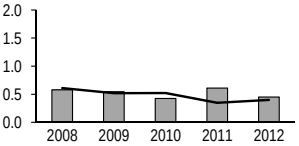
	2008	2009	2010	2011	2012
Asheville	1.56%	0.02%	3.70%	2.34%	2.14%
Average	2.86%	2.08%	2.94%	3.33%	2.08%

Peak Daily Demand as a Percentage of Treatment Capacity



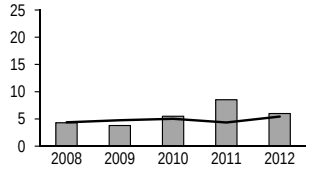
	2008	2009	2010	2011	2012
Asheville	59%	62%	52%	56%	57%
Average	67%	67%	58%	60%	61%

Breaks and Leaks per Mile of Main Line Pipe



	2008	2009	2010	2011	2012
Asheville	0.58	0.54	0.42	0.61	0.45
Average	0.61	0.52	0.52	0.35	0.40

Customer Complaints about Water Quality per 1,000 Meters



	2008	2009	2010	2011	2012
Asheville	4.29	3.79	5.49	8.53	5.99
Average	4.38	4.76	5.03	4.34	5.42

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Water services are housed in the Water Resources Department within the City of Burlington. Meter reading, revenue collection, IT, and engineering are housed in other departments receiving fund transfers from the Water and Sewer Enterprise Fund. Approximately 58,000 people are served by the system over a 42-square-mile area.

The City of Burlington gets its water from two city-owned reservoirs in the upper Cape Fear River basin. The city also owns a third water storage reservoir. The estimated safe yield of the system is 48 million gallons per day.

The city has two treatment plants with a total treatment capacity of 34 million gallons per day. The plants use conventional treatment with alum coagulation, dual media filtration, and chlorine disinfection.

The city sells water to several other systems, including Greensboro, Gibsonville, Elon, the Village of Alamance, and Haw River. Three of Burlington's top five water users are now other cities. The city has emergency connections with Greensboro and Graham.

The city reads meters on a monthly basis, with currently about 10 percent meters being read by automatic means. Meters are replaced approximately every twelve to fifteen years.

Conditions Affecting Service, Performance, and Costs
The costs of water services as captured here do not include debt service but do capture depreciation.

Burlington's water system planning in the 1970s was developed to support a growing industrial base, particularly textiles. As the textile industry declined, Burlington has been left with a large supply infrastructure. Burlington has extended water lines to Greensboro to offset the industrial base decline and to assist Greensboro. Greensboro is now Burlington's largest water customer.

Municipal Profile

Estimated Service Population	58,113
Service Land Area (Square Miles)	41.9
Persons per Square Mile	1,387
Topography	Flat; gently rolling
Climate	Temperate; little ice and snow
Median Family Income U.S. Census 2010	$46,461

Service Profile

FTE Staff Positions	
Treatment Plant	17.0
Line Crews	10.0
Meter Readers	4.0
Billing/Collection	7.0
Other	8.0
Total	46.0
Number of Treatment Plants	2
Total Treatment Capacity	34.0 MG
Average Daily Demand	12.2 MG
Miles of Main Line Pipe	417
Average Age of Main Line Pipe	47 years
Number of Breaks/Leaks	52
Number of Water Meters	22,291
Percent of Meters Read Automatically	10.0%
Total Revenues Collected	$10,036,065

Full Cost Profile

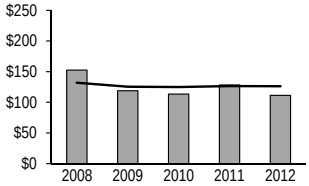
Cost Breakdown by Percentage	
Personal Services	21.4%
Operating Costs	41.3%
Capital Costs	37.4%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,380,437
Operating Costs	$2,666,768
Capital Costs	$2,414,542
TOTAL	$6,461,747

Burlington Water Services

Key: Burlington ■ Benchmarking Average — Fiscal Years 2008 through 2012

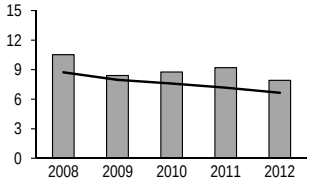
Resource Measures

Water Services Cost per Capita



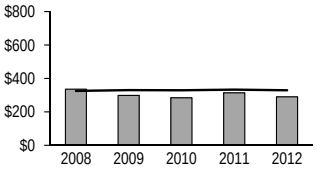
	2008	2009	2010	2011	2012
Burlington	$152	$119	$114	$128	$111
Average	$132	$125	$125	$126	$126

Water Services FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Burlington	10.5	8.4	8.8	9.2	7.9
Average	8.7	8.0	7.6	7.2	6.7

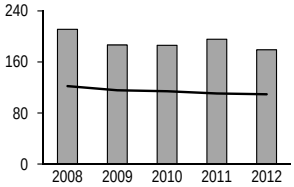
Water Services Cost per Meter



	2008	2009	2010	2011	2012
Burlington	$336	$298	$284	$314	$290
Average	$325	$331	$330	$333	$330

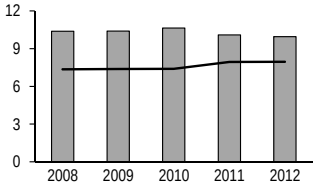
Workload Measures

Thousands of Gallons of Billed Water per Meter



	2008	2009	2010	2011	2012
Burlington	211.1	186.7	186.0	195.7	179.0
Average	122.0	115.6	114.2	110.6	109.5

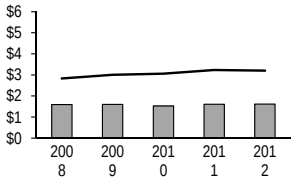
Miles of Main Line Pipe per Square Mile of Service Area



	2008	2009	2010	2011	2012
Burlington	10.4	10.4	10.6	10.1	10.0
Average	7.4	7.4	7.4	7.9	8.0

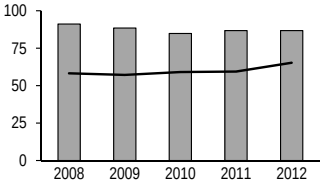
Efficiency Measures

Total Cost per Thousand Gallons of Billed Water



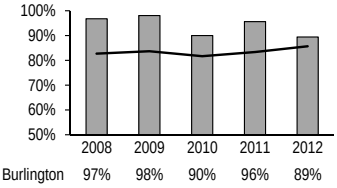
	2008	2009	2010	2011	2012
Burlington	$1.59	$1.60	$1.53	$1.60	$1.62
Average	$2.83	$3.01	$3.06	$3.24	$3.20

Million Gallons of Billed Water per Water Services FTEs



	2008	2009	2010	2011	2012
Burlington	91.1	88.4	84.8	86.7	86.7
Average	58.2	57.1	59.1	59.3	65.3

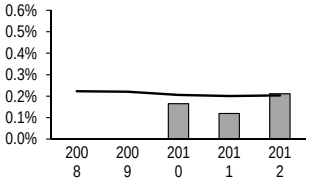
Billed Water as a Percentage of Finished Water



	2008	2009	2010	2011	2012
Burlington	97%	98%	90%	96%	89%
Average	83%	84%	82%	83%	86%

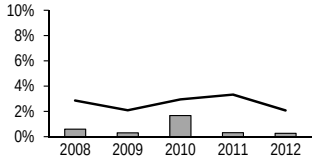
Effectiveness Measures

Percentage of Existing Pipeline Replaced or Rehabbed



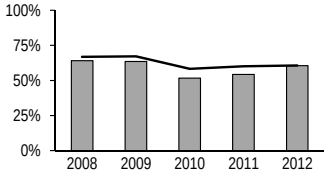
	2008	2009	2010	2011	2012
Burlington	0.00%	0.00%	0.16%	0.12%	0.21%
Average	0.22%	0.22%	0.21%	0.20%	0.20%

Percentage of Water Bills Not Collected



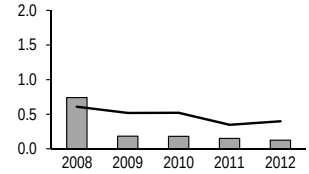
	2008	2009	2010	2011	2012
Burlington	0.59%	0.31%	1.67%	0.31%	0.27%
Average	2.86%	2.08%	2.94%	3.33%	2.08%

Peak Daily Demand as a Percentage of Treatment Capacity



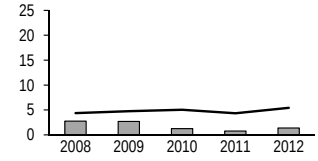
	2008	2009	2010	2011	2012
Burlington	64%	64%	52%	54%	61%
Average	67%	67%	58%	60%	61%

Breaks and Leaks per Mile of Main Line Pipe



	2008	2009	2010	2011	2012
Burlington	0.74	0.18	0.18	0.15	0.12
Average	0.61	0.52	0.52	0.35	0.40

Customer Complaints about Water Quality per 1,000 Meters



	2008	2009	2010	2011	2012
Burlington	2.75	2.69	1.24	0.78	1.39
Average	4.38	4.76	5.03	4.34	5.42

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Water services in Cary are provided by the Utilities Division of the Department of Public Works and Utilities. The Utilities Division includes pre-treatment, water treatment, wastewater treatment, and various distribution system operations. Only those operations connected to supplying water are captured in the data. Approximately 164,000 people are served by the system, covering an area of ninety-four square miles.

Cary gets its water from Jordan Lake in the Haw River subbasin. The estimated fifty-year safe yield is 30.5 million gallons per day.

Cary's single water treatment plant is jointly owned with the Town of Apex. Apex pays 23 percent of the operating and capital costs and Cary staffs the plant. Cary also provides water to residents of the Town of Morrisville (as customers of the Cary water system but with a different operating and capital fee schedule). Cary further provides water to the Raleigh-Durham Airport Authority.

The city reads meters on a monthly basis, with approximately 97 percent of meters being read automatically with a Sensus Flexnet system. Meters are replaced approximately every seventeen years.

Conditions Affecting Service, Performance, and Costs
Cary began participating in water services benchmarking with the FY 2010–2011 report.

The costs of water services as captured here do not include debt service but do capture depreciation.

Cary's combined water and sewer utility operations make it difficult to separate out some revenues between the two service areas. The Town of Morrisville water and sewer system was merged with the Town of Cary in 2006. As part of the merger agreement, merger-related costs were recovered through rate differentials that were in effect through the end of Fiscal Year 2012. In Fiscal Year 2013, Morrisville residents will begin to pay the same rates as Cary customers. Finally, the data show a small decrease in water staff that primarily reflects a shift in the counting of meter readers and accounting staff from water to sewer which is a more accurate assessment from the earlier year.

Municipal Profile

Estimated Service Population	164,300
Service Land Area (Square Miles)	94.0
Persons per Square Mile	1,748
Topography	Flat; gently rolling
Climate	Temperate; little ice and snow
Median Family Income U.S. Census 2010	$108,956

Service Profile

FTE Staff Positions	
Treatment Plant	23.0
Line Crews	23.8
Meter Readers	4.5
Billing/Collection	6.6
Other	1.0
Total	58.9
Number of Treatment Plants	1
Total Treatment Capacity	40.0 MG
Average Daily Demand	14.1 MG
Miles of Main Line Pipe	966
Average Age of Main Line Pipe	NA
Number of Breaks/Leaks	96
Number of Water Meters	61,942
Percent of Meters Read Automatically	97.0%
Total Revenues Collected	$26,936,584

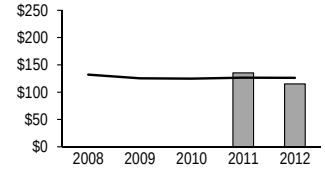
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	29.1%
Operating Costs	40.6%
Capital Costs	30.2%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$5,515,512
Operating Costs	$7,684,575
Capital Costs	$5,723,421
TOTAL	$18,923,508

Key: Cary ■ Benchmarking Average — Fiscal Years 2008 through 2012

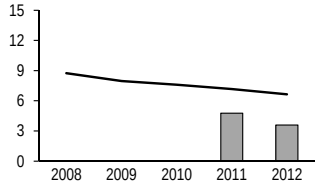
Resource Measures

Water Services Cost per Capita



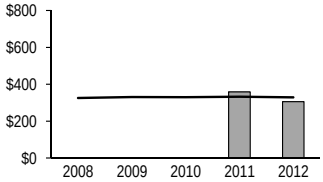
	2008	2009	2010	2011	2012
Cary				$135	$115
Average	$132	$125	$125	$126	$126

Water Services FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Cary				4.8	3.6
Average	8.7	8.0	7.6	7.2	6.7

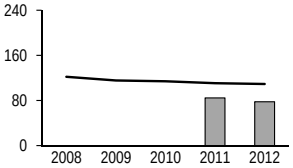
Water Services Cost per Meter



	2008	2009	2010	2011	2012
Cary				$358	$306
Average	$325	$331	$330	$333	$330

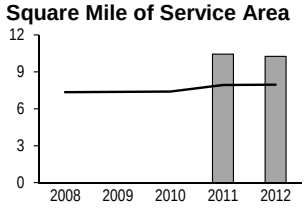
Workload Measures

Thousands of Gallons of Billed Water per Meter



	2008	2009	2010	2011	2012
Cary				84.6	77.8
Average	122.0	115.6	114.2	110.6	109.5

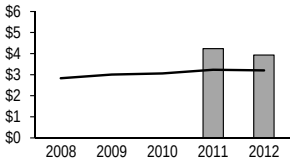
Miles of Main Line Pipe per Square Mile of Service Area



	2008	2009	2010	2011	2012
Cary				10.5	10.3
Average	7.4	7.4	7.4	7.9	8.0

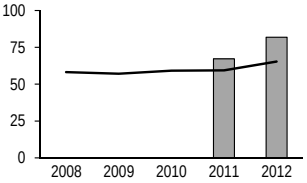
Efficiency Measures

Total Cost per Thousand Gallons of Billed Water



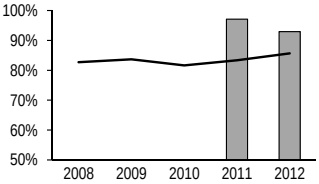
	2008	2009	2010	2011	2012
Cary				$4.23	$3.93
Average	$2.83	$3.01	$3.06	$3.24	$3.20

Million Gallons of Billed Water per Water Services FTEs



	2008	2009	2010	2011	2012
Cary				67.1	81.8
Average	58.2	57.1	59.1	59.3	65.3

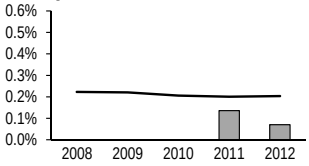
Billed Water as a Percentage of Finished Water



	2008	2009	2010	2011	2012
Cary				97%	93%
Average	83%	84%	82%	83%	86%

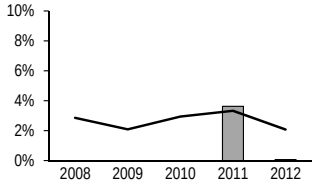
Effectiveness Measures

Percentage of Existing Pipeline Replaced or Rehabbed



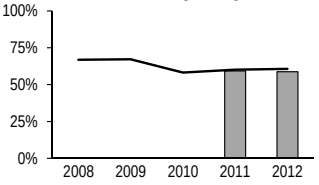
	2008	2009	2010	2011	2012
Cary				0.14%	0.07%
Average	0.22%	0.22%	0.21%	0.20%	0.20%

Percentage of Water Bills Not Collected



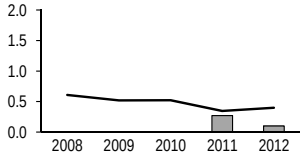
	2008	2009	2010	2011	2012
Cary				3.63%	0.06%
Average	2.86%	2.08%	2.94%	3.33%	2.08%

Peak Daily Demand as a Percentage of Treatment Capacity



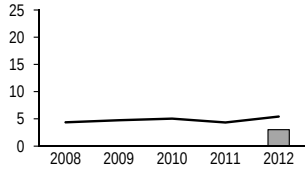
	2008	2009	2010	2011	2012
Cary				59%	59%
Average	67%	67%	58%	60%	61%

Breaks and Leaks per Mile of Main Line Pipe



	2008	2009	2010	2011	2012
Cary				0.27	0.10
Average	0.61	0.52	0.52	0.35	0.40

Customer Complaints about Water Quality per 1,000 Meters



	2008	2009	2010	2011	2012
Cary					3.00
Average	4.38	4.76	5.03	4.34	5.42

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Charlotte-Mecklenburg Utilities (CMU) is a combined water and sewer operation. The utility is a consolidated business unit of Mecklenburg County and the City of Charlotte. The utility is an official City of Charlotte Key Business Unit, Charlotte's term for city department.

The area served is generally considered to be Mecklenburg County but also includes a small number of metered drinking water interconnections with the City of Concord and the counties of Union in North Carolina and Lancaster and York in South Carolina. The service area covers approximately 546 square miles and serves over 950,000 people.

Source water from the system is from two impounded lakes on the Catawba River, Lake Norman and Mountain Island Lake, which are operated by Duke Energy. The combined estimated safe yield is between 376 and 503 million gallons per day. The system operates three treatment plants with a combined treatment capacity of 242 million gallons per day. The treatment plants are conventional facilities using pre-treatment PAC, coagulation, flocculation, sedimentation, dual-media filtration, chlorination, fluoridation, and pH adjustment.

The estimated average age of main line pipes in the system is twenty-two years. CMU's replacement policy for pipe is based on flow and quality standards.

All meters are now read automatically. CMU uses a system that allows vans traveling the city to read meters as they drive by. The replacement standard is every fifteen years for water meters.

Conditions Affecting Service, Performance, and Costs
The costs of water services as captured here do not include debt service but do capture depreciation.

The reduction in reported leaks and breaks is in large part due to improvements in tracking and data reporting. CMU staff worked on improving how the work order system is used to determine the number of leaks or breaks in the water system.

Municipal Profile

Estimated Service Population	950,000
Service Land Area (Square Miles)	546.0
Persons per Square Mile	1,740
Topography	Flat; gently rolling
Climate	Temperate; little ice and snow
Median Family Income U.S. Census 2010	$61,405

Service Profile

FTE Staff Positions	
Treatment Plant	79.0
Line Crews	138.0
Meter Readers	4.0
Billing/Collection	5.0
Other	133.0
Total	359.0
Number of Treatment Plants	3
Total Treatment Capacity	242.0 MG
Average Daily Demand	100.8 MG
Miles of Main Line Pipe	4,206
Average Age of Main Line Pipe	22 years
Number of Breaks/Leaks	4,579
Number of Water Meters	267,397
Percent of Meters Read Automatically	100.0%
Total Revenues Collected	$117,719,287

Full Cost Profile

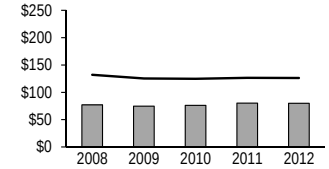
Cost Breakdown by Percentage	
Personal Services	20.6%
Operating Costs	33.8%
Capital Costs	45.6%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$15,654,417
Operating Costs	$25,740,906
Capital Costs	$34,711,737
TOTAL	$76,107,060

Charlotte Water Services

Key: Charlotte ■ Benchmarking Average — Fiscal Years 2008 through 2012

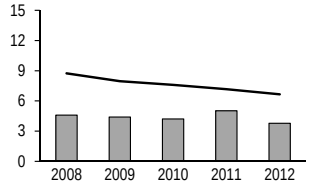
Resource Measures

Water Services Cost per Capita



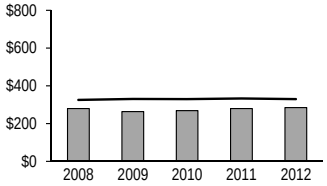
	2008	2009	2010	2011	2012
Charlotte	$77	$75	$76	$80	$80
Average	$132	$125	$125	$126	$126

Water Services FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Charlotte	4.6	4.4	4.2	5.0	3.8
Average	8.7	8.0	7.6	7.2	6.7

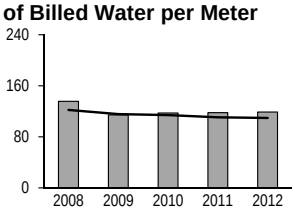
Water Services Cost per Meter



	2008	2009	2010	2011	2012
Charlotte	$280	$263	$269	$280	$285
Average	$325	$331	$330	$333	$330

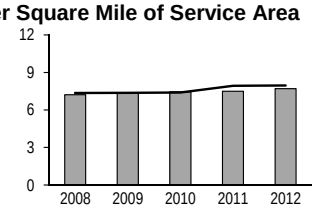
Workload Measures

Thousands of Gallons of Billed Water per Meter



	2008	2009	2010	2011	2012
Charlotte	135.7	114.3	117.3	117.9	118.9
Average	122.0	115.6	114.2	110.6	109.5

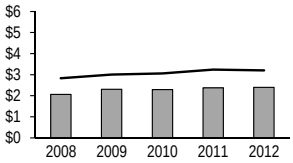
Miles of Main Line Pipe per Square Mile of Service Area



	2008	2009	2010	2011	2012
Charlotte	7.2	7.4	7.4	7.5	7.7
Average	7.4	7.4	7.4	7.9	8.0

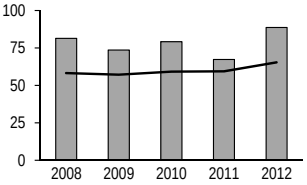
Efficiency Measures

Total Cost per Thousand Gallons of Billed Water



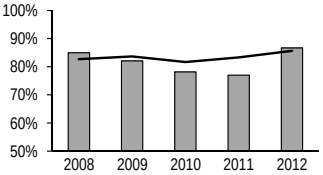
	2008	2009	2010	2011	2012
Charlotte	$2.06	$2.30	$2.29	$2.37	$2.39
Average	$2.83	$3.01	$3.06	$3.24	$3.20

Million Gallons of Billed Water per Water Services FTEs



	2008	2009	2010	2011	2012
Charlotte	81.4	73.5	79.1	67.3	88.6
Average	58.2	57.1	59.1	59.3	65.3

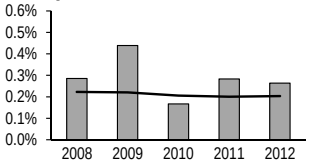
Billed Water as a Percentage of Finished Water



	2008	2009	2010	2011	2012
Charlotte	85%	82%	78%	77%	87%
Average	83%	84%	82%	83%	86%

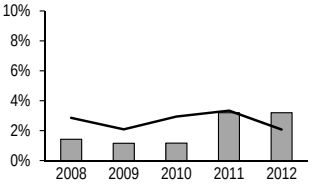
Effectiveness Measures

Percentage of Existing Pipeline Replaced or Rehabbed



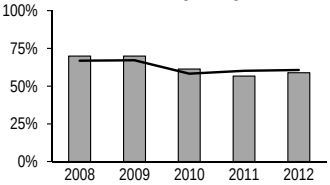
	2008	2009	2010	2011	2012
Charlotte	0.29%	0.44%	0.17%	0.28%	0.26%
Average	0.22%	0.22%	0.21%	0.20%	0.20%

Percentage of Water Bills Not Collected



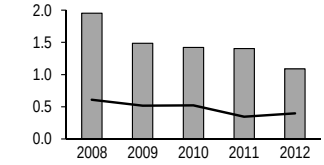
	2008	2009	2010	2011	2012
Charlotte	1.42%	1.16%	1.17%	3.20%	3.20%
Average	2.86%	2.08%	2.94%	3.33%	2.08%

Peak Daily Demand as a Percentage of Treatment Capacity



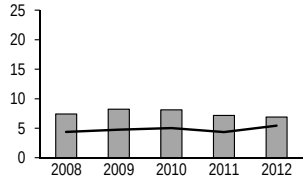
	2008	2009	2010	2011	2012
Charlotte	70%	70%	61%	57%	59%
Average	67%	67%	58%	60%	61%

Breaks and Leaks per Mile of Main Line Pipe



	2008	2009	2010	2011	2012
Charlotte	1.95	1.49	1.42	1.40	1.09
Average	0.61	0.52	0.52	0.35	0.40

Customer Complaints about Water Quality per 1,000 Meters



	2008	2009	2010	2011	2012
Charlotte	7.40	8.22	8.12	7.17	6.89
Average	4.38	4.76	5.03	4.34	5.42

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The City of Concord Water Resources Department is a water-only utility. The department has three divisions, one for operations and maintenance, and one for each of two treatment plants. Meter reading, billing, and collections are handled by the city Finance Department.

Concord's system serves approximately 88,000 people and covers the City of Concord, the Town of Midland, and approximately one-fourth of Cabarrus County. Water sources for the system are Lake Fisher, owned by the city, and Lakes Howell and Concord, reservoirs owned by the Water and Sewer Authority of Cabarrus County. The combined estimated safe yield is 24 million gallons per day.

The city operates two treatment plants with a combined treatment capacity of 24 million gallons per day. Concord has emergency connections with the City of Charlotte and the City of Kannapolis and sells small amounts of water to the Town of Harrisburg and the Town of Midland.

The estimated average age of main line pipes in the system is thirty years. Water meters are read monthly, and nearly all meters are read using automatic means. The replacement standard for water meters is fifteen years.

Conditions Affecting Service, Performance, and Costs
The costs of water services as captured here do not include debt service but do capture depreciation.

The difficult weather, including drought conditions in FY 2009–10, produced more breaks in main lines. An improvement in the weather helped to lower the "breaks and leaks per mile of main line pipe" measure.

Municipal Profile

Estimated Service Population	87,750
Service Land Area (Square Miles)	169.0
Persons per Square Mile	519
Topography	Flat; gently rolling
Climate	Temperate; little ice and snow
Median Family Income U.S. Census 2010	$63,643

Service Profile

FTE Staff Positions	
Treatment Plant	28.0
Line Crews	20.0
Meter Readers	4.0
Billing/Collection	10.0
Other	12.0
Total	74.0
Number of Treatment Plants	2
Total Treatment Capacity	24.0 MG
Average Daily Demand	9.2 MG
Miles of Main Line Pipe	681
Average Age of Main Line Pipe	30 years
Number of Breaks/Leaks	860
Number of Water Meters	36,579
Percent of Meters Read Automatically	98.4%
Total Revenues Collected	$20,351,681

Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	30.6%
Operating Costs	44.5%
Capital Costs	24.8%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$4,015,771
Operating Costs	$5,835,490
Capital Costs	$3,256,160
TOTAL	$13,107,421

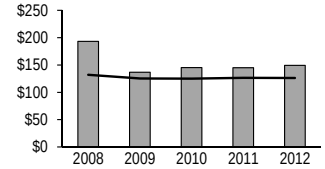
Concord

Water Services

Key: Concord ■ Benchmarking Average — Fiscal Years 2008 through 2012

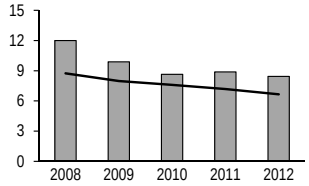
Resource Measures

Water Services Cost per Capita



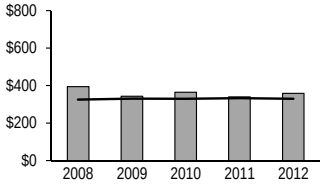
	2008	2009	2010	2011	2012
Concord	$193	$137	$145	$145	$149
Average	$132	$125	$125	$126	$126

Water Services FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Concord	12.0	9.9	8.7	8.9	8.4
Average	8.7	8.0	7.6	7.2	6.7

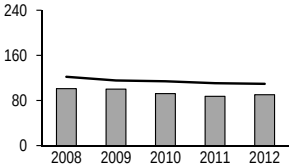
Water Services Cost per Meter



	2008	2009	2010	2011	2012
Concord	$395	$343	$365	$340	$358
Average	$325	$331	$330	$333	$330

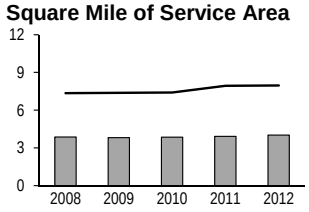
Workload Measures

Thousands of Gallons of Billed Water per Meter



	2008	2009	2010	2011	2012
Concord	101.1	100.3	92.3	87.6	90.2
Average	122.0	115.6	114.2	110.6	109.5

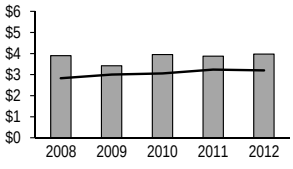
Miles of Main Line Pipe per Square Mile of Service Area



	2008	2009	2010	2011	2012
Concord	3.9	3.8	3.8	3.9	4.0
Average	7.4	7.4	7.4	7.9	8.0

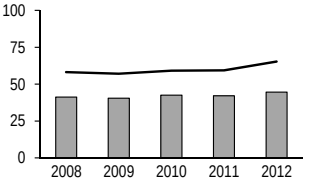
Efficiency Measures

Total Cost per Thousand Gallons of Billed Water



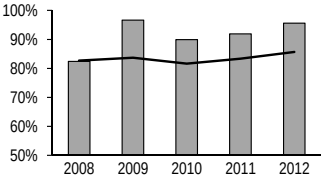
	2008	2009	2010	2011	2012
Concord	$3.90	$3.42	$3.95	$3.88	$3.97
Average	$2.83	$3.01	$3.06	$3.24	$3.20

Million Gallons of Billed Water per Water Services FTEs



	2008	2009	2010	2011	2012
Concord	41.3	40.5	42.5	42.1	44.6
Average	58.2	57.1	59.1	59.3	65.3

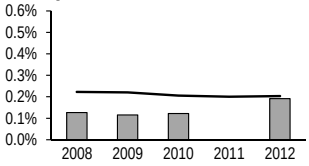
Billed Water as a Percentage of Finished Water



	2008	2009	2010	2011	2012
Concord	82%	97%	90%	92%	96%
Average	83%	84%	82%	83%	86%

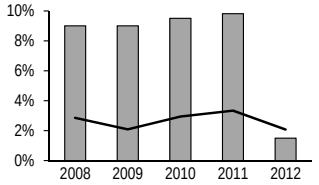
Effectiveness Measures

Percentage of Existing Pipeline Replaced or Rehabbed



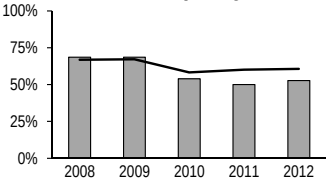
	2008	2009	2010	2011	2012
Concord	0.13%	0.12%	0.12%	0.00%	0.19%
Average	0.22%	0.22%	0.21%	0.20%	0.20%

Percentage of Water Bills Not Collected



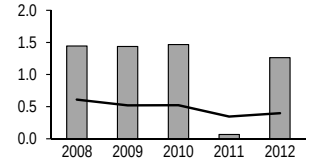
	2008	2009	2010	2011	2012
Concord	9.00%	9.00%	9.51%	9.81%	1.50%
Average	2.86%	2.08%	2.94%	3.33%	2.08%

Peak Daily Demand as a Percentage of Treatment Capacity



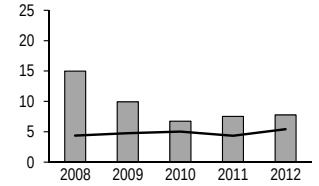
	2008	2009	2010	2011	2012
Concord	69%	69%	54%	50%	53%
Average	67%	67%	58%	60%	61%

Breaks and Leaks per Mile of Main Line Pipe



	2008	2009	2010	2011	2012
Concord	1.45	1.44	1.47	0.07	1.26
Average	0.61	0.52	0.52	0.35	0.40

Customer Complaints about Water Quality per 1,000 Meters



	2008	2009	2010	2011	2012
Concord	14.97	9.93	6.75	7.52	7.76
Average	4.38	4.76	5.03	4.34	5.42

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

Greensboro's drinking water is provided by the Water Supply Division, which is part of the Water Resources Department, which also includes wastewater and stormwater services. The water system serves approximately 263,000 people in an area covering about 147 square miles. In addition to City of Greensboro residents, the system serves many addresses in Guilford County in areas adjacent to the city limits.

Water sources for the system are three city-owned reservoirs in the Haw River basin, which is part of the Upper Cape Fear River basin. The estimated safe yield of the system is 36 million gallons per day, based on a fifty-year esimate as certified by engineers. The system has emergency connections with High Point, Burlington, Reidsville, and Winston-Salem.

The city runs two treatment plants with a combined capacity of 54 million gallons. Both plants use conventional surface water treatment.

The estimated average age of main line pipes in the system is thirty-six years. Greensboro has begun a spending program on water line rehabilitation and plans to increase funding for this activity for the next several years.

Water meters are read and billed monthly. All meters are read automatically using a radio system. Greensboro started the conversion to radio-read meters in 2006 and completed this conversion in the spring of 2009.

Conditions Affecting Service, Performance, and Costs

Greensboro has a very high collection rate for water bills. The city has a lien law, so only a small portion of billed amounts goes unpaid. The lien law was changed during FY 2010–11 so that it now only includes owners and not tenants.

Greensboro has a $300,000-per-year public education program to encourage water conservation.

The costs of water services as captured here do not include debt service but do capture depreciation.

Water complaints in Greensboro rose in part due to a change in the method of disinfection being used which led some customers to call the city. The change in the disinfection method also led to additional flushing of water lines and consequently some water which could not be billed.

Municipal Profile

Estimated Service Population	263,000
Service Land Area (Square Miles)	147.0
Persons per Square Mile	1,789
Topography	Flat; gently rolling
Climate	Temperate; little ice and snow
Median Family Income U.S. Census 2010	$52,752

Service Profile

FTE Staff Positions	
Treatment Plant	45.3
Line Crews	74.9
Meter Readers	16.0
Billing/Collection	12.0
Other	10.5
Total	158.7
Number of Treatment Plants	2
Total Treatment Capacity	54.0 MG
Average Daily Demand	33.6 MG
Miles of Main Line Pipe	1,479
Average Age of Main Line Pipe	36 years
Number of Breaks/Leaks	130
Number of Water Meters	102,643
Percent of Meters Read Automatically	100.0%
Total Revenues Collected	$67,688,553

Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	20.8%
Operating Costs	62.8%
Capital Costs	16.3%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$7,003,172
Operating Costs	$21,133,494
Capital Costs	$5,490,148
TOTAL	$33,626,814

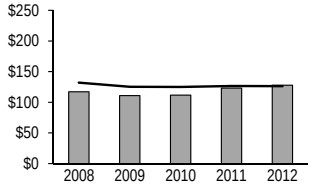
Greensboro

Water Services

Key: Greensboro ■ Benchmarking Average — Fiscal Years 2008 through 2012

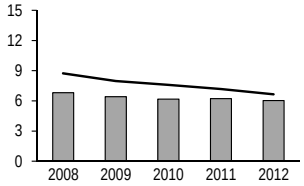
Resource Measures

Water Services Cost per Capita



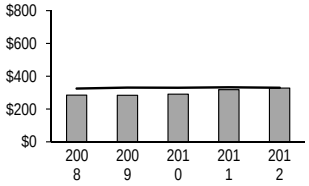
	2008	2009	2010	2011	2012
Greensboro	$117	$111	$112	$123	$128
Average	$132	$125	$125	$126	$126

Water Services FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Greensboro	6.8	6.4	6.2	6.2	6.0
Average	8.7	8.0	7.6	7.2	6.7

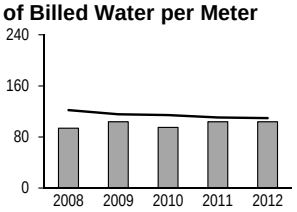
Water Services Cost per Meter



	2008	2009	2010	2011	2012
Greensboro	$285	$284	$291	$318	$328
Average	$325	$331	$330	$333	$330

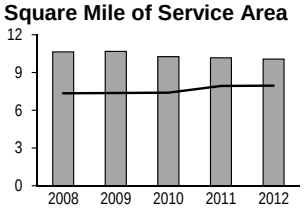
Workload Measures

Thousands of Gallons of Billed Water per Meter



	2008	2009	2010	2011	2012
Greensboro	93.8	103.6	94.9	103.8	103.8
Average	122.0	115.6	114.2	110.6	109.5

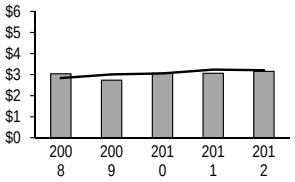
Miles of Main Line Pipe per Square Mile of Service Area



	2008	2009	2010	2011	2012
Greensboro	10.6	10.7	10.3	10.2	10.1
Average	7.4	7.4	7.4	7.9	8.0

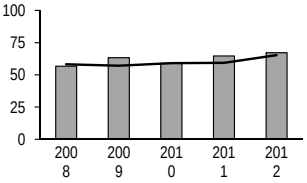
Efficiency Measures

Total Cost per Thousand Gallons of Billed Water



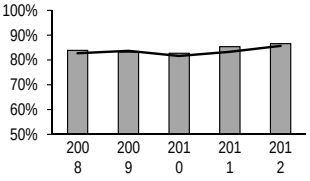
	2008	2009	2010	2011	2012
Greensboro	$3.04	$2.74	$3.06	$3.06	$3.16
Average	$2.83	$3.01	$3.06	$3.24	$3.20

Million Gallons of Billed Water per Water Services FTEs



	2008	2009	2010	2011	2012
Greensboro	56.7	63.2	59.0	64.7	67.1
Average	58.2	57.1	59.1	59.3	65.3

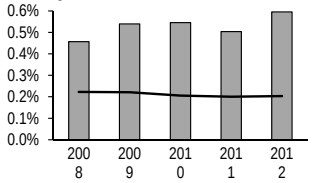
Billed Water as a Percentage of Finished Water



	2008	2009	2010	2011	2012
Greensboro	84%	83%	83%	85%	87%
Average	83%	84%	82%	83%	86%

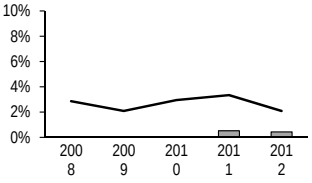
Effectiveness Measures

Percentage of Existing Pipeline Replaced or Rehabbed



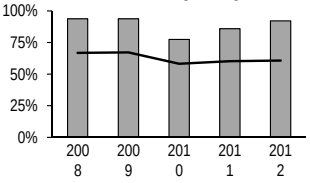
	2008	2009	2010	2011	2012
Greensboro	0.46%	0.54%	0.55%	0.50%	0.59%
Average	0.22%	0.22%	0.21%	0.20%	0.20%

Percentage of Water Bills Not Collected



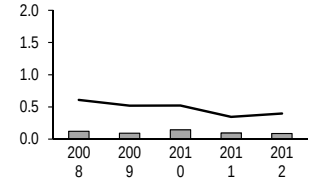
	2008	2009	2010	2011	2012
Greensboro	0.03%	0.03%	0.03%	0.51%	0.43%
Average	2.86%	2.08%	2.94%	3.33%	2.08%

Peak Daily Demand as a Percentage of Treatment Capacity



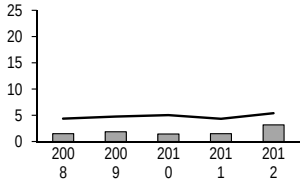
	2008	2009	2010	2011	2012
Greensboro	94%	94%	77%	86%	92%
Average	67%	67%	58%	60%	61%

Breaks and Leaks per Mile of Main Line Pipe



	2008	2009	2010	2011	2012
Greensboro	0.12	0.09	0.14	0.09	0.09
Average	0.61	0.52	0.52	0.35	0.40

Customer Complaints about Water Quality per 1,000 Meters



	2008	2009	2010	2011	2012
Greensboro	1.50	1.86	1.43	1.50	3.19
Average	4.38	4.76	5.03	4.34	5.42

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Water services in Hickory are provided by a combined water distribution division under the Public Services Department. The water system services an area covering roughly 326 square miles and serves approximately 92,000 people. Water is provided for the city of Hickory and also for the towns of Hildenbran, Brookford, and Catawba; the Sherrill's Ford, Mountain View, and Cooksville communities of Catawba County; and the Bethlehem, Sugarloaf, and Highway 16 communities of Alexander County.

Source water is from the Catawba River basin, with an estimated safe yield of 54 million gallons per day. Hickory sells water to the systems in Conover, Claremont, and Icard Township. The system has one treatment plant with a capacity of 32 million gallons per day.

Water meters are read monthly. Hickory's replacement standard for water meters is twenty years. About 6.6 percent of water meters in the system are read by automatic means.

Conditions Affecting Service, Performance, and Costs
The costs of water services as captured here do not include debt service but do capture depreciation.

The increase in water quality complaints was due to an abnormal increase in iron and maganese in the water source during the first quarter of the year. Approximately six hundred "Dirty Water" calls were received during this period but this was not a safety issue for the water.

Municipal Profile

Estimated Service Population	92,000
Service Land Area (Square Miles)	326.0
Persons per Square Mile	282
Topography	Flat; gently rolling
Climate	Temperate; some ice and snow
Median Family Income U.S. Census 2010	$54,093

Service Profile

FTE Staff Positions	
Treatment Plant	12.0
Line Crews	35.0
Meter Readers	6.0
Billing/Collection	5.0
Other	2.5
Total	60.5
Number of Treatment Plants	1
Total Treatment Capacity	32.0 MG
Average Daily Demand	10.9 MG
Miles of Main Line Pipe	916
Average Age of Main Line Pipe	40 years
Number of Breaks/Leaks	178
Number of Water Meters	28,200
Percent of Meters Read Automatically	6.6%
Total Revenues Collected	$11,427,087

Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	30.1%
Operating Costs	57.2%
Capital Costs	12.7%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$2,607,307
Operating Costs	$4,956,079
Capital Costs	$1,100,204
TOTAL	$8,663,590

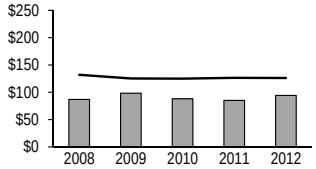
Hickory

Water Services

Key: Hickory ■ Benchmarking Average — Fiscal Years 2008 through 2012

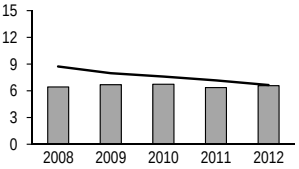
Resource Measures

Water Services Cost per Capita



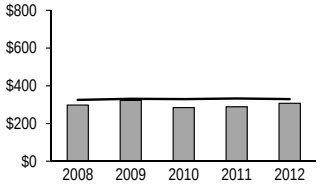
	2008	2009	2010	2011	2012
Hickory	$87	$98	$88	$85	$94
Average	$132	$125	$125	$126	$126

Water Services FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Hickory	6.4	6.7	6.7	6.4	6.6
Average	8.7	8.0	7.6	7.2	6.7

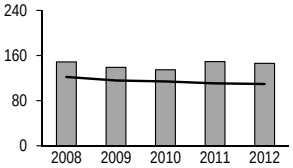
Water Services Cost per Meter



	2008	2009	2010	2011	2012
Hickory	$298	$322	$285	$289	$307
Average	$325	$331	$330	$333	$330

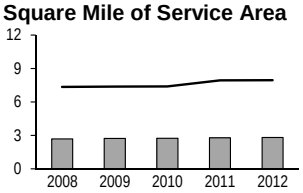
Workload Measures

Thousands of Gallons of Billed Water per Meter



	2008	2009	2010	2011	2012
Hickory	148.7	138.9	134.8	149.2	146.0
Average	122.0	115.6	114.2	110.6	109.5

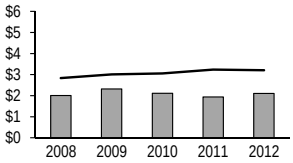
Miles of Main Line Pipe per Square Mile of Service Area



	2008	2009	2010	2011	2012
Hickory	2.7	2.7	2.7	2.8	2.8
Average	7.4	7.4	7.4	7.9	8.0

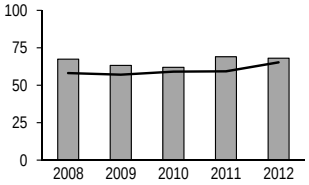
Efficiency Measures

Total Cost per Thousand Gallons of Billed Water



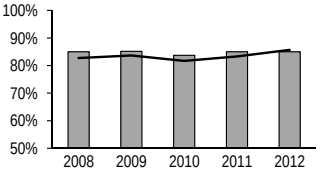
	2008	2009	2010	2011	2012
Hickory	$2.01	$2.32	$2.11	$1.94	$2.10
Average	$2.83	$3.01	$3.06	$3.24	$3.20

Million Gallons of Billed Water per Water Services FTEs



	2008	2009	2010	2011	2012
Hickory	67.5	63.3	62.0	69.0	68.0
Average	58.2	57.1	59.1	59.3	65.3

Billed Water as a Percentage of Finished Water



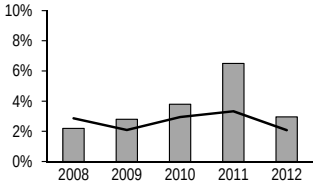
	2008	2009	2010	2011	2012
Hickory	85%	85%	84%	85%	85%
Average	83%	84%	82%	83%	86%

Effectiveness Measures

Percentage of Existing Pipeline Replaced or Rehabbed

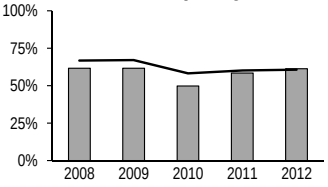
	2008	2009	2010	2011	2012
Hickory	0.12%	0.12%	0.00%	0.00%	0.00%
Average	0.22%	0.22%	0.21%	0.20%	0.20%

Percentage of Water Bills Not Collected



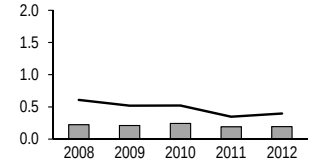
	2008	2009	2010	2011	2012
Hickory	2.20%	2.80%	3.80%	6.50%	2.96%
Average	2.86%	2.08%	2.94%	3.33%	2.08%

Peak Daily Demand as a Percentage of Treatment Capacity



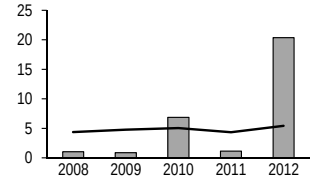
	2008	2009	2010	2011	2012
Hickory	62%	62%	50%	58%	61%
Average	67%	67%	58%	60%	61%

Breaks and Leaks per Mile of Main Line Pipe



	2008	2009	2010	2011	2012
Hickory	0.22	0.21	0.24	0.19	0.19
Average	0.61	0.52	0.52	0.35	0.40

Customer Complaints about Water Quality per 1,000 Meters



	2008	2009	2010	2011	2012
Hickory	1.03	0.87	6.87	1.14	20.35
Average	4.38	4.76	5.03	4.34	5.42

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The City of High Point's drinking water services are part of a combined Water/Sewer Division under the Public Services Department. The system covers sixty-four square miles and serves approximately 106,000 people.

Water sources for the system are two city-owned reservoirs located in the Deep River basin. The estimated safe yield of the system is 22 million gallons per day. The system has one treatment plant and uses an upflow clarification process and a super "U" pulsator with a treatment capacity of 24 million gallons per day.

Water meters are read monthly. Approximately 16 percent of meters are read by automatic means. The city has a standard to replace water meters every ten years on average.

Conditions Affecting Service, Performance, and Costs
High Point has a very high collection rate for water bills. The city participates in the State of North Carolina's debt set-off program. The program is in place to garnish a person's state tax return if he or she does not pay his or her bill. In addition, High Point performs a credit check based on the customer's payment history with Equifax.

The costs of water services as captured here do not include debt service but do capture depreciation.

High Point is a partner in the Piedmont Triad Regional Water Authority. It received 2.68 millions gallons per day through the partnership. This has changed the High Point system from a single pressure zone system to a two pressure zone system.

Municipal Profile

Estimated Service Population	106,000
Service Land Area (Square Miles)	64.0
Persons per Square Mile	1,656
Topography	Flat; gently rolling
Climate	Temperate; little ice and snow
Median Family Income U.S. Census 2010	$49,720

Service Profile

FTE Staff Positions	
Treatment Plant	12.0
Line Crews	19.0
Meter Readers	5.0
Billing/Collection	6.0
Other	14.5
Total	56.5
Number of Treatment Plants	1
Total Treatment Capacity	24.0 MG
Average Daily Demand	11.3 MG
Miles of Main Line Pipe	709
Average Age of Main Line Pipe	39 years
Number of Breaks/Leaks	67
Number of Water Meters	43,290
Percent of Meters Read Automatically	16.4%
Total Revenues Collected	$17,332,203

Full Cost Profile

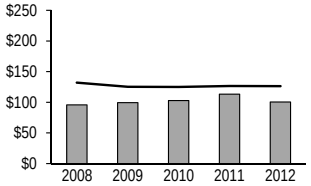
Cost Breakdown by Percentage	
Personal Services	28.5%
Operating Costs	39.1%
Capital Costs	32.4%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$3,039,448
Operating Costs	$4,160,594
Capital Costs	$3,450,728
TOTAL	$10,650,770

High Point — Water Services

Key: High Point ■ Benchmarking Average — Fiscal Years 2008 through 2012

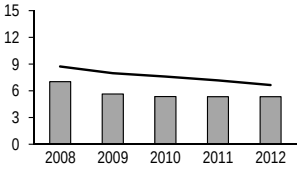
Resource Measures

Water Services Cost per Capita



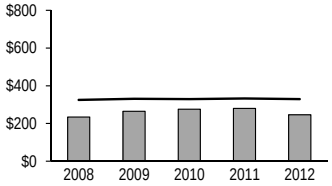
	2008	2009	2010	2011	2012
High Point	$96	$99	$103	$113	$100
Average	$132	$125	$125	$126	$126

Water Services FTEs per 10,000 Population



	2008	2009	2010	2011	2012
High Point	7.0	5.6	5.4	5.3	5.3
Average	8.7	8.0	7.6	7.2	6.7

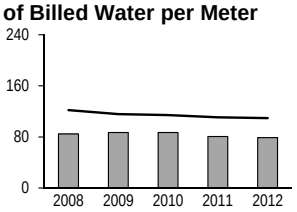
Water Services Cost per Meter



	2008	2009	2010	2011	2012
High Point	$234	$265	$276	$280	$246
Average	$325	$331	$330	$333	$330

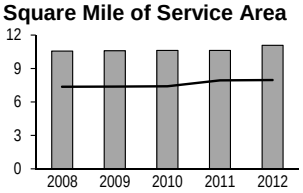
Workload Measures

Thousands of Gallons of Billed Water per Meter



	2008	2009	2010	2011	2012
High Point	84.8	86.9	87.0	80.6	78.9
Average	122.0	115.6	114.2	110.6	109.5

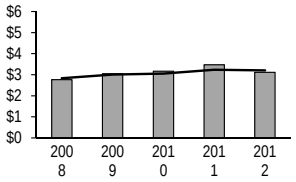
Miles of Main Line Pipe per Square Mile of Service Area



	2008	2009	2010	2011	2012
High Point	10.6	10.6	10.6	10.6	11.1
Average	7.4	7.4	7.4	7.9	8.0

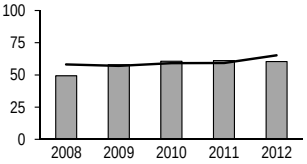
Efficiency Measures

Total Cost per Thousand Gallons of Billed Water



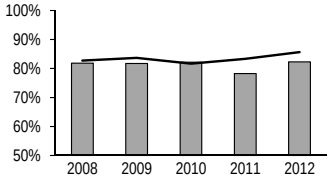
	2008	2009	2010	2011	2012
High Point	$2.76	$3.04	$3.17	$3.47	$3.12
Average	$2.83	$3.01	$3.06	$3.24	$3.20

Million Gallons of Billed Water per Water Services FTEs



	2008	2009	2010	2011	2012
High Point	49.3	57.9	60.7	61.2	60.5
Average	58.2	57.1	59.1	59.3	65.3

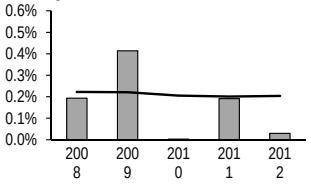
Billed Water as a Percentage of Finished Water



	2008	2009	2010	2011	2012
High Point	82%	82%	82%	78%	82%
Average	83%	84%	82%	83%	86%

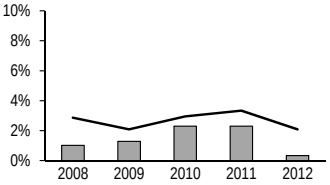
Effectiveness Measures

Percentage of Existing Pipeline Replaced or Rehabbed



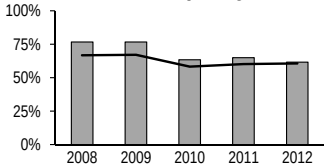
	2008	2009	2010	2011	2012
High Point	0.19%	0.41%	0.00%	0.19%	0.03%
Average	0.22%	0.22%	0.21%	0.20%	0.20%

Percentage of Water Bills Not Collected



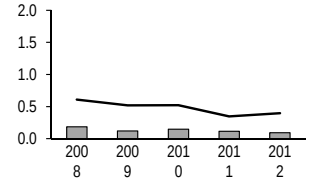
	2008	2009	2010	2011	2012
High Point	1.01%	1.29%	2.30%	2.30%	0.33%
Average	2.86%	2.08%	2.94%	3.33%	2.08%

Peak Daily Demand as a Percentage of Treatment Capacity



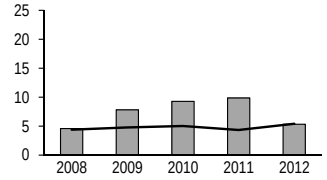
	2008	2009	2010	2011	2012
High Point	77%	77%	63%	65%	62%
Average	67%	67%	58%	60%	61%

Breaks and Leaks per Mile of Main Line Pipe



	2008	2009	2010	2011	2012
High Point	0.18	0.12	0.15	0.12	0.09
Average	0.61	0.52	0.52	0.35	0.40

Customer Complaints about Water Quality per 1,000 Meters



	2008	2009	2010	2011	2012
High Point	4.59	7.81	9.27	9.87	5.31
Average	4.38	4.76	5.03	4.34	5.42

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

The City of Salisbury provides water service through an enterprise fund department. This department is known as Salisbury-Rowan Utilities. The system covers 46.9 square miles and covers much of Rowan County. Approximately 52,000 people are served. The system was assembled during the late 1990s and early 2000s as the City of Salisbury assumed ownership of the water and sewer systems of the towns of Spencer, Granite Quarry, and Rockwell. Rowan County turned over its water assets to Salisbury in 2004. Salisbury also sells bulk water to the towns of East Spencer, China Grove, Landis, and the City of Kannapolis.

The water source for the system is the Yadkin River. The estimated safe yield for the system is 108 million gallons per day. The system has one treatment plant with a capacity of 25 million gallons per day. The plant uses an Actiflo pre-treatment process followed by a conventional sedimentation and filtration treatment process.

Water meters are read once per month. The system currently has approximately 4 percent of meters read by automatic means. The standard for meter replacement is fifteen years.

Conditions Affecting Service, Performance, and Costs

The costs of water services as captured here do not include debt service but do capture depreciation.

Due to extreme cold coupled with wet ground causing a freeze/thaw cycle, Salisbury experienced a jump in pipe breaks during FY 2009–10.

Municipal Profile

Estimated Service Population	51,900
Service Land Area (Square Miles)	46.9
Persons per Square Mile	1,107
Topography	Flat; gently rolling
Climate	Temperate; little ice and snow
Median Family Income U.S. Census 2010	$40,192

Service Profile

FTE Staff Positions	
Treatment Plant	8.0
Line Crews	12.5
Meter Readers	11.0
Billing/Collection	5.0
Other	7.0
Total	43.5
Number of Treatment Plants	1
Total Treatment Capacity	25.0 MG
Average Daily Demand	8.7 MG
Miles of Main Line Pipe	440
Average Age of Main Line Pipe	45 years
Number of Breaks/Leaks	373
Number of Water Meters	19,049
Percent of Meters Read Automatically	4.0%
Total Revenues Collected	$11,617,234

Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	29.3%
Operating Costs	41.5%
Capital Costs	29.1%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$2,623,120
Operating Costs	$3,712,651
Capital Costs	$2,601,909
TOTAL	$8,937,680

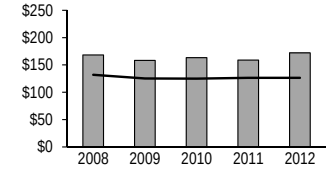
Salisbury

Water Services

Key: Salisbury ■ Benchmarking Average — Fiscal Years 2008 through 2012

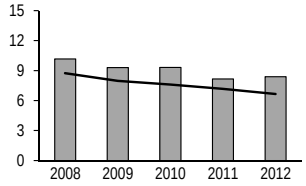
Resource Measures

Water Services Cost per Capita



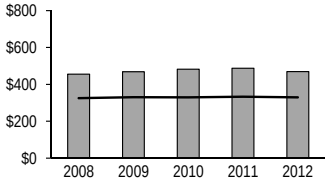
	2008	2009	2010	2011	2012
Salisbury	$168	$158	$163	$159	$172
Average	$132	$125	$125	$126	$126

Water Services FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Salisbury	10.2	9.3	9.3	8.2	8.4
Average	8.7	8.0	7.6	7.2	6.7

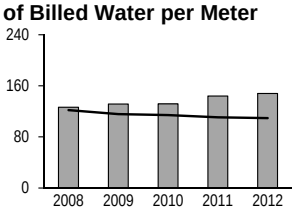
Water Services Cost per Meter



	2008	2009	2010	2011	2012
Salisbury	$455	$468	$482	$488	$469
Average	$325	$331	$330	$333	$330

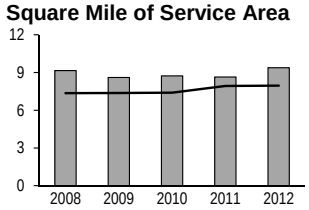
Workload Measures

Thousands of Gallons of Billed Water per Meter



	2008	2009	2010	2011	2012
Salisbury	126.5	131.6	131.7	144.0	148.1
Average	122.0	115.6	114.2	110.6	109.5

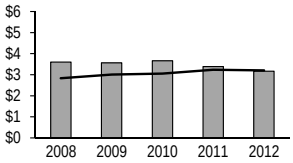
Miles of Main Line Pipe per Square Mile of Service Area



	2008	2009	2010	2011	2012
Salisbury	9.2	8.6	8.7	8.6	9.4
Average	7.4	7.4	7.4	7.9	8.0

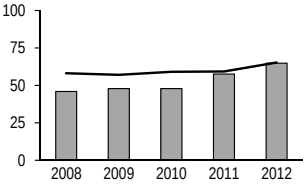
Efficiency Measures

Total Cost per Thousand Gallons of Billed Water



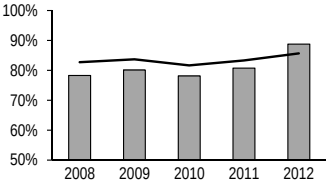
	2008	2009	2010	2011	2012
Salisbury	$3.60	$3.56	$3.66	$3.39	$3.17
Average	$2.83	$3.01	$3.06	$3.24	$3.20

Million Gallons of Billed Water per Water Services FTEs



	2008	2009	2010	2011	2012
Salisbury	46.0	47.9	47.9	57.6	64.9
Average	58.2	57.1	59.1	59.3	65.3

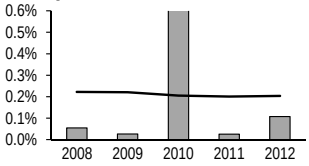
Billed Water as a Percentage of Finished Water



	2008	2009	2010	2011	2012
Salisbury	78%	80%	78%	81%	89%
Average	83%	84%	82%	83%	86%

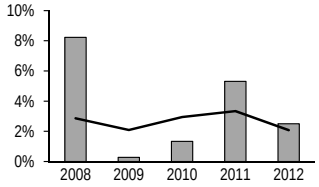
Effectiveness Measures

Percentage of Existing Pipeline Replaced or Rehabbed



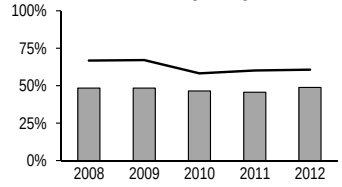
	2008	2009	2010	2011	2012
Salisbury	0.05%	0.03%	0.63%	0.03%	0.11%
Average	0.22%	0.22%	0.21%	0.20%	0.20%

Percentage of Water Bills Not Collected



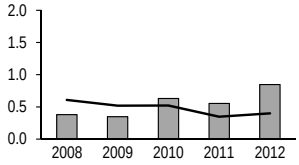
	2008	2009	2010	2011	2012
Salisbury	8.22%	0.28%	1.33%	5.31%	2.50%
Average	2.86%	2.08%	2.94%	3.33%	2.08%

Peak Daily Demand as a Percentage of Treatment Capacity



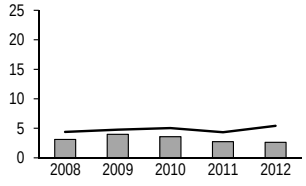
	2008	2009	2010	2011	2012
Salisbury	48%	48%	46%	46%	49%
Average	67%	67%	58%	60%	61%

Breaks and Leaks per Mile of Main Line Pipe



	2008	2009	2010	2011	2012
Salisbury	0.38	0.35	0.63	0.55	0.85
Average	0.61	0.52	0.52	0.35	0.40

Customer Complaints about Water Quality per 1,000 Meters



	2008	2009	2010	2011	2012
Salisbury	3.10	3.98	3.57	2.73	2.62
Average	4.38	4.76	5.03	4.34	5.42

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Water services are handled by a combined water/sewer division under the Department of Public Works. Billing services are handled by the Wilson Finance Department. The water system serves approximately 51,000 people over ninety-nine square miles.

Source water for the system comes from four city-owned reservoirs. Water is also pumped from two different reservoirs in the Neuse River basin. The estimated safe yield for the system is 29 million gallons per day.

The system has two treatment plants with a combined treatment capacity of 22 million gallons per day. The plants use conventional surface water treatment with flocculation, sedimentation, and filtration.

Water meters are read once per month in Wilson. Approximately 15 percent of the water meters in the system are read by automatic remote means using a radio system by Itron.

Conditions Affecting Service, Performance, and Costs
The costs of water services as captured here do not include debt service but do capture depreciation. Large capital improvements are being made to the Buckhorn Lake Dam and Wastewater Projects, which have been required to meet advanced nutrient removal.

Municipal Profile

Estimated Service Population	50,947
Service Land Area (Square Miles)	99.0
Persons per Square Mile	515
Topography	Flat; gently rolling
Climate	Temperate; little ice and snow
Median Family Income U.S. Census 2010	$43,442

Service Profile

FTE Staff Positions	
Treatment Plant	18.0
Line Crews	18.0
Meter Readers	3.0
Billing/Collection	2.0
Other	1.0
Total	42.0
Number of Treatment Plants	2
Total Treatment Capacity	22.0 MG
Average Daily Demand	9.0 MG
Miles of Main Line Pipe	419
Average Age of Main Line Pipe	42 years
Number of Breaks/Leaks	97
Number of Water Meters	22,046
Percent of Meters Read Automatically	15.0%
Total Revenues Collected	$10,483,421

Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	34.0%
Operating Costs	43.0%
Capital Costs	23.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$3,148,505
Operating Costs	$3,980,270
Capital Costs	$2,126,785
TOTAL	$9,255,560

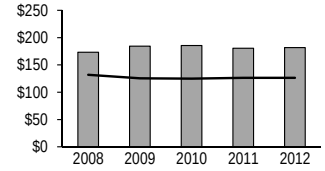
Wilson

Water Services

Key: Wilson ■ Benchmarking Average — Fiscal Years 2008 through 2012

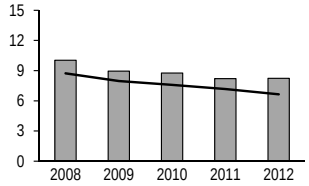
Resource Measures

Water Services Cost per Capita



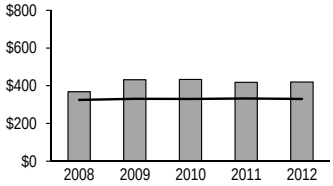
	2008	2009	2010	2011	2012
Wilson	$173	$184	$185	$180	$182
Average	$132	$125	$125	$126	$126

Water Services FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Wilson	10.0	9.0	8.8	8.2	8.2
Average	8.7	8.0	7.6	7.2	6.7

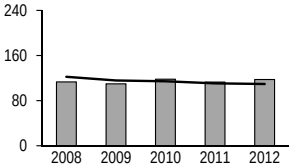
Water Services Cost per Meter



	2008	2009	2010	2011	2012
Wilson	$368	$432	$434	$418	$420
Average	$325	$331	$330	$333	$330

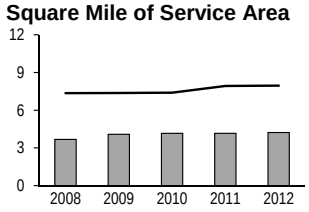
Workload Measures

Thousands of Gallons of Billed Water per Meter



	2008	2009	2010	2011	2012
Wilson	113.0	109.8	117.9	112.9	117.5
Average	122.0	115.6	114.2	110.6	109.5

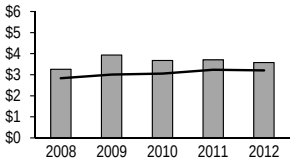
Miles of Main Line Pipe per Square Mile of Service Area



	2008	2009	2010	2011	2012
Wilson	3.7	4.1	4.2	4.2	4.2
Average	7.4	7.4	7.4	7.9	8.0

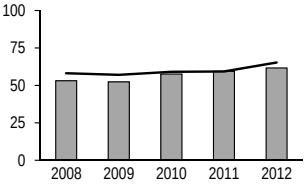
Efficiency Measures

Total Cost per Thousand Gallons of Billed Water



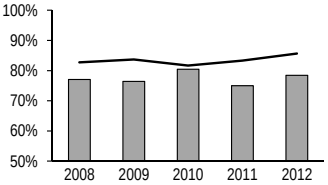
	2008	2009	2010	2011	2012
Wilson	$3.25	$3.93	$3.68	$3.70	$3.57
Average	$2.83	$3.01	$3.06	$3.24	$3.20

Million Gallons of Billed Water per Water Services FTEs



	2008	2009	2010	2011	2012
Wilson	53.1	52.4	57.6	59.4	61.7
Average	58.2	57.1	59.1	59.3	65.3

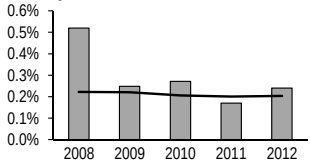
Billed Water as a Percentage of Finished Water



	2008	2009	2010	2011	2012
Wilson	77%	76%	80%	75%	78%
Average	83%	84%	82%	83%	86%

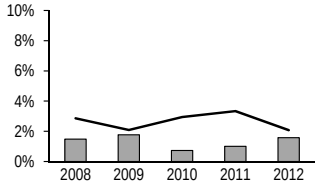
Effectiveness Measures

Percentage of Existing Pipeline Replaced or Rehabbed



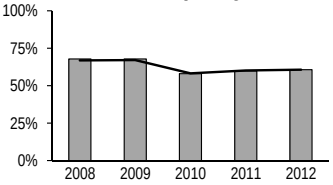
	2008	2009	2010	2011	2012
Wilson	0.52%	0.25%	0.27%	0.17%	0.24%
Average	0.22%	0.22%	0.21%	0.20%	0.20%

Percentage of Water Bills Not Collected



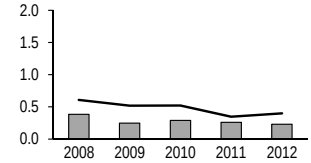
	2008	2009	2010	2011	2012
Wilson	1.48%	1.77%	0.73%	1.00%	1.57%
Average	2.86%	2.08%	2.94%	3.33%	2.08%

Peak Daily Demand as a Percentage of Treatment Capacity



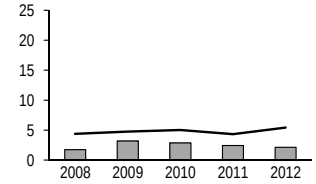
	2008	2009	2010	2011	2012
Wilson	68%	68%	58%	60%	61%
Average	67%	67%	58%	60%	61%

Breaks and Leaks per Mile of Main Line Pipe



	2008	2009	2010	2011	2012
Wilson	0.38	0.25	0.29	0.26	0.23
Average	0.61	0.52	0.52	0.35	0.40

Customer Complaints about Water Quality per 1,000 Meters



	2008	2009	2010	2011	2012
Wilson	1.74	3.19	2.87	2.45	2.13
Average	4.38	4.76	5.03	4.34	5.42

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery

The Winston-Salem and Forsyth County Utilities Division operates a combined water and sewer system that covers the city and most of the remaining population of Forsyth County. Approximately 315,000 people are served in an area covering roughly 325 square miles.

The system has an eleven-member utility commission that was created by an interlocal agreement between the City of Winston-Salem and Forsyth County. The commission sets policy for publicly owned water, wastewater, and solid waste disposal facilities. The commission is also charged with the responsibility for long-range planning, authorizing funding for projects, operation and maintenance of facilities, and setting policies and rate structures. The commission is not authorized to issue bonds to finance capital improvements.

Water sources for the system are at two separate points on the Yadkin River. The city also uses Salem Lake as a water source. The estimated safe yield for the system is 100 million gallons per day.

The city uses three treatment plants. During FY 2010–11, the R.A. Thomas Water Treatment Plant construction was completed, beginning operations in the Spring of 2011 and replacing a previous plant built in the 1930s. With the three plants, daily treatment capacity is 91 million gallons. The plants all use conventional treatment employing coagulation, flocculation, and sedimentation followed by rapid sand filtration and then chlorine treatment for disinfection.

The system has 2,228 miles of pipeline with an estimated average age of fifty years. The replacement goal for pipes is seventy-five years.

Water meters are read both monthly and bi-monthly depending on the account type. Currently the system has a small number of meters read by automatic means, totaling approximately 3 percent. The replacement standard for water meters is approximately every ten years. The goal is to have completely switched to automatically read meters within ten years.

Conditions Affecting Service, Performance, and Costs

The costs of water services as captured here do not include debt service but do capture depreciation.

Municipal Profile

Estimated Service Population	315,000
Service Land Area (Square Miles)	325.0
Persons per Square Mile	969
Topography	Gently rolling
Climate	Temperate; some ice and snow
Median Family Income U.S. Census 2010	$51,491

Service Profile

FTE Staff Positions	
Treatment Plant	49.0
Line Crews	70.0
Meter Readers	13.0
Billing/Collection	16.0
Other	14.0
Total	162.0
Number of Treatment Plants	3
Total Treatment Capacity	91.0 MG
Average Daily Demand	36.0 MG
Miles of Main Line Pipe	2,228
Average Age of Main Line Pipe	50 years
Number of Breaks/Leaks	465
Number of Water Meters	122,919
Percent of Meters Read Automatically	2.9%
Total Revenues Collected	$42,211,750

Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	25.3%
Operating Costs	41.6%
Capital Costs	33.1%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$6,852,971
Operating Costs	$11,257,193
Capital Costs	$8,978,339
TOTAL	$27,088,503

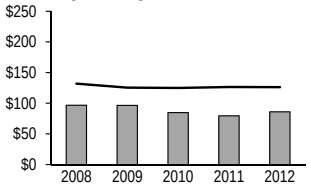
Winston-Salem

Water Services

Key: Winston-Salem ■ Benchmarking Average — Fiscal Years 2008 through 2012

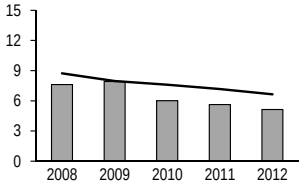
Resource Measures

Water Services Cost per Capita



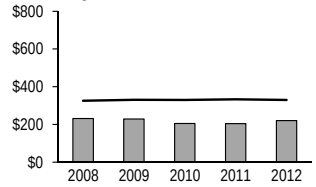
	2008	2009	2010	2011	2012
Winston-Salem	$97	$96	$85	$80	$86
Average	$132	$125	$125	$126	$126

Water Services FTEs per 10,000 Population



	2008	2009	2010	2011	2012
Winston-Salem	7.6	7.9	6.0	5.6	5.1
Average	8.7	8.0	7.6	7.2	6.7

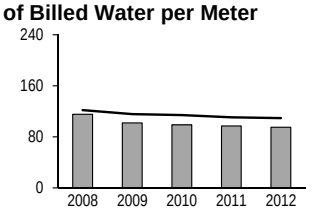
Water Services Cost per Meter



	2008	2009	2010	2011	2012
Winston-Salem	$231	$229	$205	$204	$220
Average	$325	$331	$330	$333	$330

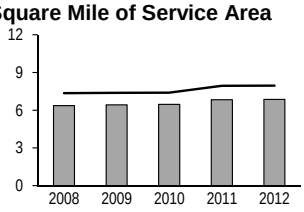
Workload Measures

Thousands of Gallons of Billed Water per Meter



	2008	2009	2010	2011	2012
Winston-Salem	115.4	102.0	98.7	97.0	95.2
Average	122.0	115.6	114.2	110.6	109.5

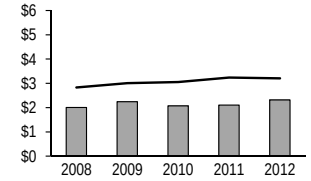
Miles of Main Line Pipe per Square Mile of Service Area



	2008	2009	2010	2011	2012
Winston-Salem	6.4	6.4	6.5	6.8	6.9
Average	7.4	7.4	7.4	7.9	8.0

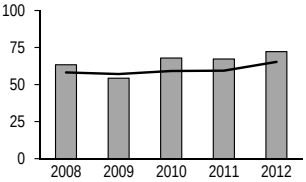
Efficiency Measures

Total Cost per Thousand Gallons of Billed Water



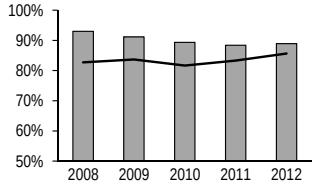
	2008	2009	2010	2011	2012
Winston-Salem	$2.00	$2.24	$2.07	$2.10	$2.32
Average	$2.83	$3.01	$3.06	$3.24	$3.20

Million Gallons of Billed Water per Water Services FTEs



	2008	2009	2010	2011	2012
Winston-Salem	63.4	54.2	67.9	67.2	72.2
Average	58.2	57.1	59.1	59.3	65.3

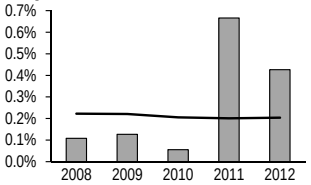
Billed Water as a Percentage of Finished Water



	2008	2009	2010	2011	2012
Winston-Salem	93%	91%	89%	88%	89%
Average	83%	84%	82%	83%	86%

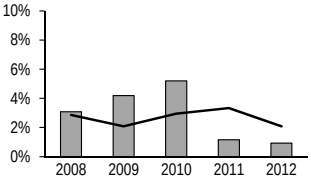
Effectiveness Measures

Percentage of Existing Pipeline Replaced or Rehabbed



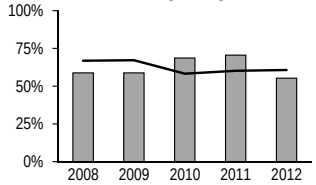
	2008	2009	2010	2011	2012
Winston-Salem	0.11%	0.13%	0.06%	0.67%	0.43%
Average	0.22%	0.22%	0.21%	0.20%	0.20%

Percentage of Water Bills Not Collected



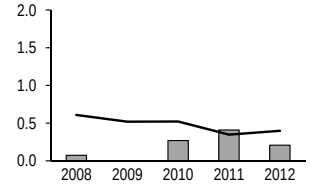
	2008	2009	2010	2011	2012
Winston-Salem	3.08%	4.19%	5.20%	1.16%	0.93%
Average	2.86%	2.08%	2.94%	3.33%	2.08%

Peak Daily Demand as a Percentage of Treatment Capacity



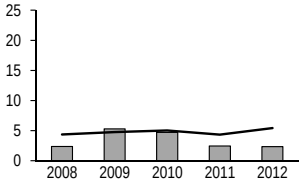
	2008	2009	2010	2011	2012
Winston-Salem	59%	59%	69%	71%	55%
Average	67%	67%	58%	60%	61%

Breaks and Leaks per Mile of Main Line Pipe



	2008	2009	2010	2011	2012
Winston-Salem	0.07		0.27	0.41	0.21
Average	0.61	0.52	0.52	0.35	0.40

Customer Complaints about Water Quality per 1,000 Meters



	2008	2009	2010	2011	2012
Winston-Salem	2.38	5.29	4.71	2.45	2.34
Average	4.38	4.76	5.03	4.34	5.42

UNC
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Performance and Cost Data

WASTEWATER SERVICES

UNC
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GOVERNMENT

PERFORMANCE MEASURES FOR WASTEWATER SERVICES

SERVICE DEFINITION

Wastewater Services includes the collection, treatment, wastewater discharge, solids disposal, and billing related to sewer services. This service area includes the collection system after leaving the customer's outlet, lift stations, pretreatment, and treatment plants. Activities and costs include the operation, maintenance, and installation of infrastructure. Also included are costs and activities associated with billing and collection for sewer services and administrative activities such as planning, engineering, and testing. This includes wastewater treated for reuse at the plant site and for other purposes. Excluded are potable water systems and stormwater systems.

NOTES ON PERFORMANCE MEASURES

1. Volume of Sewage per Account

This workload measure captures the amount of wastewater generated and received at the treatment plant relative to the number of customers.

2. Miles of Sewer Main Line Pipe per Square Mile of Service Area

The amount of sewer main line pipe per square mile shows the density of the pipe infrastructure to be maintained relative to the geographic size of the area served.

3. Number of Lift Stations per 1,000 Accounts

This workload measure provides some idea of the amount of reliance on pumping in a system to supplement gravity-fed delivery. Lift Stations also generate additional maintenance workload.

4. Cost per 1,000 Gallons of Collected and Treated Wastewater

This efficiency measure shows total system costs relative to the volume of wastewater reaching treatment plants. Some wastewater does not make it to treatment plants.

5. Wastewater Volume in Millions of Gallons per FTE

This efficiency measure captures the number of workers the system is using relative to the volume of wastewater treated.

6. Customer Accounts per FTE

The number of customer accounts relative to the number of workers is another efficiency measure showing how many customers are being served per worker.

7. Percentage of Bills Collected
Collection of wastewater bills sent to customers is necessary to ensure revenues for system operation. Bills not collected reflect potential lost revenue to the system, but some loss is unavoidable.

8. Average Daily Treatment as a Percent of Permitted Capacity
A wastewater system needs sufficient capacity to not only meet average demands, but also peak demands. This measure looks at average daily demand relative to the wastewater system treatment capacity in a day. Some excess capacity is needed to allow for daily service variations and also to plan for future expansion needs.

9. Percent of Existing Main Line Pipe Rehabilitated or Replaced
As the wastewater systems ages, pipe needs to be replaced to ensure that service will not be interrupted. This effectiveness measure captures the amount of current stock being replaced or rehabilitated during a given year.

10. Overflows Per 100 Miles of Mainline Pipe
Sanitary system overflows may be due to blockages or breaks in pipe. Keeping these breaks to a low level is an important measure of the effectiveness of preventive maintenance and system upkeep. Overflows, if large enough, may also represent a public health concern.

11. Sewer Backups per 100 Miles of Main Line Pipe
Backups in sewer pipes are another measure of potential maintenance concerns, not to mention being a public health concern. Backups may also be a sign of insufficient maintenance.

12. Billed Sewer Effluents as a Percent of Treated Effluent
The volume of wastewater that is billed for relative to the volume received at the treatment plant is an effectiveness measure that points to potential losses in the collection system. Some loss is inevitable in sewer systems, and not all drinking water billed for is used in such a way that it should make it back to the wastewater treatment plant. But comparisons may reveal excessive infiltration or leakage.

Wastewater Services

Summary of Key Dimensions of Service

City or Town	Estimated Residential Population in Service Area	Service Area (in Square Miles)	Operating Treatment Plants	Average Daily Flow of Wastewater at Plants (in MGD)	Total Treatment Capacity for Wastewater (in MGD)	Miles of Gravity and Forced Main Lines	Number of Wastewater Customers	Sewer System FTE Positions
Apex	39,645	16.0	1	2.3	3.6	189.0	12,715	24.0
Cary	165,000	75.0	2	11.8	24.8	821.9	53,560	91.0
Charlotte	950,000	546.0	5	77.1	123.0	4,180.0	247,848	387.0
Concord	84,323	109.6	0	NA	NA	543.0	30,989	38.0
Greensboro	263,000	129.5	2	27.4	56.0	1,477.0	99,173	212.4
Hickory	37,478	512.0	3	5.3	15.2	500.0	14,755	48.5
High Point	106,000	64.0	2	16.5	32.2	669.2	38,624	98.5
Salisbury	51,600	45.2	2	7.0	12.5	440.8	16,115	55.5
Wilson	52,826	99.0	1	7.8	14.0	354.0	20,099	65.0
Winston-Salem	336,243	366.0	2	30.9	51.0	1,709.5	93,684	205.0

NOTES

MGD stands for millions of gallons per day.

EXPLANATORY FACTORS

These are factors that the project found affected wastewater services performance and cost in one or more of the municipalities:

Topography
Size of service area
Population density
Age of infrastructure
Growth of population and businesses

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Wastewater services for the Town of Apex are managed by the Water Reclamation and Wastewater Collections Division under the Department of Public Works. The system covers the area within the municipal limits.

Apex has one treatment plant, which uses bar screens, grit removal, BNR, oxidation ditches, secondary clarifiers, sand filters, ultraviolet disinfection, aerobic sludge digestion, and rotary drum sludge dewatering as part of its treatment process. The Apex wastewater system has nutrient limits in place which restrict what can be discharged from the plant to protect water quality. Apex uses land application for biosolids resulting from treatment and also dries some biosolids as fertilizer pellets.

The town's system had one regulatory violation connected to the treatment process and two regulatory violations connected to the collection system for the fiscal year.

Conditions Affecting Service, Performance, and Costs
Wastewater Services is a new service area for the benchmarking project beginning with FY 2011–12. The costs of wastewater or sewer services as captured here do not include debt service but do capture depreciation of capital.

Municipal Profile

Estimated Service Population	39,645
Service Land Area (Square Miles)	16
Persons per Square Mile	2,478
Topography	Flat; gently rolling
Climate	Temperate; little ice and snow
Median Family Income U.S. Census 2010	$97,201

Service Profile

FTE Staff Positions	
Treatment Plant	9.0
Line Crews	13.0
Billing/Collection	1.0
Other	1.0
Number of Treatment Plants	1
Total Treatment Capacity	3.6 MGD
Average Daily Flow	2.3 MGD
River Basin into Which System Discharges	Neuse
Miles of Gravity Main Line Pipe	157
Miles of Forced Main Line Pipe	32
Average Age of Main Line Pipe	17 years
Blocks in Sewer Mains	6
Number of System Breaks	2
Sanitary System Overflows	2
Number of Customer Accounts	12,715
Total Revenues Collected	$7,467,925

Full Cost Profile

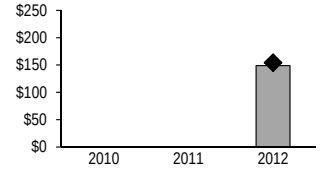
Cost Breakdown by Percentage	
Personal Services	33.5%
Operating Costs	40.6%
Capital Costs	25.9%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,977,733
Operating Costs	$2,396,831
Capital Costs	$1,530,169
TOTAL	$5,904,733

Apex Wastewater Services

Key: Apex ■ Benchmarking Average ◆ Fiscal Years 2010 through 2012

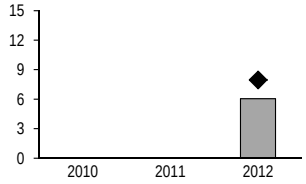
Resource Measures

Wastewater Services Cost per Capita



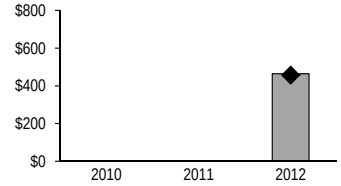
Apex	$149
Average	$154

Waterwater Services FTEs per 10,000 Population



Apex	6.1
Average	8.0

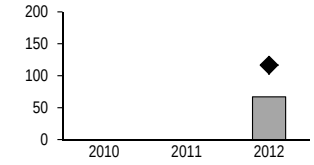
Waterwaste Services Cost per Customer Account



Apex	$464
Average	$457

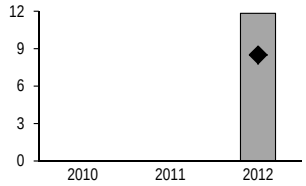
Workload Measures

Thousands of Gallons of Wastewater per Account



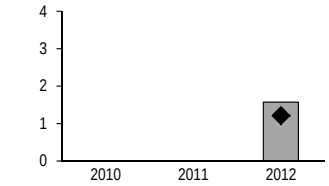
Apex	66.9
Average	116.6

Miles of Sewer Main Line Pipe per Square Mile of Service Area



Apex	11.8
Average	8.5

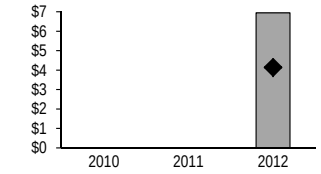
Number of Lift Stations per 1,000 Accounts



Apex	1.57
Average	1.21

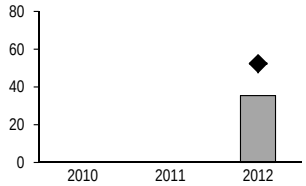
Efficieny Measures

Total Cost per 1,000 Gallons of Treated Wastewater



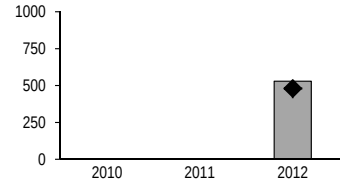
Apex	$6.94
Average	$4.13

Million Gallons of Wastewater per Wastewater Services FTE



Apex	35.4
Average	52.4

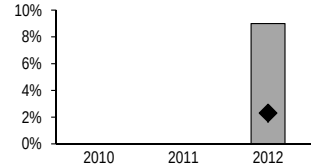
Customer Accounts per Wastewater Services FTE



Apex	530
Average	479

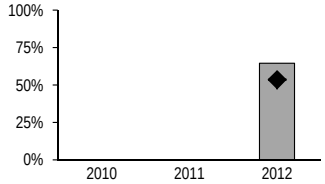
Effectiveness Measures

Percentage of Wastewater Bills Not Collected



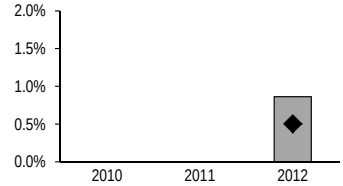
Apex	9.00%
Average	2.31%

Average Daily Treatment as a Percentage of Capacity



Apex	64.5%
Average	53.6%

Percent of Main Line Rehabbed or Replaced

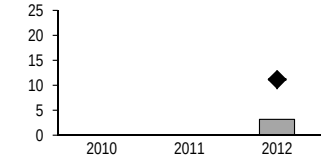


Apex	0.86%
Average	0.51%

Overflows per 100 Miles of Main Line Pipe

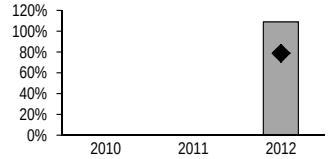
Apex	1.06
Average	2.34

Backups per 100 Miles of Main Line Pipe



Apex	3.17
Average	11.16

Billed Wastewater as a Percent of Treated Effluent



Apex	109%
Average	79%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Wastewater services for the Town of Cary are provided by the Public Works and Utilities Department. Divisions within the department are divided by functions, including pretreatment, collection system maintenance, and wastewater treatment. Billing and customer service are the responsibility of the Customer Accounting Division located in the Finance Department. The Engineering Department also provides support for the installation and upgrading of utility infrastructure.

The system in Cary covers not only the Town of Cary but also the Town of Morrisville, RDU Airport, and the Wake County portion of the Research Triangle Park. A small portion of this area only receives sewer (but not water) services from the Town of Cary.

The Town of Cary has two treatment plants with a total daily treatment capacity of 24.8 million gallons. The treatment plants rely on biological nutrient removal. The wastewater system in Cary has nutrient limits in place which regulate the nutrient loads which can be discharged from the treatment plants to protect water quality. In addition to wastewater discharged after treatment, the system produces dried class A biosolids of a high quality which are used as fertilizer and sold to a third party company.

During the fiscal year, the system in Cary had no regulatory violations related to treatment but did have eleven violations associated with the collection system. These collection violations were due to sanitary system overflows ranging from an estimated six gallons up to 6,300 gallons.

Conditions Affecting Service, Performance, and Costs
Wastewater Services is a new service area for the benchmarking project beginning with FY 2011–12. The costs of wastewater or sewer services as captured here do not include debt service but do capture depreciation of capital.

Municipal Profile

Estimated Service Population	165,000
Service Land Area (Square Miles)	75
Persons per Square Mile	2,200
Topography	Flat; gently rolling
Climate	Temperate; little ice and snow
Median Family Income U.S. Census 2010	$108,956

Service Profile

FTE Staff Positions	
Treatment Plant	35.0
Line Crews	43.9
Billing/Collection	11.1
Other	1.0
Number of Treatment Plants	2
Total Treatment Capacity	24.8 MGD
Average Daily Flow	11.8 MGD
River Basin into Which System Discharges	Neuse and Cape Fear
Miles of Gravity Main Line Pipe	776
Miles of Forced Main Line Pipe	46
Average Age of Main Line Pipe	NA
Blocks in Sewer Mains	180
Number of System Breaks	36
Sanitary System Overflows	11
Number of Customer Accounts	53,560
Total Revenues Collected	$34,940,626

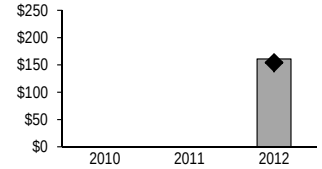
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	27.3%
Operating Costs	44.7%
Capital Costs	28.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$7,253,978
Operating Costs	$11,860,592
Capital Costs	$7,429,607
TOTAL	$26,544,177

Key: Cary ■ Benchmarking Average ◆ Fiscal Years 2010 through 2012

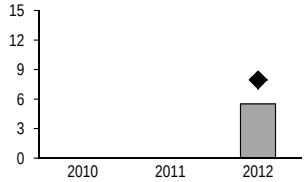
Resource Measures

Wastewater Services Cost per Capita



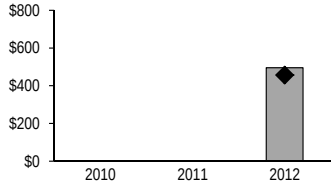
	2012
Cary	$161
Average	$154

Waterwater Services FTEs per 10,000 Population



	2012
Cary	5.5
Average	8.0

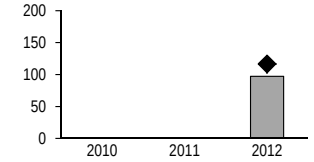
Waterwaste Services Cost per Customer Account



	2012
Cary	$496
Average	$457

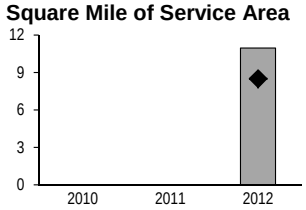
Workload Measures

Thousands of Gallons of Wastewater per Account



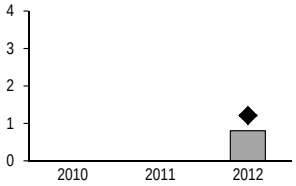
	2012
Cary	97.2
Average	116.6

Miles of Sewer Main Line Pipe per Square Mile of Service Area



	2012
Cary	11.0
Average	8.5

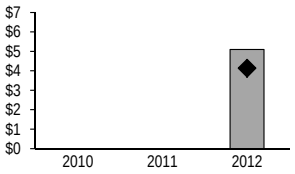
Number of Lift Stations per 1,000 Accounts



	2012
Cary	0.80
Average	1.21

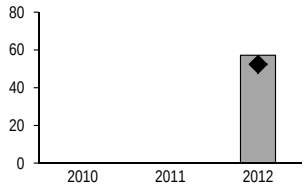
Efficiency Measures

Total Cost per 1,000 Gallons of Treated Wastewater



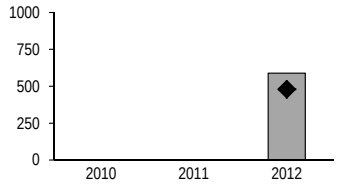
	2012
Cary	$5.10
Average	$4.13

Million Gallons of Wastewater per Wastewater Services FTE



	2012
Cary	57.2
Average	52.4

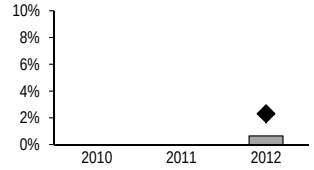
Customer Accounts per Wastewater Services FTE



	2012
Cary	589
Average	479

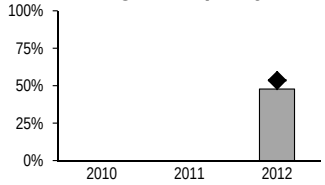
Effectiveness Measures

Percentage of Wastewater Bills Not Collected



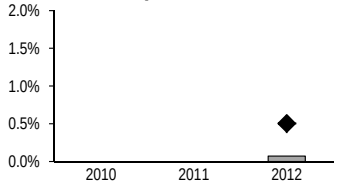
	2012
Cary	0.65%
Average	2.31%

Average Daily Treatment as a Percentage of Capacity



	2012
Cary	47.7%
Average	53.6%

Percent of Main Line Rehabbed or Replaced



	2012
Cary	0.07%
Average	0.51%

Overflows per 100 Miles of Main Line Pipe

	2012
Cary	1.34
Average	2.34

Backups per 100 Miles of Main Line Pipe

	2012
Cary	21.90
Average	11.16

Billed Wastewater as a Percent of Treated Effluent

	2012
Cary	78%
Average	79%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Wastewater collection and treatment is handled by the Charlotte-Mecklenburg Utilities Department (CMUD). This is a combined water and sewer utility which is a consolidated business unit for Mecklenburg County and the City of Charlotte. The department is run as an official City of Charlotte department. The service area corresponds roughly to the boundaries of Mecklenburg County.

The wastewater portion of the utility has five separate treatment plants. Three of the plants are activated sludge facilities. The largest plant is a biological phosphorous removal facility. The fifth plant is a five-stage Bardenflo biological nutrient facility. All five plants include tertiary filtration. The system does have regulatory limits in place on nutrient loads, which can be discharged in order to protect water quality.n In addition to treatment of wastewater, the system handles biosolids, most of which are applied to land unless non-conforming and then are taken to the landfill.

The system had a total of six regulatory violations connected to treatment issues and 117 regulatory violations connected to the collection portion of the system during the year. Treatment violations included failure of some effluent toxicity tests and one violation on the daily maximum fecal coliform limit. Collection violations were related to sanitary sewer overflows.

Conditions Affecting Service, Performance, and Costs
Wastewater Services is a new service area for the benchmarking project beginning with FY 2011–12. The costs of wastewater or sewer services as captured here do not include debt service but do capture depreciation of capital.

Municipal Profile

Estimated Service Population	950,000
Service Land Area (Square Miles)	546
Persons per Square Mile	1,740
Topography	Flat; gently rolling
Climate	Temperate; little ice and snow
Median Family Income U.S. Census 2010	$61,405

Service Profile

FTE Staff Positions	
Treatment Plant	108.5
Line Crews	140.3
Billing/Collection	5.0
Other	133.2
Number of Treatment Plants	5
Total Treatment Capacity	123.0 MGD
Average Daily Flow	77.1 MGD
River Basin into Which System Discharges	Cabarrus and Yadkin
Miles of Gravity Main Line Pipe	4,100
Miles of Forced Main Line Pipe	80
Average Age of Main Line Pipe	24 years
Blocks in Sewer Mains	398
Number of System Breaks	630
Sanitary System Overflows	281
Number of Customer Accounts	247,848
Total Revenues Collected	$178,653,712

Full Cost Profile

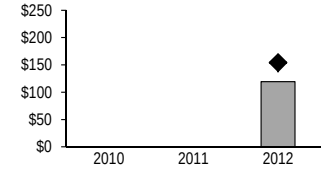
Cost Breakdown by Percentage	
Personal Services	15.8%
Operating Costs	36.3%
Capital Costs	48.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$17,862,570
Operating Costs	$41,116,819
Capital Costs	$54,399,066
TOTAL	$113,378,455

Charlotte Wastewater Services

Key: Charlotte ■ Benchmarking Average ◆ Fiscal Years 2010 through 2012

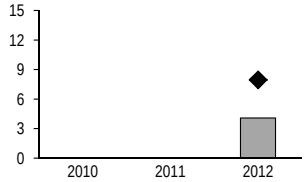
Resource Measures

Wastewater Services Cost per Capita



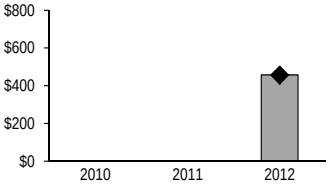
	2012
Charlotte	$119
Average	$154

Waterwater Services FTEs per 10,000 Population



	2012
Charlotte	4.1
Average	8.0

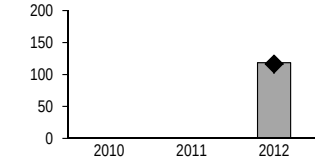
Waterwaste Services Cost per Customer Account



	2012
Charlotte	$457
Average	$457

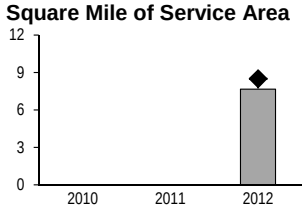
Workload Measures

Thousands of Gallons of Wastewater per Account



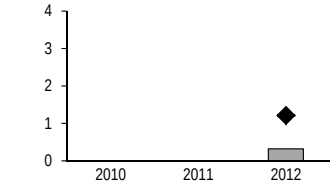
	2012
Charlotte	118.5
Average	116.6

Miles of Sewer Main Line Pipe per Square Mile of Service Area



	2012
Charlotte	7.7
Average	8.5

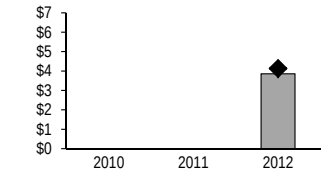
Number of Lift Stations per 1,000 Accounts



	2012
Charlotte	0.32
Average	1.21

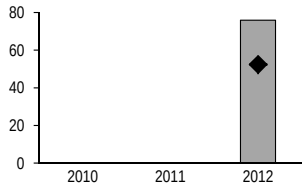
Efficiency Measures

Total Cost per 1,000 Gallons of Treated Wastewater



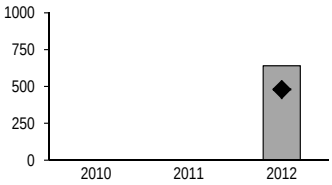
	2012
Charlotte	$3.86
Average	$4.13

Million Gallons of Wastewater per Wastewater Services FTE



	2012
Charlotte	75.9
Average	52.4

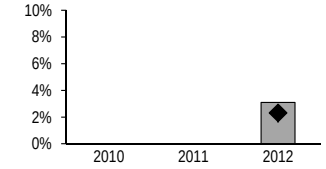
Customer Accounts per Wastewater Services FTE



	2012
Charlotte	640
Average	479

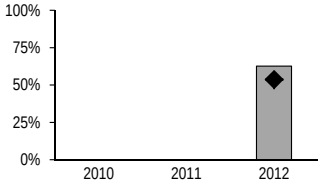
Effectiveness Measures

Percentage of Wastewater Bills Not Collected



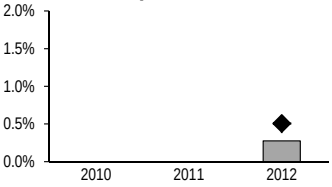
	2012
Charlotte	3.09%
Average	2.31%

Average Daily Treatment as a Percentage of Capacity



	2012
Charlotte	62.7%
Average	53.6%

Percent of Main Line Rehabbed or Replaced



	2012
Charlotte	0.28%
Average	0.51%

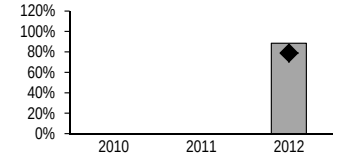
Overflows per 100 Miles of Main Line Pipe

	2012
Charlotte	6.72
Average	2.34

Backups per 100 Miles of Main Line Pipe

	2012
Charlotte	9.52
Average	11.16

Billed Wastewater as a Percent of Treated Effluent



	2012
Charlotte	89%
Average	79%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The City of Concord has a Wastewater Department which oversees operations. The department focuses on the inspection, maintenance, and repair of the collection system. Concord does not have its own treatment plant. Instead, treatment is handled by the Water and Sewer Authority of Cabarrus County, a regional sytem. All treatment and disposal of wastewater and biosolids is handled by the regional authority using two treatment plants.

The Concord wastewater collection system had two regulatory violations during the fiscal year. The violations related to root intrusion and grease in the system.

Conditions Affecting Service, Performance, and Costs
Wastewater Services is a new service area for the benchmarking project beginning with FY 2011–12. The costs of wastewater or sewer services as captured here do not include debt service but do capture depreciation of capital.

Municipal Profile

Estimated Service Population	84,323
Service Land Area (Square Miles)	110
Persons per Square Mile	767
Topography	Flat; gently rolling
Climate	Temperate; little ice and snow
Median Family Income U.S. Census 2010	$63,643

Service Profile

FTE Staff Positions	
Treatment Plant	0.0
Line Crews	27.0
Billing/Collection	8.0
Other	3.0
Number of Treatment Plants	0
Total Treatment Capacity	NA
Average Daily Flow	6.6 MGD
River Basin into Which System Discharges	Yadkin-Pee Dee
Miles of Gravity Main Line Pipe	530
Miles of Forced Main Line Pipe	13
Average Age of Main Line Pipe	35 years
Blocks in Sewer Mains	14
Number of System Breaks	13
Sanitary System Overflows	3
Number of Customer Accounts	30,989
Total Revenues Collected	$14,816,911

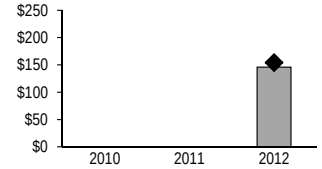
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	16.4%
Operating Costs	62.6%
Capital Costs	21.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$2,024,074
Operating Costs	$7,704,315
Capital Costs	$2,582,348
TOTAL	$12,310,737

Key: Concord ■ Benchmarking Average ◆ Fiscal Years 2010 through 2012

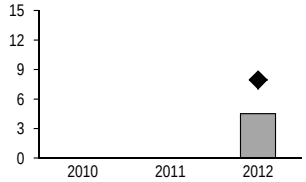
Resource Measures

Wastewater Services Cost per Capita



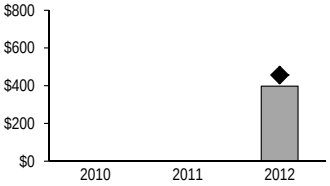
	2012
Concord	$146
Average	$154

Waterwater Services FTEs per 10,000 Population



	2012
Concord	4.5
Average	8.0

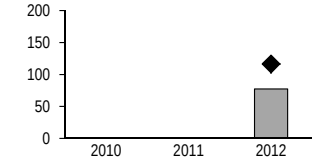
Waterwaste Services Cost per Customer Account



	2012
Concord	$397
Average	$457

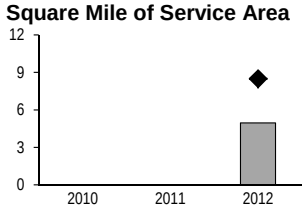
Workload Measures

Thousands of Gallons of Wastewater per Account



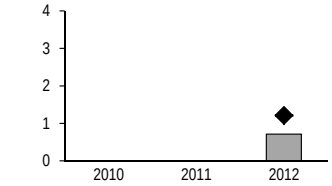
	2012
Concord	77.4
Average	116.6

Miles of Sewer Main Line Pipe per Square Mile of Service Area



	2012
Concord	5.0
Average	8.5

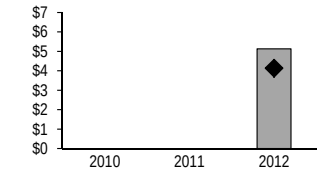
Number of Lift Stations per 1,000 Accounts



	2012
Concord	0.71
Average	1.21

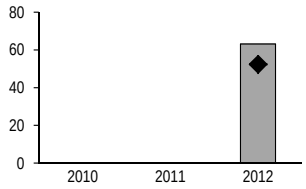
Efficiency Measures

Total Cost per 1,000 Gallons of Treated Wastewater



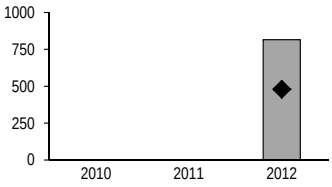
	2012
Concord	$5.13
Average	$4.13

Million Gallons of Wastewater per Wastewater Services FTE



	2012
Concord	63.2
Average	52.4

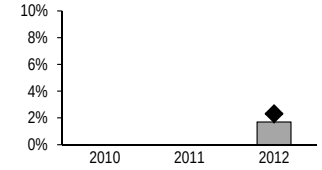
Customer Accounts per Wastewater Services FTE



	2012
Concord	816
Average	479

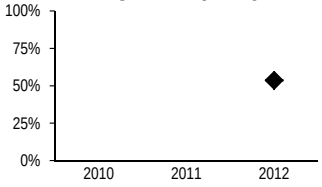
Effectiveness Measures

Percentage of Wastewater Bills Not Collected



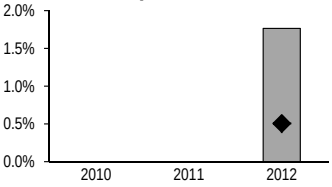
	2012
Concord	1.69%
Average	2.31%

Average Daily Treatment as a Percentage of Capacity



	2012
Concord	
Average	53.6%

Percent of Main Line Rehabbed or Replaced



	2012
Concord	1.76%
Average	0.51%

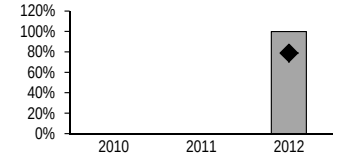
Overflows per 100 Miles of Main Line Pipe

	2012
Concord	0.55
Average	2.34

Backups per 100 Miles of Main Line Pipe

	2012
Concord	2.58
Average	11.16

Billed Wastewater as a Percent of Treated Effluent



	2012
Concord	100%
Average	79%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Wastewater treatment in Greensboro is handled by the Water Reclamation Division. This is part of the Water Resources Department, which also includes stormwater and drinking water. The Director of Water Resources reports to the city manager. Services are provided to most of the City of Greensboro and some addresses outside city limits within Guilford County.

Wastewater treatment in Greensboro is handled by two treatment plants. These plants used advanced tertiary treatment. The system has nutrient regulatory limits in place which restrict what can be discharged in order to protect water quality. All biosolids produced by the Greensboro treatment plants are incinerated.

During the fiscal year, the system had one regulatory violation connected to the treatment portion of the system and four violations connected to the collection portion of the system. The collection violations included issues such as grease blockage and pipe breaks.

Conditions Affecting Service, Performance, and Costs
Wastewater Services is a new service area for the benchmarking project beginning with FY 2011–12. The costs of wastewater or sewer services as captured here do not include debt service but do capture depreciation of capital.

Municipal Profile

Estimated Service Population	263,000
Service Land Area (Square Miles)	129
Persons per Square Mile	2,039
Topography	Flat; gently rolling
Climate	Temperate; little ice and snow
Median Family Income U.S. Census 2010	$52,752

Service Profile

FTE Staff Positions	
Treatment Plant	51.0
Line Crews	81.9
Billing/Collection	69.0
Other	10.5
Number of Treatment Plants	2
Total Treatment Capacity	56.0 MGD
Average Daily Flow	27.4 MGD
River Basin into Which System Discharges	Cape Fear
Miles of Gravity Main Line Pipe	1,407
Miles of Forced Main Line Pipe	70
Average Age of Main Line Pipe	44 years
Blocks in Sewer Mains	148
Number of System Breaks	3
Sanitary System Overflows	4
Number of Customer Accounts	99,173
Total Revenues Collected	$68,617,396

Full Cost Profile

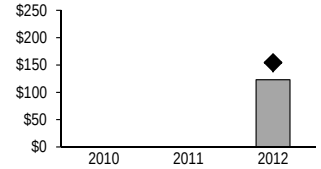
Cost Breakdown by Percentage	
Personal Services	20.0%
Operating Costs	54.7%
Capital Costs	25.3%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$6,466,243
Operating Costs	$17,733,953
Capital Costs	$8,195,685
TOTAL	$32,395,881

Greensboro Wastewater Services

Key: Greensboro ■ Benchmarking Average ◆ Fiscal Years 2010 through 2012

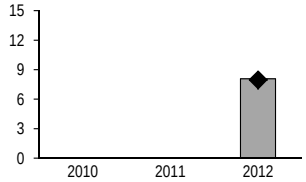
Resource Measures

Wastewater Services Cost per Capita



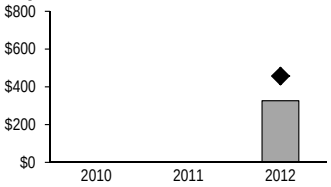
Greensboro	$123
Average	$154

Waterwater Services FTEs per 10,000 Population



Greensboro	8.1
Average	8.0

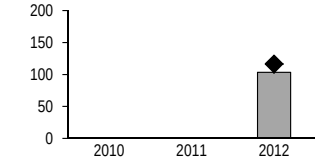
Waterwaste Services Cost per Customer Account



Greensboro	$327
Average	$457

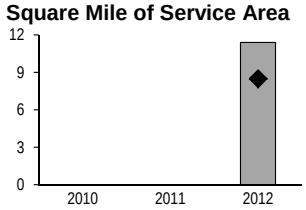
Workload Measures

Thousands of Gallons of Wastewater per Account



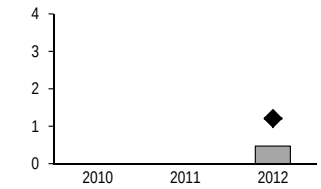
Greensboro	103.5
Average	116.6

Miles of Sewer Main Line Pipe per Square Mile of Service Area



Greensboro	11.4
Average	8.5

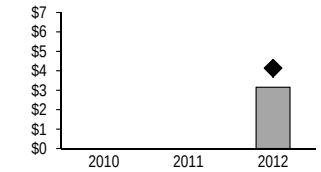
Number of Lift Stations per 1,000 Accounts



Greensboro	0.47
Average	1.21

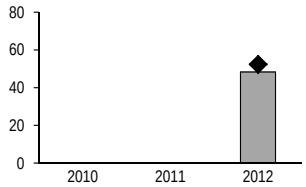
Efficiency Measures

Total Cost per 1,000 Gallons of Treated Wastewater



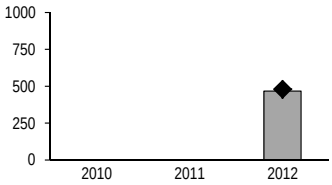
Greensboro	$3.16
Average	$4.13

Million Gallons of Wastewater per Wastewater Services FTE



Greensboro	48.3
Average	52.4

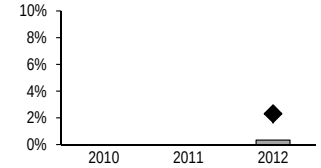
Customer Accounts per Wastewater Services FTE



Greensboro	467
Average	479

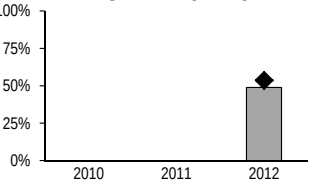
Effectiveness Measures

Percentage of Wastewater Bills Not Collected



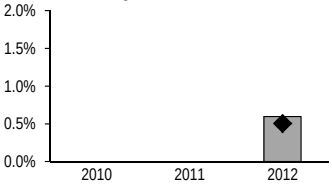
Greensboro	0.34%
Average	2.31%

Average Daily Treatment as a Percentage of Capacity



Greensboro	48.9%
Average	53.6%

Percent of Main Line Rehabbed or Replaced



Greensboro	0.60%
Average	0.51%

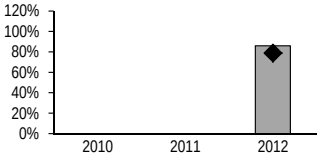
Overflows per 100 Miles of Main Line Pipe

Greensboro	0.27
Average	2.34

Backups per 100 Miles of Main Line Pipe

Greensboro	10.02
Average	11.16

Billed Wastewater as a Percent of Treated Effluent



Greensboro	86%
Average	79%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Wastewater is handled by the City of Hickory's Collection Division, which is part of Public Utilities under the Public Services Department. The service area covers the City of Hickory and several adjoining areas in Catawba County.

The system relies on three treatment plants to handle wastewater. One plant uses activated sludge biological nutrient removal (BNR), the second uses oxidation ditch activated sludge BNR, and the third uses conventional activated sludge. The entire system does not have nutrient limits in place at this time. Biolsolids generated are handled as Class A compost.

The system in Hickory had a total of seven regulatory violations connected to the treatment portion of the system and four violations connected to the collection portion of the system during the fiscal year.

Conditions Affecting Service, Performance, and Costs
Wastewater Services is a new service area for the benchmarking project beginning with FY 2011–12. The costs of wastewater or sewer services as captured here do not include debt service but do capture depreciation of capital.

Municipal Profile

Estimated Service Population	37,478
Service Land Area (Square Miles)	51.2
Persons per Square Mile	732
Topography	Gently rolling
Climate	Temperate; some ice and snow
Median Family Income U.S. Census 2010	$54,093

Service Profile

FTE Staff Positions	
Treatment Plant	29.0
Line Crews	12.0
Billing/Collection	5.0
Other	2.5
Number of Treatment Plants	3
Total Treatment Capacity	15.2 MGD
Average Daily Flow	5.3 MGD
River Basin into Which System Discharges	Catawba
Miles of Gravity Main Line Pipe	480
Miles of Forced Main Line Pipe	20
Average Age of Main Line Pipe	40 years
Blocks in Sewer Mains	38
Number of System Breaks	6
Sanitary System Overflows	4
Number of Customer Accounts	14,755
Total Revenues Collected	$8,743,912

Full Cost Profile

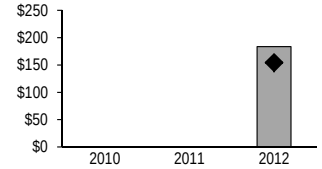
Cost Breakdown by Percentage	
Personal Services	31.0%
Operating Costs	42.5%
Capital Costs	26.5%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$2,135,884
Operating Costs	$2,922,372
Capital Costs	$1,822,876
TOTAL	$6,881,132

Hickory Wastewater Services

Key: Hickory ■ Benchmarking Average ◆ Fiscal Years 2010 through 2012

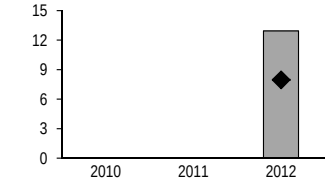
Resource Measures

Wastewater Services Cost per Capita



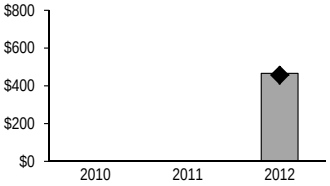
	2012
Hickory	$184
Average	$154

Waterwater Services FTEs per 10,000 Population



	2012
Hickory	12.9
Average	8.0

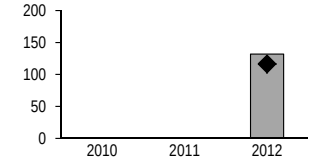
Waterwaste Services Cost per Customer Account



	2012
Hickory	$466
Average	$457

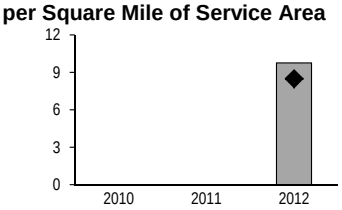
Workload Measures

Thousands of Gallons of Wastewater per Account



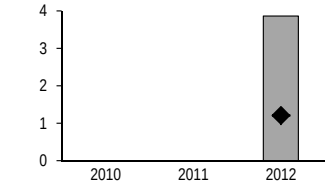
	2012
Hickory	131.9
Average	116.6

Miles of Sewer Main Line Pipe per Square Mile of Service Area



	2012
Hickory	9.8
Average	8.5

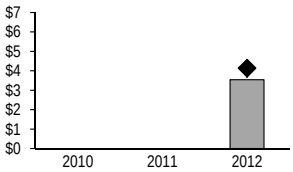
Number of Lift Stations per 1,000 Accounts



	2012
Hickory	3.86
Average	1.21

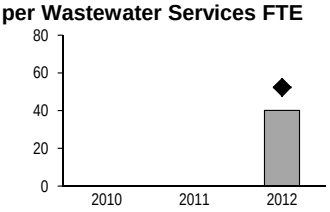
Efficiency Measures

Total Cost per 1,000 Gallons of Treated Wastewater



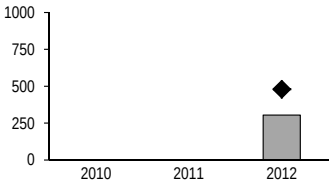
	2012
Hickory	$3.54
Average	$4.13

Million Gallons of Wastewater per Wastewater Services FTE



	2012
Hickory	40.1
Average	52.4

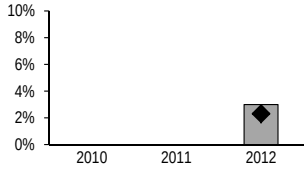
Customer Accounts per Wastewater Services FTE



	2012
Hickory	304
Average	479

Effectiveness Measures

Percentage of Wastewater Bills Not Collected

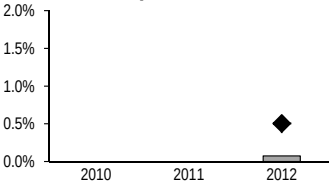


	2012
Hickory	3.00%
Average	2.31%

Average Daily Treatment as a Percentage of Capacity

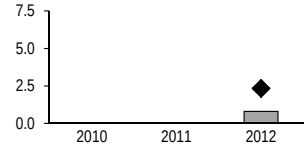
	2012
Hickory	35.0%
Average	53.6%

Percent of Main Line Rehabbed or Replaced



	2012
Hickory	0.08%
Average	0.51%

Overflows per 100 Miles of Main Line Pipe

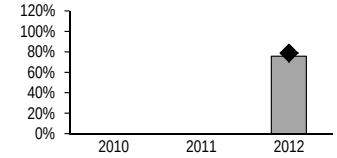


	2012
Hickory	0.80
Average	2.34

Backups per 100 Miles of Main Line Pipe

	2012
Hickory	7.60
Average	11.16

Billed Wastewater as a Percent of Treated Effluent



	2012
Hickory	76%
Average	79%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The City of High Point wastewater system is part of a combined Water/Sewer Division under the Public Services Department. The system covers the City of High Point and several adjoining areas in Guilford and Davidson counties.

Wastewater is treated at two treatment plants. One plant uses biological nutrient removal, while the second plant uses extended aeration with chemical phosphorous removal. The system has regulatory nutrient limits in place which are designed to protect water quality in local waters. Biosolids left over after treatment are primarily handled by incineration, with landfill disposal as a backup.

During the fiscal year, the sytem had eight regulatory violations connected to the treatment portion of the system and nine violations connected to the collection portion of the system.

Conditions Affecting Service, Performance, and Costs
Wastewater Services is a new service area for the benchmarking project beginning with FY 2011–12. The costs of wastewater or sewer service as captured here do not include debt services but do capture depreciation of capital.

Municipal Profile

Estimated Service Population	106,000
Service Land Area (Square Miles)	64
Persons per Square Mile	1,656
Topography	Flat; gently rolling
Climate	Temperate; little ice and snow
Median Family Income U.S. Census 2010	$49,720

Service Profile

FTE Staff Positions	
Treatment Plant	32.0
Line Crews	28.0
Billing/Collection	6.0
Other	32.5
Number of Treatment Plants	2
Total Treatment Capacity	32.2 MGD
Average Daily Flow	16.5 MGD
River Basin into Which System Discharges	Yadkin-Pee Dee and Cape Fear
Miles of Gravity Main Line Pipe	653
Miles of Forced Main Line Pipe	16
Average Age of Main Line Pipe	35 years
Blocks in Sewer Mains	96
Number of System Breaks	0
Sanitary System Overflows	20
Number of Customer Accounts	38,624
Total Revenues Collected	$27,373,110

Full Cost Profile

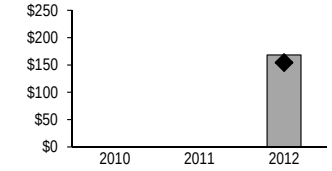
Cost Breakdown by Percentage	
Personal Services	30.7%
Operating Costs	35.6%
Capital Costs	33.7%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$5,487,384
Operating Costs	$6,359,650
Capital Costs	$6,008,612
TOTAL	$17,855,646

High Point — Wastewater Services

Key: High Point ■ Benchmarking Average ◆ Fiscal Years 2010 through 2012

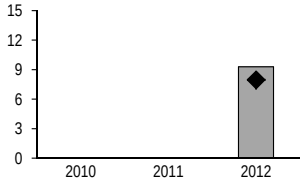
Resource Measures

Wastewater Services Cost per Capita



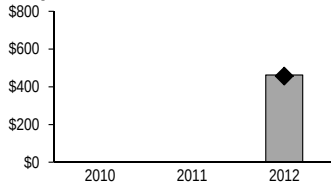
	2012
High Point	$168
Average	$154

Waterwater Services FTEs per 10,000 Population



	2012
High Point	9.3
Average	8.0

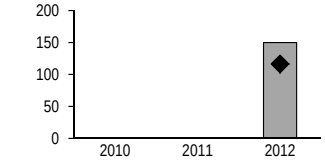
Waterwaste Services Cost per Customer Account



	2012
High Point	$462
Average	$457

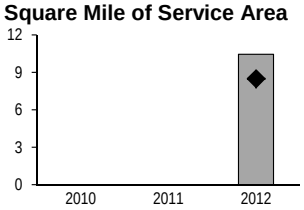
Workload Measures

Thousands of Gallons of Wastewater per Account



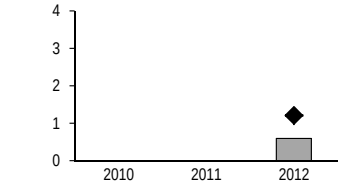
	2012
High Point	150.0
Average	116.6

Miles of Sewer Main Line Pipe per Square Mile of Service Area



	2012
High Point	10.5
Average	8.5

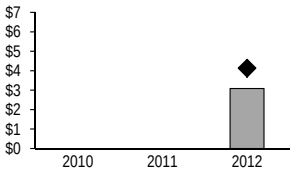
Number of Lift Stations per 1,000 Accounts



	2012
High Point	0.60
Average	1.21

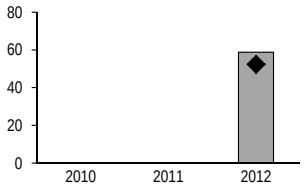
Efficiency Measures

Total Cost per 1,000 Gallons of Treated Wastewater



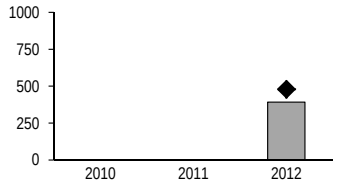
	2012
High Point	$3.08
Average	$4.13

Million Gallons of Wastewater per Wastewater Services FTE



	2012
High Point	58.8
Average	52.4

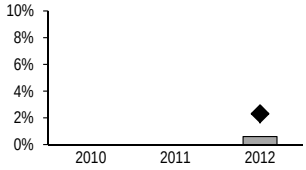
Customer Accounts per Wastewater Services FTE



	2012
High Point	392
Average	479

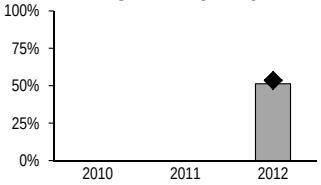
Effectiveness Measures

Percentage of Wastewater Bills Not Collected



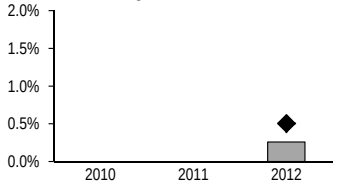
	2012
High Point	0.60%
Average	2.31%

Average Daily Treatment as a Percentage of Capacity



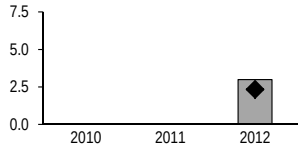
	2012
High Point	51.3%
Average	53.6%

Percent of Main Line Rehabbed or Replaced



	2012
High Point	0.26%
Average	0.51%

Overflows per 100 Miles of Main Line Pipe



	2012
High Point	2.99
Average	2.34

Backups per 100 Miles of Main Line Pipe

	2012
High Point	14.35
Average	11.16

Billed Wastewater as a Percent of Treated Effluent

	2012
High Point	65%
Average	79%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The City of Salisbury provides water and sewer service through a combined enterprise fund department known as the Salisbury-Rowan Utilities. The system covers Salisbury and much of Rowan County as well.

Wastewater is treated at two plants. Both plants use biological activated sludge process for treatment. The treatment process includes mechanical bar screens, grit removal chambers, primary and secondary clarifiers, aeration basins, and liquid chlorine disinfection. The system does not currently have nutrient regulatory limits. Biosolids produced as a result of treatment are handled through application to farmland in Rowan County.

The system had no regulatory violations during the year for issues related to treatment and six violations connected to collections. The collection violations were all sanitary sewer overflows which were primarily due to heavy rainfall.

Conditions Affecting Service, Performance, and Costs
Wastewater Services is a new service area for the benchmarking project beginning with FY 2011–12. The costs of wastewater or sewer services as captured here do not include debt service but do capture depreciation of capital.

Municipal Profile

Estimated Service Population	51,600
Service Land Area (Square Miles)	45
Persons per Square Mile	1,142
Topography	Flat; gently rolling
Climate	Temperate; little ice and snow
Median Family Income U.S. Census 2010	$40,192

Service Profile

FTE Staff Positions	
Treatment Plant	20.0
Line Crews	16.5
Billing/Collection	5.0
Other	14.0
Number of Treatment Plants	2
Total Treatment Capacity	12.5 MGD
Average Daily Flow	7.0 MGD
River Basin into Which System Discharges	Yadkin
Miles of Gravity Main Line Pipe	412
Miles of Forced Main Line Pipe	29
Average Age of Main Line Pipe	40 years
Blocks in Sewer Mains	43
Number of System Breaks	2
Sanitary System Overflows	10
Number of Customer Accounts	16,115
Total Revenues Collected	$11,382,901

Full Cost Profile

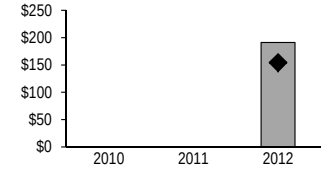
Cost Breakdown by Percentage	
Personal Services	29.8%
Operating Costs	43.9%
Capital Costs	26.4%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$2,939,431
Operating Costs	$4,329,889
Capital Costs	$2,601,909
TOTAL	$9,871,229

Salisbury — Wastewater Services

Key: Salisbury ■ Benchmarking Average ◆ Fiscal Years 2010 through 2012

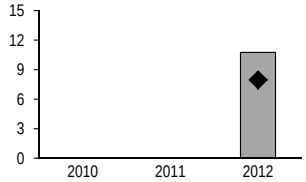
Resource Measures

Wastewater Services Cost per Capita



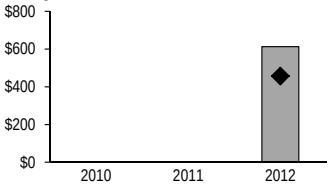
	2012
Salisbury	$191
Average	$154

Waterwater Services FTEs per 10,000 Population



	2012
Salisbury	10.8
Average	8.0

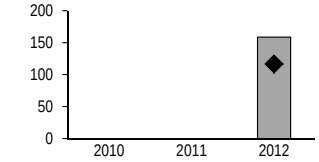
Waterwaste Services Cost per Customer Account



	2012
Salisbury	$613
Average	$457

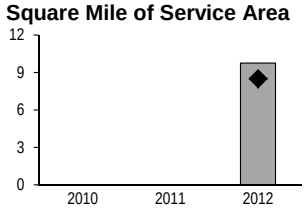
Workload Measures

Thousands of Gallons of Wastewater per Account



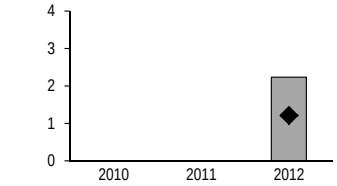
	2012
Salisbury	158.5
Average	116.6

Miles of Sewer Main Line Pipe per Square Mile of Service Area



	2012
Salisbury	9.8
Average	8.5

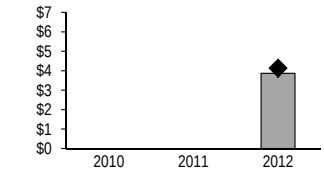
Number of Lift Stations per 1,000 Accounts



	2012
Salisbury	2.23
Average	1.21

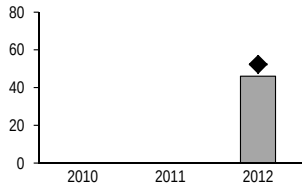
Efficiency Measures

Total Cost per 1,000 Gallons of Treated Wastewater



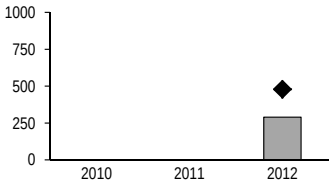
	2012
Salisbury	$3.86
Average	$4.13

Million Gallons of Wastewater per Wastewater Services FTE



	2012
Salisbury	46.0
Average	52.4

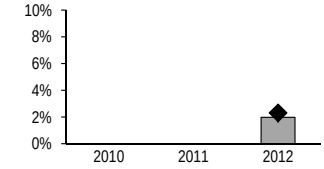
Customer Accounts per Wastewater Services FTE



	2012
Salisbury	290
Average	479

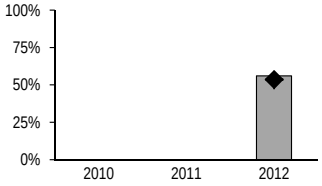
Effectiveness Measures

Percentage of Wastewater Bills Not Collected



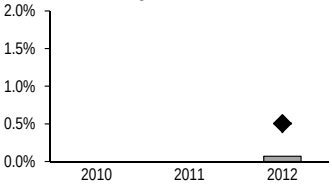
	2012
Salisbury	1.97%
Average	2.31%

Average Daily Treatment as a Percentage of Capacity



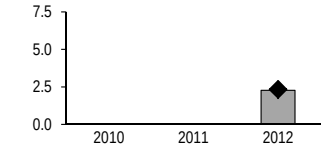
	2012
Salisbury	56.0%
Average	53.6%

Percent of Main Line Rehabbed or Replaced



	2012
Salisbury	0.07%
Average	0.51%

Overflows per 100 Miles of Main Line Pipe



	2012
Salisbury	2.27
Average	2.34

Backups per 100 Miles of Main Line Pipe

	2012
Salisbury	9.75
Average	11.16

Billed Wastewater as a Percent of Treated Effluent

	2012
Salisbury	55%
Average	79%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
Wastewater is handled by the Water Reclamation and Wastewater Collection Division, which is part of Water Resources in the Public Services Department. Billing for large customers is handled by Water Resources, but residential customers are handled by Customer Services Division in the Finance Department. The system covers the City of Wilson and several small adjoining areas outside the city in Wilson County.

Waterwater treatment is handled by one plant. The treatment plant uses advanced five-stage biological nutrient removal with deep bed filters with methanol and biological and chemical phosphorous reduction. The system had very stringent nutrient limits in place to protect water quality on the Neuse River basin. The system produced Class A and B biosolids, with most of this solid waste being composted. A small portion is applied on city land or other permitted farmland.

The system had no reported regulatory violations for either the treatment or collection portions of the system during the fiscal year.

Conditions Affecting Service, Performance, and Costs
Wastewater Services is a new service area for the benchmarking project beginning with FY 2011–12. The costs of wastewater or sewer services as captured here do not include debt service but do capture depreciation of capital.

Large capital improvements are being made to the Buckhorn Lake Dam and Wastewater Projects, which have been required to meet advanced nutrient removal standards.

Municipal Profile

Estimated Service Population	52,826
Service Land Area (Square Miles)	99
Persons per Square Mile	534
Topography	Flat
Climate	Temperate; little ice and snow
Median Family Income U.S. Census 2010	$43,442

Service Profile

FTE Staff Positions	
Treatment Plant	31.0
Line Crews	31.0
Billing/Collection	2.0
Other	1.0
Number of Treatment Plants	1
Total Treatment Capacity	14.0 MGD
Average Daily Flow	7.8 MGD
River Basin into Which System Discharges	Neuse
Miles of Gravity Main Line Pipe	349
Miles of Forced Main Line Pipe	5
Average Age of Main Line Pipe	40 years
Blocks in Sewer Mains	280
Number of System Breaks	17
Sanitary System Overflows	2
Number of Customer Accounts	20,099
Total Revenues Collected	$11,041,167

Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	33.8%
Operating Costs	42.6%
Capital Costs	23.6%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$3,722,163
Operating Costs	$4,687,897
Capital Costs	$2,602,812
TOTAL	$11,012,872

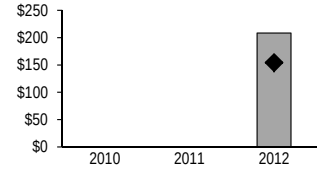
Wilson

Wastewater Services

Key: Wilson ■ Benchmarking Average ◆ Fiscal Years 2010 through 2012

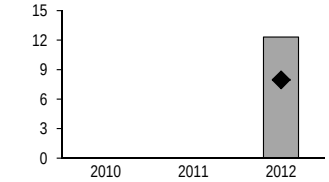
Resource Measures

Wastewater Services Cost per Capita



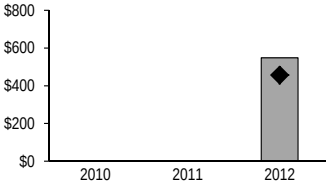
	2012
Wilson	$208
Average	$154

Waterwater Services FTEs per 10,000 Population



	2012
Wilson	12.3
Average	8.0

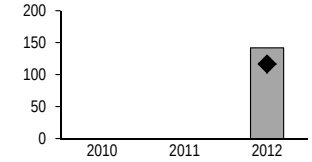
Waterwaste Services Cost per Customer Account



	2012
Wilson	$548
Average	$457

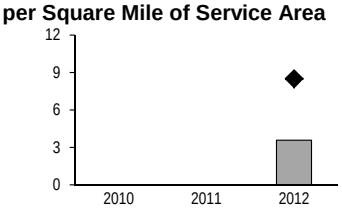
Workload Measures

Thousands of Gallons of Wastewater per Account



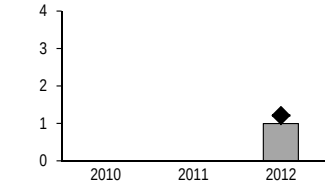
	2012
Wilson	141.8
Average	116.6

Miles of Sewer Main Line Pipe per Square Mile of Service Area



	2012
Wilson	3.6
Average	8.5

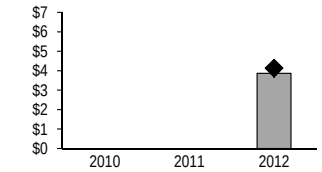
Number of Lift Stations per 1,000 Accounts



	2012
Wilson	1.00
Average	1.21

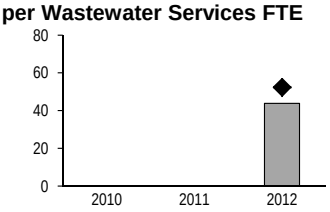
Efficiency Measures

Total Cost per 1,000 Gallons of Treated Wastewater



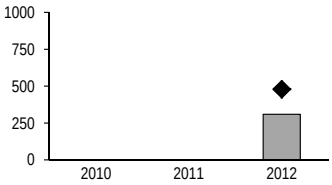
	2012
Wilson	$3.86
Average	$4.13

Million Gallons of Wastewater per Wastewater Services FTE



	2012
Wilson	43.9
Average	52.4

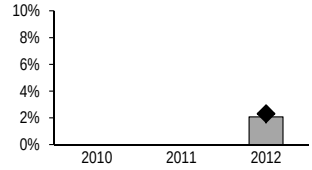
Customer Accounts per Wastewater Services FTE



	2012
Wilson	309
Average	479

Effectiveness Measures

Percentage of Wastewater Bills Not Collected

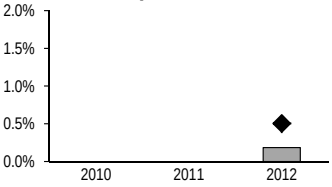


	2012
Wilson	2.07%
Average	2.31%

Average Daily Treatment as a Percentage of Capacity

	2012
Wilson	55.8%
Average	53.6%

Percent of Main Line Rehabbed or Replaced



	2012
Wilson	0.18%
Average	0.51%

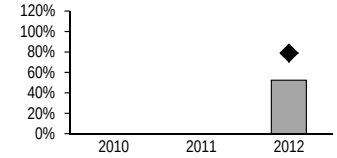
Overflows per 100 Miles of Main Line Pipe

	2012
Wilson	0.56
Average	2.34

Backups per 100 Miles of Main Line Pipe

	2012
Wilson	
Average	11.16

Billed Wastewater as a Percent of Treated Effluent



	2012
Wilson	52%
Average	79%

Fiscal Year 2011–12

Explanatory Information

Service Level and Delivery
The Winston-Salem and Forsyth County Utilities Division operates a com bined water and sewer system that covers the city and most of the remaining population of Forsyth County. The system also serves several adjoining areas in Davie and Davidson counties. Beyond water and wastewater, the Utilities Division also handles solid waste disposal. Operations are divided among several divisions by function.

The system has two separate treatment plants. The plants use conventional activated sludge with anaerobic digestion for treatment. The system currently does not have regulatory nutrient limits in place. Biosolids produced are disposed after first using thermal drying with subsequent reuse as a soil amendment.

During the fiscal year, the system had four regulatory violations connected to the treatment portion of the system.

Conditions Affecting Service, Performance, and Costs
Wastewater Services is a new service area for the benchmarking project beginning with FY 2011–12. The costs of wastewater or sewer services, as captured here, do not include debt service but do capture depreciation of capital.

Municipal Profile

Estimated Service Population	336,243
Service Land Area (Square Miles)	366
Persons per Square Mile	919
Topography	Gently rolling
Climate	Temperate; some ice and snow
Median Family Income U.S. Census 2010	$51,491

Service Profile

FTE Staff Positions	
Treatment Plant	86.0
Line Crews	89.0
Billing/Collection	16.0
Other	14.0
Number of Treatment Plants	2
Total Treatment Capacity	51.0 MGD
Average Daily Flow	30.9 MGD
River Basin into Which System Discharges	Yadkin
Miles of Gravity Main Line Pipe	1,680
Miles of Forced Main Line Pipe	30
Average Age of Main Line Pipe	40 years
Blocks in Sewer Mains	368
Number of System Breaks	47
Sanitary System Overflows	117
Number of Customer Accounts	93,684
Total Revenues Collected	$35,306,657

Full Cost Profile

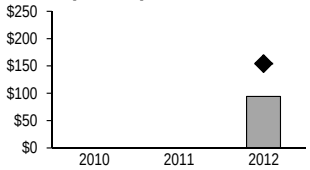
Cost Breakdown by Percentage	
Personal Services	28.5%
Operating Costs	37.7%
Capital Costs	33.8%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$9,018,277
Operating Costs	$11,924,313
Capital Costs	$10,703,029
TOTAL	$31,645,619

Winston Salem — Wastewater Services

Key: Winston Salem ■ Benchmarking Average ◆ Fiscal Years 2010 through 2012

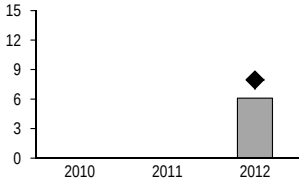
Resource Measures

Wastewater Services Cost per Capita



Winston-Salem	$94
Average	$154

Waterwater Services FTEs per 10,000 Population



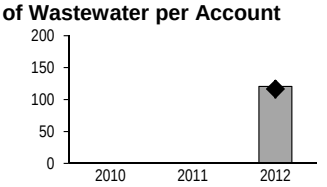
Winston-Salem	6.1
Average	8.0

Waterwaste Services Cost per Customer Account

Winston-Salem	$338
Average	$457

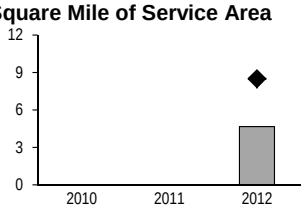
Workload Measures

Thousands of Gallons of Wastewater per Account



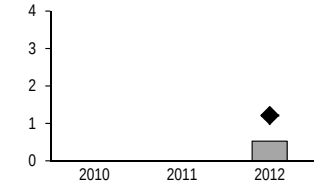
Winston-Salem	120.5
Average	116.6

Miles of Sewer Main Line Pipe per Square Mile of Service Area



Winston-Salem	4.7
Average	8.5

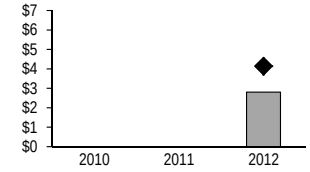
Number of Lift Stations per 1,000 Accounts



Winston-Salem	0.52
Average	1.21

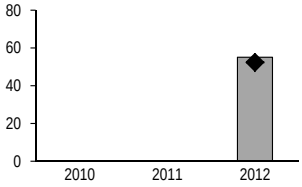
Efficiency Measures

Total Cost per 1,000 Gallons of Treated Wastewater



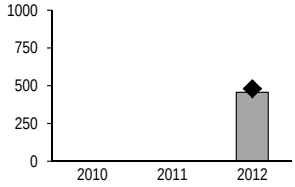
Winston-Salem	$2.80
Average	$4.13

Million Gallons of Wastewater per Wastewater Services FTE



Winston-Salem	55.1
Average	52.4

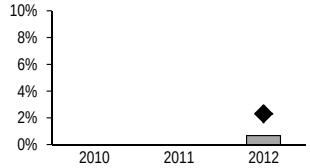
Customer Accounts per Wastewater Services FTE



Winston-Salem	457
Average	479

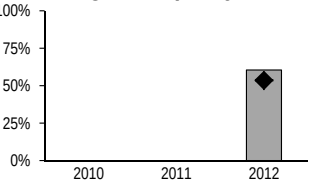
Effectiveness Measures

Percentage of Wastewater Bills Not Collected



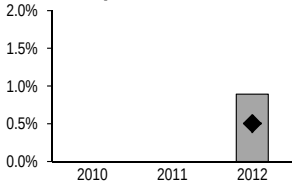
Winston-Salem	0.67%
Average	2.31%

Average Daily Treatment as a Percentage of Capacity



Winston-Salem	60.5%
Average	53.6%

Percent of Main Line Rehabbed or Replaced



Winston-Salem	0.89%
Average	0.51%

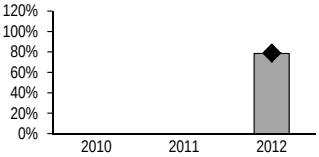
Overflows per 100 Miles of Main Line Pipe

Winston-Salem	6.84
Average	2.34

Backups per 100 Miles of Main Line Pipe

Winston-Salem	21.53
Average	11.16

Billed Wastewater as a Percent of Treated Effluent



Winston-Salem	79%
Average	79%

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