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NORTH CAROLINA LOCAL GOVERNMENT
PERFORMANCE MEASUREMENT PROJECT

Final Report on City Services for Fiscal Year 2014–2015

PERFORMANCE AND COST DATA

FEBRUARY 2016

COSPONSORED BY:

THE CITIES OF APEX, ASHEVILLE, BURLINGTON, CARY, CHAPEL HILL, CONCORD, GREENSBORO, GREENVILLE, HICKORY, HIGH POINT, SALISBURY, WILSON, AND WINSTON-SALEM

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NORTH CAROLINA LOCAL GOVERNMENT BUDGET ASSOCIATION

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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 ending June 30, 2015, for the thirteen North Carolina municipalities participating in the benchmarking project—Apex, Asheville, Burlington, Cary, Chapel Hill, Concord, Greensboro, Greenville, Hickory, High Point, Salisbury, Wilson, and Winston-Salem. Nineteen 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 and Finance Report Manager, and John Sanchez, Budget Analyst of Asheville; Aaron Noble, Human Resources Director of Burlington; Kathy Lleras, Budget Analyst of Cary; David Finley, Budget and Management Analyst of Chapel Hill; 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 Byron Hayes, Financial Analyst of Greenville; Karen Hurley, Budget Analyst of Hickory; Roslyn McNeil, Budget Analyst and Laura Altizer, Senior Budget Analyst of High Point; Evans C. Ballard, Budget and Benchmarking Analyst of Salisbury; Lanette Pridgen, Budget Analyst of Wilson; and Scott Tesh, Budget Analyst of Winston-Salem.

The benchmarking project receives contributions from other individuals who strongly support benchmarking and performance measurement. William C. Rivenbark and David N. Ammons, 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 Nancy Dooly and Dan Soileau in the Publications Division.

Dale J. Roenigk
February 2016

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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 thirteen municipalities that are included in this report:

- Apex
- Asheville
- Burlington
- Cary
- Chapel Hill
- Concord
- Greensboro
- Greenville
- Hickory
- High Point
- Salisbury
- 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
- Core Parks and Recreation

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 twentieth publication representing municipal services. The previous nineteen 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)
- *Final Report on City Services for Fiscal Year 2011–2012* (February 2013)

- *Final Report on City Services for Fiscal Year 2012–2013* (February 2014)
- *Final Report on City Services for Fiscal Year 2013–2014* (February 2015)

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 to deliver quality services at reasonable cost.

READING THE REPORT

This report presents the performance and cost data for the thirteen North Carolina municipalities participating in the benchmarking project for the fiscal year ending June 30, 2015. 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 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
Final Report on City Services for Fiscal Year 2012–2013	Apex, Burlington, Cary, Charlotte, Concord, Durham, Greensboro, Greenville, Hickory, High Point, Salisbury, Wilmington, Wilson, and Winston-Salem
Final Report on City Services for Fiscal Year 2013–2014	Apex, Burlington, Cary, Charlotte, Concord, Greensboro, Greenville, Hickory, High Point, Salisbury, Wilson, and Winston-Salem
Final Report on City Services for Fiscal Year 2014–2015	Apex, Burlington, Cary, Chapel Hill, Concord, Greensboro, Greenville, Hickory, High Point, Salisbury, 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, 2015. 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, 2011, through June 30, 2014, 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. Wastewater Services was added in the fiscal year ending June, 30, 2012. Finally, Core Parks and Recreation Services was added in the fiscal year ending June 30, 2013.

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, Chapel Hill, Concord, Greensboro, Greenville, Hickory, High Point, Salisbury, Wilson, and Winston-Salem
Household Recycling	Apex, Asheville, Burlington, Cary, Concord, Greensboro, Greenville, Hickory, High Point, Salisbury, Wilson, and Winston-Salem
Yard Waste/Leaf Collection	Apex, Asheville, Burlington, Cary, Chapel Hill, Concord, Greensboro, Greenville, Hickory, High Point, Salisbury, Wilson, and Winston-Salem
Police Services	Apex, Asheville, Burlington, Cary, Chapel Hill, Concord, Greensboro, Greenville, Hickory, High Point, Salisbury, Wilson, and Winston-Salem
Emergency Communications	Apex, Asheville, Burlington, Cary, Concord, Greensboro, Greenville, Hickory, High Point, and Winston-Salem
Asphalt Maintenance and Repair	Apex, Asheville, Burlington, Cary, Chapel Hill, Concord, Greensboro, Greenville, Hickory, High Point, Salisbury, Wilson, and Winston-Salem
Fire Services	Apex, Asheville, Burlington, Cary, Chapel Hill, Concord, Greensboro, Greenville, Hickory, High Point, Salisbury, Wilson, and Winston-Salem
Building Inspections	Apex, Asheville, Burlington, Cary, Chapel Hill, Greensboro, Greenville, High Point, Wilson, and Winston-Salem

Service Area	Jurisdictions
Fleet Maintenance	Apex, Asheville, Burlington, Cary, Chapel Hill, Concord, Greensboro, Greenville, Hickory, High Point, Salisbury, Wilson, and Winston-Salem
Central Human Resources	Apex, Asheville, Burlington, Cary, Chapel Hill, Concord, Greensboro, Greenville, Hickory, High Point, Salisbury, Wilson, and Winston-Salem
Water Services	Apex, Asheville, Burlington, Cary, Concord, Greensboro, Hickory, High Point, Salisbury, Wilson, and Winston-Salem
Wastewater Services	Apex, Cary, Concord, Greensboro, Hickory, High Point, Salisbury, Wilson, and Winston-Salem
Core Parks and Recreation	Apex, Asheville, Burlington, Chapel Hill, Concord, Greensboro, Greenville, 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 Cost 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	13,689	11,174	5	100%	Contracted	NA	NA	NA	NA	NA
Asheville	Curbside	29,918	21,858	34	0%	1 & 3 person	17	2	7	2	6 miles
Burlington	Curbside	17,644	12,271	16	0%	1 & 2 person	9	1	4	2	19 miles
Cary	Curbside	48,377	33,383	54	0%	1 & 4 person	29	2	11	1.5	30 miles
Chapel Hill	Curbside	11,960	6,646	28	0%	1 & 3 person	13.81	7	0	1	18 miles
Concord	Curbside	29,536	24,317	5	100%	Contracted	2.79	0	5	1	8 miles
Greensboro	Curbside	81,102	54,664	68	0%	1 & 2 person	31	3	23	1.8	8 miles
Greenville	Curbside and backyard	18,119	27,955	28	0%	1 & 3 person	14	3	4	2	5 miles
Hickory	Curbside	12,200	8,470	15	0%	1 & 2 person	4.24	0.25	3.25	2	5 miles
High Point	Curbside	49,900	33,188	44	0%	1 & 3 person	24.5	0.5	9	2	10 miles
Salisbury	Curbside	11,095	8,071	15	0%	1 person	6.5	3	2	1	10 miles
Wilson	Curbside	17,850	18,000	17	0%	1 & 3 person	12	2	5	2	10 miles
Winston-Salem	Curbside	77,907	53,220	103	0%	1 & 3 person	85	16	10	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 2014–15

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 $9.97 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 service also includes a small number of businesses in the downtown area who use the standard carts but recieve service twice a week.

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

The contractor collected 11,174 tons of residential refuse during FY 2014–15, at a cost of $104 per ton. The cost per ton does not include the disposal cost 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 2014)	42,689
Land Area (Square Miles)	17.25
Persons per Square Mile	2,475
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	NA
Average Distance to Disposal Site	NA
Average Daily Trips to Disposal Site	NA
Percentage of Service Contracted	100%
Collection Frequency	1 x week
General Collection Location	Curbside
Residential Customers (number represents collection points)	13,689
Tons Collected	11,174
Monthly Service Fee	$9.97

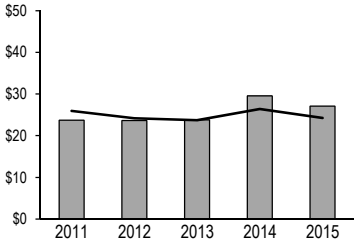
Full Cost Profile

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	$1,156,739
Capital Costs	$0
TOTAL	$1,156,739

Key: Apex ■ Benchmarking Average — Fiscal Years 2011 through 2015

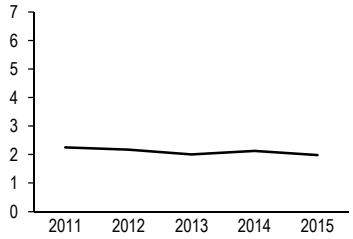
Resource Measures

Residential Refuse Collection Costs per Capita



	2011	2012	2013	2014	2015
Apex	$23.68	$23.63	$23.83	$29.57	$27.10
Average	$25.96	$24.15	$23.71	$26.43	$24.26

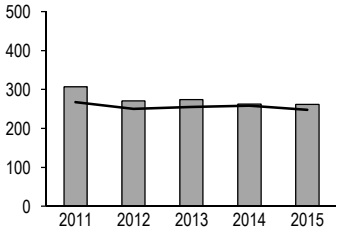
Residential Refuse FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Apex					
Average	2.26	2.17	2.01	2.13	1.99

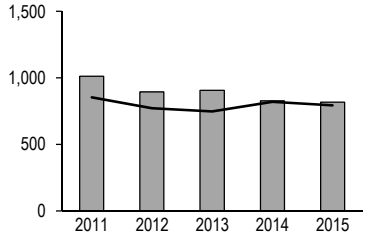
Workload Measures

Residential Refuse Tons per 1,000 Population



	2011	2012	2013	2014	2015
Apex	307	271	274	262	262
Average	267	250	255	258	248

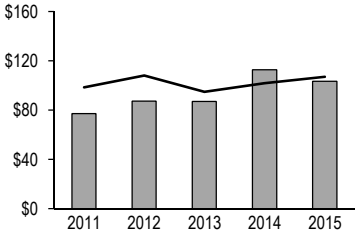
Residential Refuse Tons per 1,000 Collection Points



	2011	2012	2013	2014	2015
Apex	1,013	894	905	827	816
Average	853	771	749	820	793

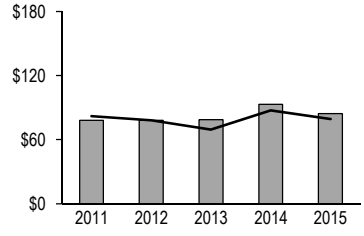
Efficiency Measures

Residential Refuse Collection Cost per Ton Collected



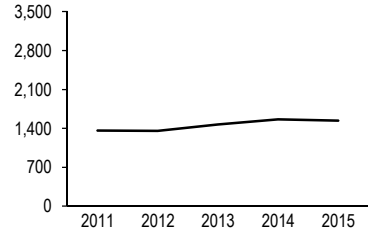
	2011	2012	2013	2014	2015
Apex	$77	$87	$87	$113	$104
Average	$99	$108	$95	$102	$107

Residential Refuse Collection Cost per Collection Point



	2011	2012	2013	2014	2015
Apex	$78	$78	$79	$93	$85
Average	$82	$78	$69	$87	$79

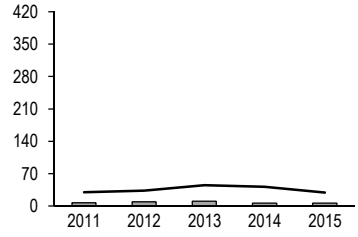
Refuse Tons Collected per Municipal Collection FTE



	2011	2012	2013	2014	2015
Apex					
Average	1,363	1,356	1,470	1,564	1,537

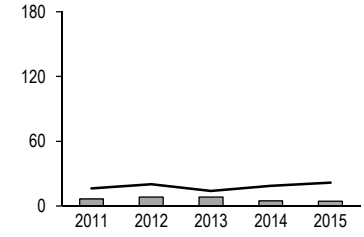
Effectiveness Measures

Complaints per 1,000 Collection Points



	2011	2012	2013	2014	2015
Apex	6.8	8.6	10.4	6.2	5.8
Average	29.5	32.8	44.9	41.6	28.9

Valid Complaints per 1,000 Collection Points



	2011	2012	2013	2014	2015
Apex	6.5	8.1	8.3	4.6	4.4
Average	16.1	20.1	13.8	18.6	21.6

Fiscal Year 2014–15

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 Thursday for the collection of bulky items, clean-ups, and streets not accessible by automated trucks.

There are thirty-four main collection routes served by the automated trucks. 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. Two rear packers serve seven collection routes.

The city collected 21,858 tons of residential refuse during FY 2014–15, 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-six-gallon capacity. Some residents use containers of sixty-five-gallon or thirty-five-gallon capacity. Residents may rent more containers if desired for $7 per month. Residents receiving rear-loading service provide their own containers. They are able to use up to six containers or bags. There is a $7 per month waste fee regardless of container size.

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

Municipal Profile

Population (OSBM 2014)	89,248
Land Area (Square Miles)	45.52
Persons per Square Mile	1,961
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 2 packer
Size of Crews (most commonly used)	1 & 3 person
Weekly Routes	34
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)	29,918
Tons Collected	21,858
Monthly Service Fee	$7.00

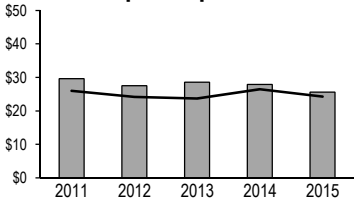
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	39.2%
Operating Costs	41.3%
Capital Costs	19.6%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$896,452
Operating Costs	$943,771
Capital Costs	$447,656
TOTAL	$2,287,879

Key: Asheville ■ Benchmarking Average — Fiscal Years 2011 through 2015

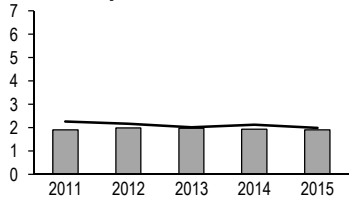
Resource Measures

Residential Refuse Collection Costs per Capita



	2011	2012	2013	2014	2015
Asheville	$29.67	$27.49	$28.57	$27.89	$25.64
Average	$25.96	$24.15	$23.71	$26.43	$24.26

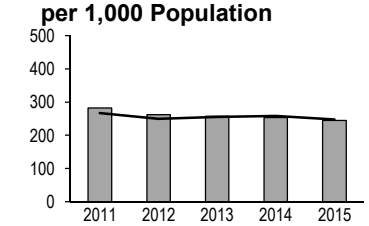
Residential Refuse FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Asheville	1.9050794	1.98	1.97	1.93	1.90
Average	2.26	2.17	2.01	2.13	1.99

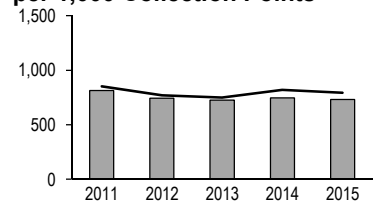
Workload Measures

Residential Refuse Tons per 1,000 Population



	2011	2012	2013	2014	2015
Asheville	282.5947	262	257	253	245
Average	267	250	255	258	248

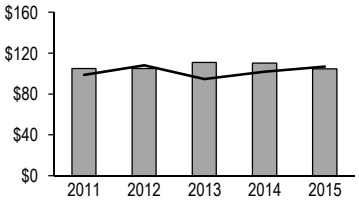
Residential Refuse Tons per 1,000 Collection Points



	2011	2012	2013	2014	2015
Asheville	814	744	725	747	731
Average	853	771	749	820	793

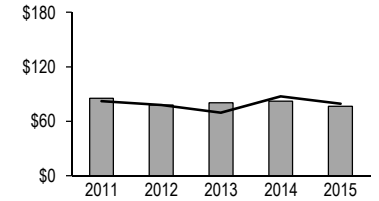
Efficiency Measures

Residential Refuse Collection Cost per Ton Collected



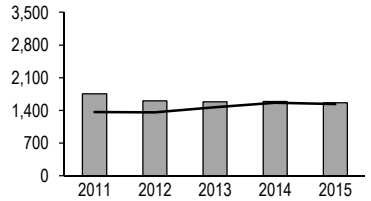
	2011	2012	2013	2014	2015
Asheville	$105	$105	$111	$110	$105
Average	$99	$108	$95	$102	$107

Residential Refuse Collection Cost per Collection Point



	2011	2012	2013	2014	2015
Asheville	$85	$78	$81	$82	$76
Average	$82	$78	$69	$87	$79

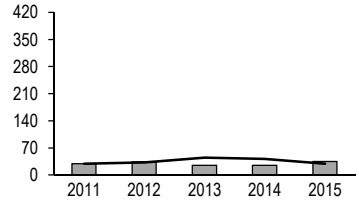
Refuse Tons Collected per Municipal Collection FTE



	2011	2012	2013	2014	2015
Asheville	1,758	1,603	1,585	1,591	1,561
Average	1,363	1,356	1,470	1,564	1,537

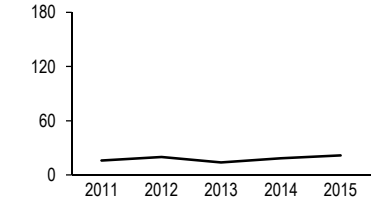
Effectiveness Measures

Complaints per 1,000 Collection Points



	2011	2012	2013	2014	2015
Asheville	29.2	34.4	25.3	25.2	35.3
Average	29.5	32.8	44.9	41.6	28.9

Valid Complaints per 1,000 Collection Points



	2011	2012	2013	2014	2015
Asheville					
Average	16.1	20.1	13.8	18.6	21.6

Fiscal Year 2014–15

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 12,271 tons of residential refuse during FY 2014–15, at a cost of $135 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 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 2014)	51,923
Land Area (Square Miles)	30.52
Persons per Square Mile	1,701
Median Family Income U.S. Census 2010	$46,461

Service Profile

FTE Positions—Collection	6.0
FTE Positions—Other	3.0
Type of Equipment	4 automated packers 1 packers
Size of Crews (most commonly used)	1 & 2 person
Weekly Routes	16
Average Distance to Disposal Site	19 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)	17,644
Tons Collected	12,271
Monthly Service Fee	$6.00

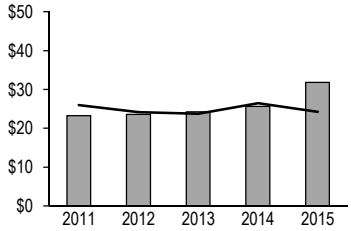
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	39.8%
Operating Costs	43.5%
Capital Costs	16.8%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$657,642
Operating Costs	$719,212
Capital Costs	$277,033
TOTAL	$1,653,887

Key: Burlington ■ Benchmarking Average — Fiscal Years 2011 through 2015

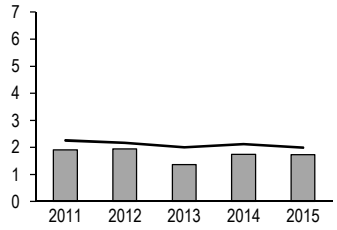
Resource Measures

Residential Refuse Collection Costs per Capita



	2011	2012	2013	2014	2015
Burlington	$23.27	$23.60	$24.21	$25.64	$31.85
Average	$25.96	$24.15	$23.71	$26.43	$24.26

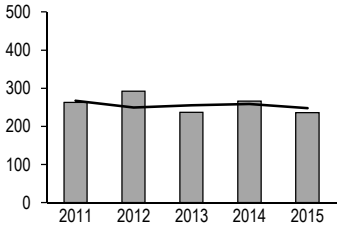
Residential Refuse FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Burlington	1.91	1.95	1.37	1.75	1.73
Average	2.26	2.17	2.01	2.13	1.99

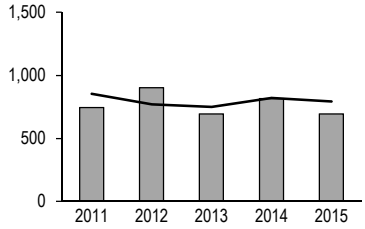
Workload Measures

Residential Refuse Tons per 1,000 Population



	2011	2012	2013	2014	2015
Burlington	263	293	237	266	236
Average	267	250	255	258	248

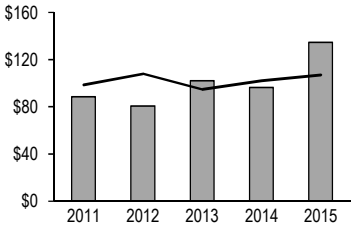
Residential Refuse Tons per 1,000 Collection Points



	2011	2012	2013	2014	2015
Burlington	744	902	695	815	695
Average	853	771	749	820	793

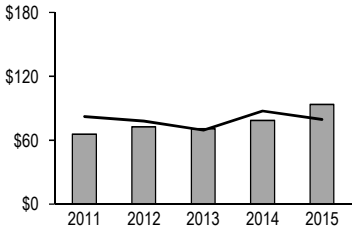
Efficiency Measures

Residential Refuse Collection Cost per Ton Collected



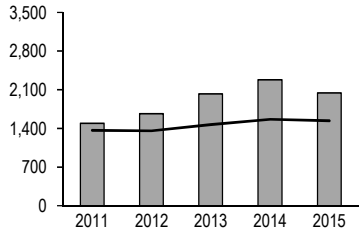
	2011	2012	2013	2014	2015
Burlington	$88	$81	$102	$96	$135
Average	$99	$108	$95	$102	$107

Residential Refuse Collection Cost per Collection Point



	2011	2012	2013	2014	2015
Burlington	$66	$73	$71	$79	$94
Average	$82	$78	$69	$87	$79

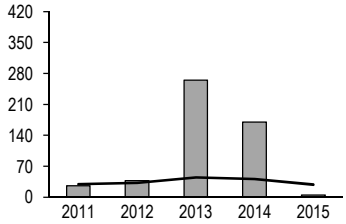
Refuse Tons Collected per Municipal Collection FTE



	2011	2012	2013	2014	2015
Burlington	1,493	1,667	2,024	2,278	2,045
Average	1,363	1,356	1,470	1,564	1,537

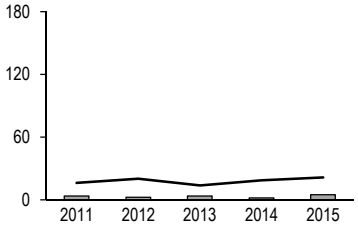
Effectiveness Measures

Complaints per 1,000 Collection Points



	2011	2012	2013	2014	2015
Burlington	26.2	37.3	264.5	170.2	4.8
Average	29.5	32.8	44.9	41.6	28.9

Valid Complaints per 1,000 Collection Points



	2011	2012	2013	2014	2015
Burlington	3.6	2.4	3.6	1.9	4.8
Average	16.1	20.1	13.8	18.6	21.6

Fiscal Year 2014–15

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 $15.00 per month, covering both solid waste and recycling services.

Cary used eleven automated trucks, each with one driver, and two rear loaders, each with one driver and three collectors. A total of fifty-four collection routes were used during FY 2014–15. The average distance to the landfill was thirty miles, with each route averaging one and a half trips per day.

The town collected 33,383 tons of residential refuse during FY 2015–15, at a cost of $147 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 2014)	148,333
Land Area (Square Miles)	56.47
Persons per Square Mile	2,627
Median Family Income U.S. Census 2010	$108,956

Service Profile

FTE Positions—Collection	27.0
FTE Positions—Other	3.0
Type of Equipment	11 automated packers 2 packers
Size of Crews (most commonly used)	1 & 4 person
Weekly Routes	54
Average Distance to Disposal Site	30 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)	48,377
Tons Collected	33,383
Monthly Service Fee	$15.00

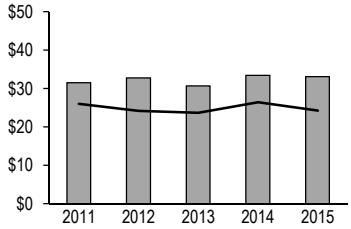
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	42.4%
Operating Costs	40.3%
Capital Costs	17.3%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$2,078,971
Operating Costs	$1,976,089
Capital Costs	$845,948
TOTAL	$4,901,008

Key: Cary ■ Benchmarking Average — Fiscal Years 2011 through 2015

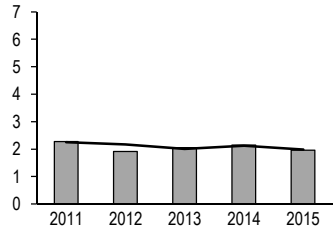
Resource Measures

Residential Refuse Collection Costs per Capita



	2011	2012	2013	2014	2015
Cary	$31.46	$32.69	$30.68	$33.38	$33.04
Average	$25.96	$24.15	$23.71	$26.43	$24.26

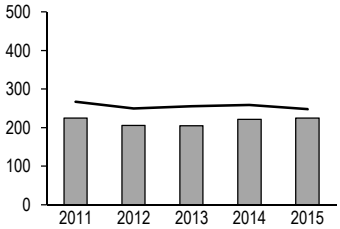
Residential Refuse FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Cary	2.28	1.92	2.05	2.14	1.96
Average	2.26	2.17	2.01	2.13	1.99

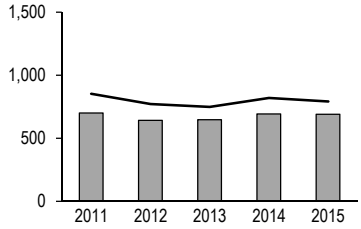
Workload Measures

Residential Refuse Tons per 1,000 Population



	2011	2012	2013	2014	2015
Cary	224	205	205	222	225
Average	267	250	255	258	248

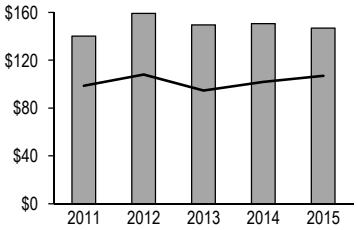
Residential Refuse Tons per 1,000 Collection Points



	2011	2012	2013	2014	2015
Cary	700	642	648	693	690
Average	853	771	749	820	793

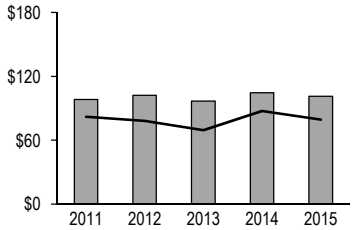
Efficiency Measures

Residential Refuse Collection Cost per Ton Collected



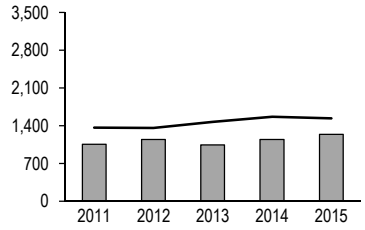
	2011	2012	2013	2014	2015
Cary	$140	$159	$150	$151	$147
Average	$99	$108	$95	$102	$107

Residential Refuse Collection Cost per Collection Point



	2011	2012	2013	2014	2015
Cary	$98	$102	$97	$104	$101
Average	$82	$78	$69	$87	$79

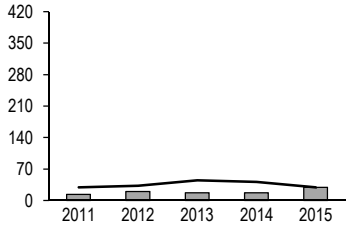
Refuse Tons Collected per Municipal Collection FTE



	2011	2012	2013	2014	2015
Cary	1,054	1,143	1,043	1,145	1,236
Average	1,363	1,356	1,470	1,564	1,537

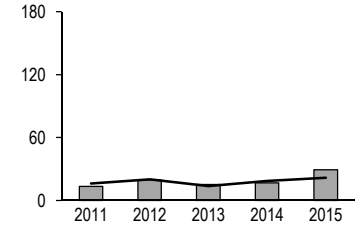
Effectiveness Measures

Complaints per 1,000 Collection Points



	2011	2012	2013	2014	2015
Cary	13.4	19.6	17.1	16.8	29.3
Average	29.5	32.8	44.9	41.6	28.9

Valid Complaints per 1,000 Collection Points



	2011	2012	2013	2014	2015
Cary	13.4	19.6	15.2	16.8	29.3
Average	16.1	20.1	13.8	18.6	21.6

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery
Chapel Hill residential refuse collection is performed by the Solid Waste Services Division under the Public Works Department. The Town provides weekly household waste collection Mondays and Tuesdays with no fees charged.

The town has 28 separate routes during a week served by 7 crews using rear packers. The seven crews using rear packers serve 14 routes each on. The packer crews are staffed with three persons, one driver and two collectors. The trucks average one trip to the transfer station with the distance averaging 18 miles one way. A lift gate truck is also used to collect bulky items and electronics for a fee five days per week running two routes per day. Two pickup trucks are also used to collect medical exemptions, pedestrian trash cans, and streets not accessible to rear packers with one truck running seven days per week and the other running two days per week.

The town collected 6,646 tons of residential refuse during the fiscal year at a cost of $260 per ton or $85 per collection point. The cost does not include the disposal cost of $41 per tone at the transfer station for the tipping fee. Residents receive one roll cart at no charge. Residents can also purchase their own trash cans but these must be 32 gallons or smaller and weigh less than 60 pounds when full.

Conditions Affecting Service, Performance, and Costs
The Town of Chapel Hill began participation in the benchmarking project in July 2015, with FY 2014–15 being the first reporting year.

The out-of-town transfer station is the primary disposal location for Chapel Hill. Orange County had the highest waste reduction rate (64 percent) in North Carolina in FY 2014–15. The twon provides special exemptions for backyard collections for 421 collection points which represents 3.52 percent of the total collection points.

Municipal Profile

Population (OSBM 2014)	59,758
Land Area (Square Miles)	21.17
Persons per Square Mile	2,823
Median Family Income U.S. Census 2010	$61,405

Service Profile

FTE Positions—Collection	12.7
FTE Positions—Other	1.1
Type of Equipment	7 packers 1 Lift-Gate Truck and 2 Pickups
Size of Crews (most commonly used)	1 & 3 person
Weekly Routes	28
Average Distance to Disposal Site	18 miles
Average Daily Route 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)	11,960
Tons Collected	6,646
Monthly Service Fee	No

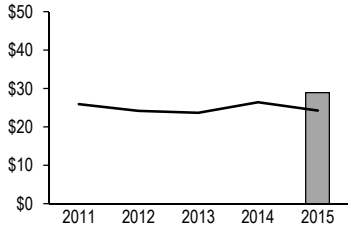
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	45.3%
Operating Costs	53.5%
Capital Costs	1.1%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$784,528
Operating Costs	$926,651
Capital Costs	$19,799
TOTAL	$1,730,978

Key: Chapel Hill ■ Benchmarking Average — Fiscal Years 2011 through 2015

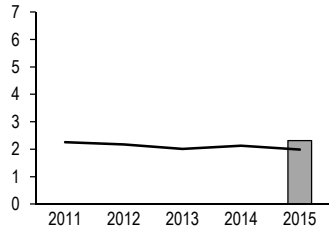
Resource Measures

Residential Refuse Collection Costs per Capita



	2011	2012	2013	2014	2015
Chapel Hill					$28.97
Average	$25.96	$24.15	$23.71	$26.43	$24.26

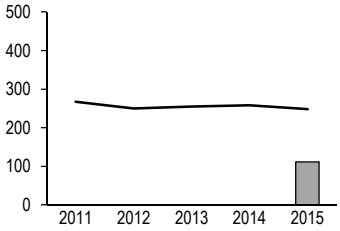
Residential Refuse FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Chapel Hill					2.31
Average	2.26	2.17	2.01	2.13	1.99

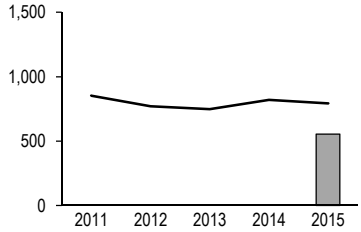
Workload Measures

Residential Refuse Tons per 1,000 Population



	2011	2012	2013	2014	2015
Chapel Hill					111
Average	267	250	255	258	248

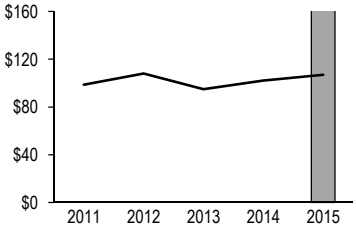
Residential Refuse Tons per 1,000 Collection Points



	2011	2012	2013	2014	2015
Chapel Hill					556
Average	853	771	749	820	793

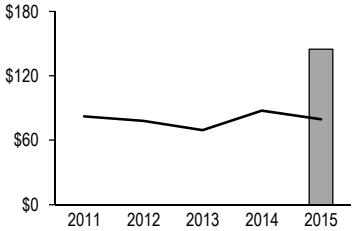
Efficiency Measures

Residential Refuse Collection Cost per Ton Collected



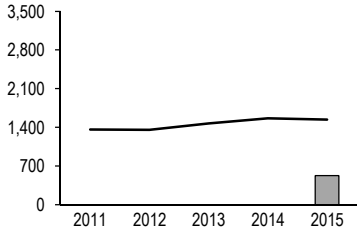
	2011	2012	2013	2014	2015
Chapel Hill					$260
Average	$99	$108	$95	$102	$107

Residential Refuse Collection Cost per Collection Point



	2011	2012	2013	2014	2015
Chapel Hill					$145
Average	$82	$78	$69	$87	$79

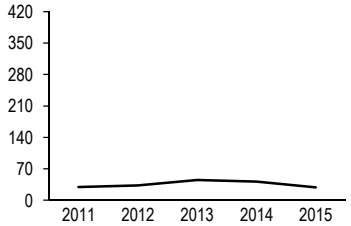
Refuse Tons Collected per Municipal Collection FTE



	2011	2012	2013	2014	2015
Chapel Hill					523
Average	1,363	1,356	1,470	1,564	1,537

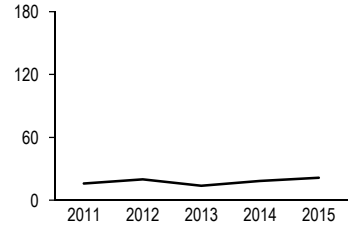
Effectiveness Measures

Complaints per 1,000 Collection Points



	2011	2012	2013	2014	2015
Chapel Hill					
Average	29.5	32.8	44.9	41.6	28.9

Valid Complaints per 1,000 Collection Points



	2011	2012	2013	2014	2015
Chapel Hill					
Average	16.1	20.1	13.8	18.6	21.6

Fiscal Year 2014–15

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 $1.71 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 contractor serviced twenty-five collection routes each week, with an average distance per 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 24,317 tons of residential refuse during the fiscal year, at a cost of $88 per ton.

Conditions Affecting Service, Performance, and Costs
During FY 2011–2012, Concord switched contractors. This change in Concord's refuse collection process 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 initial three months.

Concord is one of only two jurisdictions 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.

Concord discontinued its old system, which required citizens to schedule the collection of bulky items. Too many collections were not called in, resulting in bulky items being left curbside for days and generating complaints. The drop in complaints in FY 2013–14 was the result of a new system where the city scouts out items to be picked up and citizens are not required to call in. Pickup is improved and additional costs for the scouting have been offset by savings from avoided costs through improved collection efficiencies.

Municipal Profile

Population (OSBM 2014)	85,428
Land Area (Square Miles)	61.09
Persons per Square Mile	1,398
Median Family Income U.S. Census 2010	$63,643

Service Profile

FTE Positions—Collection	Contractor
FTE Positions—Other	1.5
Type of Equipment	5 automated packers
Size of Crews (most commonly used)	1 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)	29,536
Tons Collected	24,317
Monthly Service Fee	No

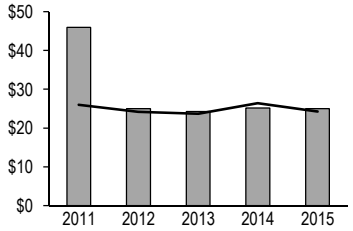
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	7.0%
Operating Costs	92.8%
Capital Costs	0.2%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$150,387
Operating Costs	$1,982,699
Capital Costs	$3,403
TOTAL	$2,136,489

Key: Concord ■ Benchmarking Average — Fiscal Years 2011 through 2015

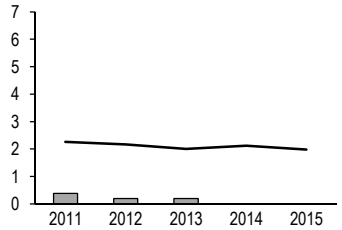
Resource Measures

Residential Refuse Collection Costs per Capita



	2011	2012	2013	2014	2015
Concord	$45.96	$25.02	$24.27	$25.16	$25.01
Average	$25.96	$24.15	$23.71	$26.43	$24.26

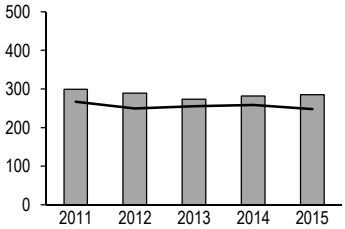
Residential Refuse FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Concord	0.38	0.20	0.20		
Average	2.26	2.17	2.01	2.13	1.99

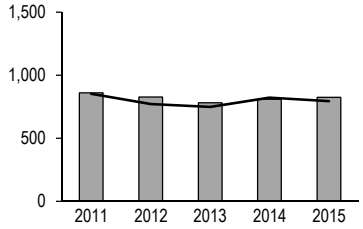
Workload Measures

Residential Refuse Tons per 1,000 Population



	2011	2012	2013	2014	2015
Concord	299	289	274	281	285
Average	267	250	255	258	248

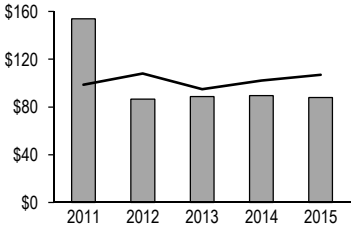
Residential Refuse Tons per 1,000 Collection Points



	2011	2012	2013	2014	2015
Concord	858	825	782	808	823
Average	853	771	749	820	793

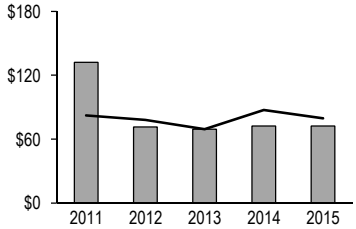
Efficiency Measures

Residential Refuse Collection Cost per Ton Collected



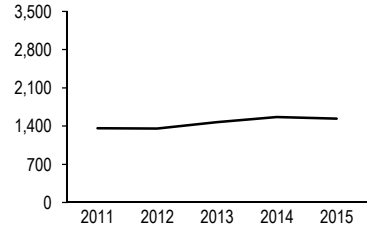
	2011	2012	2013	2014	2015
Concord	$154	$87	$89	$89	$88
Average	$99	$108	$95	$102	$107

Residential Refuse Collection Cost per Collection Point



	2011	2012	2013	2014	2015
Concord	$132	$72	$69	$72	$72
Average	$82	$78	$69	$87	$79

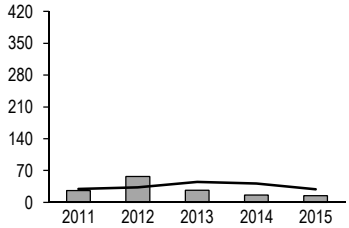
Refuse Tons Collected per Municipal Collection FTE



	2011	2012	2013	2014	2015
Concord					
Average	1,363	1,356	1,470	1,564	1,537

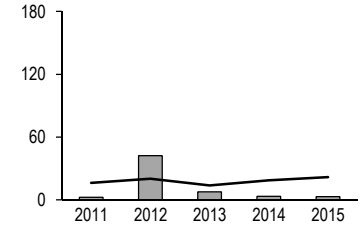
Effectiveness Measures

Complaints per 1,000 Collection Points



	2011	2012	2013	2014	2015
Concord	25.8	56.9	26.7	16.0	14.7
Average	29.5	32.8	44.9	41.6	28.9

Valid Complaints per 1,000 Collection Points



	2011	2012	2013	2014	2015
Concord	2.5	42.2	7.5	3.2	3.0
Average	16.1	20.1	13.8	18.6	21.6

Fiscal Year 2014–15

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. Currently there is no fee for residential collection of refuse.

There were twenty-one city crews for FY 2014–15. Eighteen crews each have one driver operating an automated packer. Three crews use rear loaders.

The city used sixty-eight 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 54,664 tons of residential refuse during FY 2014–15, at a cost of $70 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.

Municipal Profile

Population (OSBM 2014)	280,803
Land Area (Square Miles)	128.11
Persons per Square Mile	2,192
Median Family Income U.S. Census 2010	$52,752

Service Profile

FTE Positions—Collection	27.0
FTE Positions—Other	4.0
Type of Equipment	18 automated packers 3 packers
Size of Crews (most commonly used)	1 & 2 person
Weekly Routes	68
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)	81,102
Tons Collected	54,664
Monthly Service Fee	No

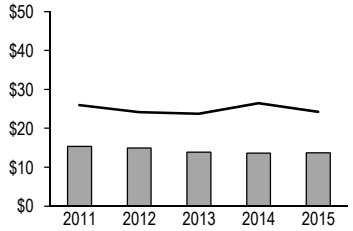
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	31.7%
Operating Costs	68.3%
Capital Costs	0.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,216,046
Operating Costs	$2,619,661
Capital Costs	$0
TOTAL	$3,835,707

Key: Greensboro ■ Benchmarking Average — Fiscal Years 2011 through 2015

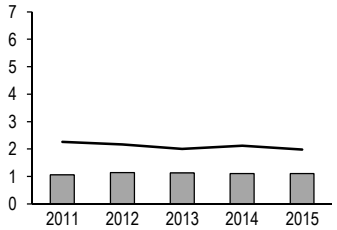
Resource Measures

Residential Refuse Collection Costs per Capita



	2011	2012	2013	2014	2015
Greensboro	$15.32	$14.92	$13.89	$13.62	$13.66
Average	$25.96	$24.15	$23.71	$26.43	$24.26

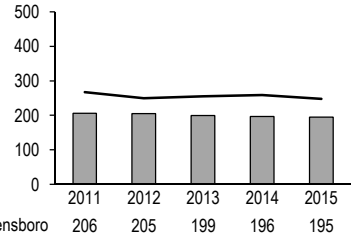
Residential Refuse FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Greensboro	1.06	1.14	1.13	1.11	1.10
Average	2.26	2.17	2.01	2.13	1.99

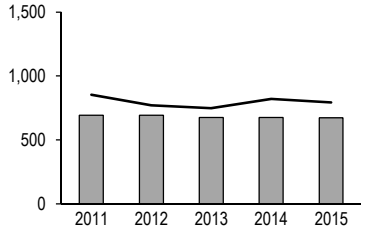
Workload Measures

Residential Refuse Tons per 1,000 Population



	2011	2012	2013	2014	2015
Greensboro	206	205	199	196	195
Average	267	250	255	258	248

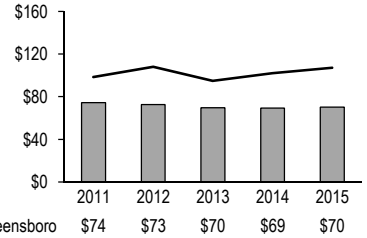
Residential Refuse Tons per 1,000 Collection Points



	2011	2012	2013	2014	2015
Greensboro	694	693	677	675	674
Average	853	771	749	820	793

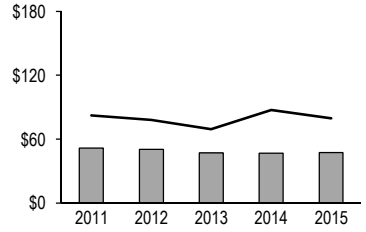
Efficiency Measures

Residential Refuse Collection Cost per Ton Collected



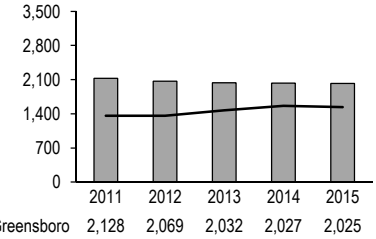
	2011	2012	2013	2014	2015
Greensboro	$74	$73	$70	$69	$70
Average	$99	$108	$95	$102	$107

Residential Refuse Collection Cost per Collection Point



	2011	2012	2013	2014	2015
Greensboro	$52	$50	$47	$47	$47
Average	$82	$78	$69	$87	$79

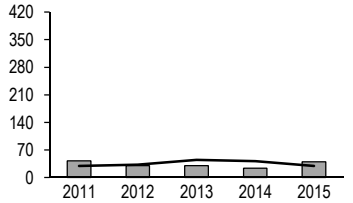
Refuse Tons Collected per Municipal Collection FTE



	2011	2012	2013	2014	2015
Greensboro	2,128	2,069	2,032	2,027	2,025
Average	1,363	1,356	1,470	1,564	1,537

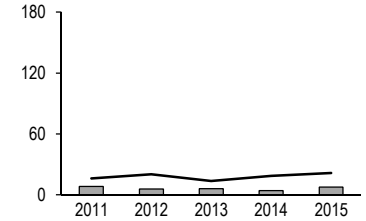
Effectiveness Measures

Complaints per 1,000 Collection Points



	2011	2012	2013	2014	2015
Greensboro	42.2	29.7	30.0	23.6	39.6
Average	29.5	32.8	44.9	41.6	28.9

Valid Complaints per 1,000 Collection Points



	2011	2012	2013	2014	2015
Greensboro	8.2	5.9	6.0	4.1	7.6
Average	16.1	20.1	13.8	18.6	21.6

Fiscal Year 2014–15

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 $42.30 per month, while curbside is priced at $14.50 per month. Most residents have chosen curbside. White goods and electronic reclying curbside is included in the residential refuse fee.

The city uses three crews, each composed of one driver and two collection workers who work four days a week. The crews use rear-loading collection trucks. Four additional drivers work alone on automated trucks.

Twenty-eight collection routes were used during FY 2014–15, with an average of one trip 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 27,995 tons of residential refuse during FY 2014–15, at a cost of $67 per ton. The cost per ton does not include the disposal cost of $33.66, representing the tipping fee at the transfer station.

Conditions Affecting Service, Performance, and Costs
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.

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 made substantial changes during FY 2013–14 including new trucks and new carts. Additionally, early retirement incentives were given to some employees to reduce staff size raising costs on a one-time basis.

Municipal Profile

Population (OSBM 2014)	87,436
Land Area (Square Miles)	34.90
Persons per Square Mile	2,505
Median Family Income U.S. Census 2010	$50,395

Service Profile

FTE Positions—Collection	13.0
FTE Positions—Other	1.0
Type of Equipment	4 automated packers 3 packers
Size of Crews (most commonly used)	1 & 3 person
Weekly Routes	28
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 and backyard
Residential Customers (number represents collection points)	18,119
Tons Collected	27,955
Monthly Service Fee	$14.50 Curbside $42.30 Backyard

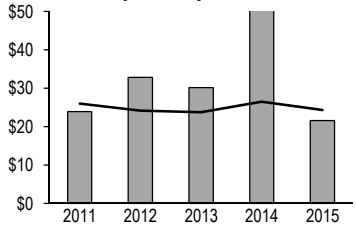
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	44.1%
Operating Costs	42.7%
Capital Costs	13.3%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$829,900
Operating Costs	$803,458
Capital Costs	$249,903
TOTAL	$1,883,261

Key: Greenville ■ Benchmarking Average — Fiscal Years 2011 through 2015

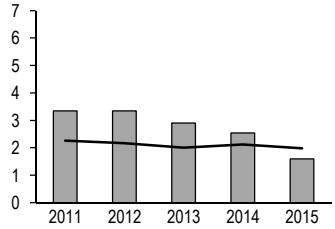
Resource Measures

Residential Refuse Collection Costs per Capita



	2011	2012	2013	2014	2015
Greenville	$23.86	$32.77	$30.14	$51.48	$21.54
Average	$25.96	$24.15	$23.71	$26.43	$24.26

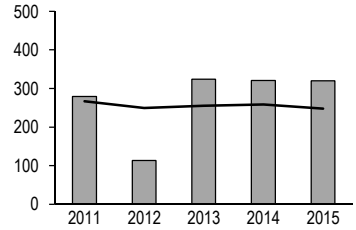
Residential Refuse FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Greenville	3.35	3.35	2.90	2.54	1.60
Average	2.26	2.17	2.01	2.13	1.99

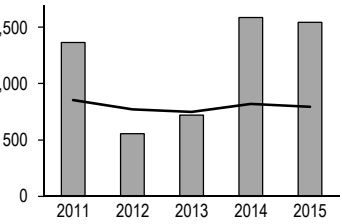
Workload Measures

Residential Refuse Tons per 1,000 Population



	2011	2012	2013	2014	2015
Greenville	279	114	324	320	320
Average	267	250	255	258	248

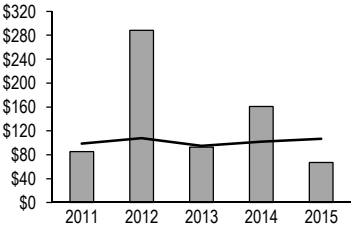
Residential Refuse Tons per 1,000 Collection Points



	2011	2012	2013	2014	2015
Greenville	1,364	554	719	1,587	1,543
Average	853	771	749	820	793

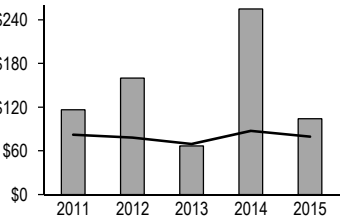
Efficiency Measures

Residential Refuse Collection Cost per Ton Collected



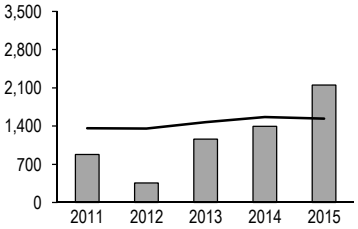
	2011	2012	2013	2014	2015
Greenville	$85	$288	$93	$161	$67
Average	$99	$108	$95	$102	$107

Residential Refuse Collection Cost per Collection Point



	2011	2012	2013	2014	2015
Greenville	$117	$160	$67	$255	$104
Average	$82	$78	$69	$87	$79

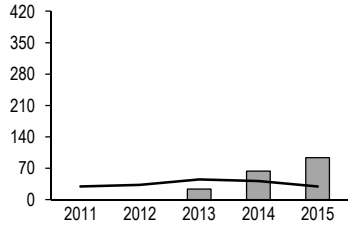
Refuse Tons Collected per Municipal Collection FTE



	2011	2012	2013	2014	2015
Greenville	881	358	1,162	1,398	2,150
Average	1,363	1,356	1,470	1,564	1,537

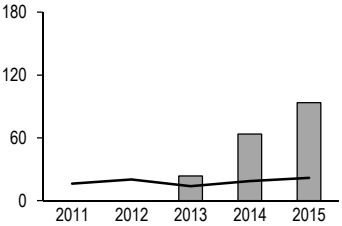
Effectiveness Measures

Complaints per 1,000 Collection Points



	2011	2012	2013	2014	2015
Greenville			23.6	63.5	93.7
Average	29.5	32.8	44.9	41.6	28.9

Valid Complaints per 1,000 Collection Points



	2011	2012	2013	2014	2015
Greenville			23.6	63.5	93.7
Average	16.1	20.1	13.8	18.6	21.6

Fiscal Year 2014–15

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 $16.50 per cart was charged for residential refuse collection service during FY 2014–15. 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 used during FY 2014–15, 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 8,470 tons of residential refuse during FY 2014–15, at a cost of $63 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 2014)	40,332
Land Area (Square Miles)	29.84
Persons per Square Mile	1,352
Median Family Income U.S. Census 2010	$54,093

Service Profile

FTE Positions—Collection	3.75
FTE Positions—Other	0.49
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)	12,200
Tons Collected	8,470
Monthly Service Fee	$16.50 per cart

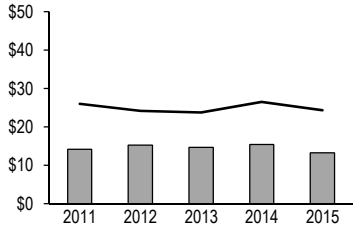
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	41.3%
Operating Costs	35.6%
Capital Costs	23.1%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$220,411
Operating Costs	$190,157
Capital Costs	$123,144
TOTAL	$533,712

Key: Hickory ■ Benchmarking Average — Fiscal Years 2011 through 2015

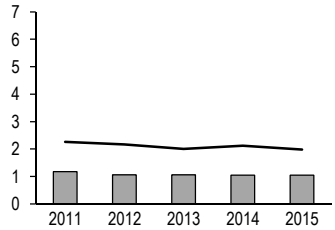
Resource Measures

Residential Refuse Collection Costs per Capita



	2011	2012	2013	2014	2015
Hickory	$14.12	$15.22	$14.66	$15.38	$13.23
Average	$25.96	$24.15	$23.71	$26.43	$24.26

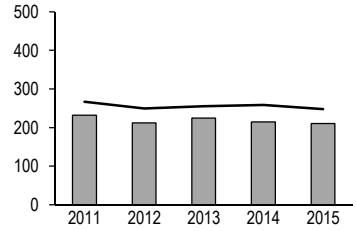
Residential Refuse FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Hickory	1.18	1.06	1.06	1.05	1.05
Average	2.26	2.17	2.01	2.13	1.99

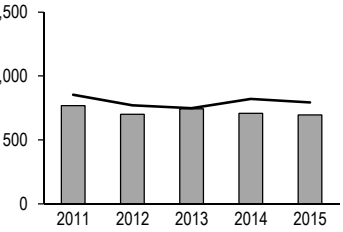
Workload Measures

Residential Refuse Tons per 1,000 Population



	2011	2012	2013	2014	2015
Hickory	232	212	224	215	210
Average	267	250	255	258	248

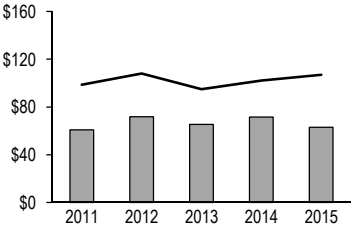
Residential Refuse Tons per 1,000 Collection Points



	2011	2012	2013	2014	2015
Hickory	769	702	742	708	694
Average	853	771	749	820	793

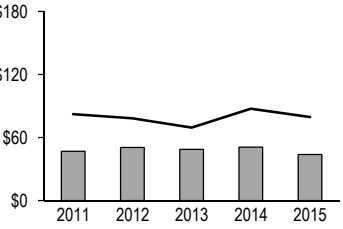
Efficiency Measures

Residential Refuse Collection Cost per Ton Collected



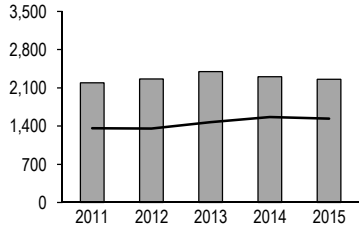
	2011	2012	2013	2014	2015
Hickory	$61	$72	$65	$72	$63
Average	$99	$108	$95	$102	$107

Residential Refuse Collection Cost per Collection Point



	2011	2012	2013	2014	2015
Hickory	$47	$50	$49	$51	$44
Average	$82	$78	$69	$87	$79

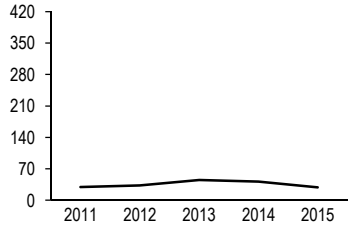
Refuse Tons Collected per Municipal Collection FTE



	2011	2012	2013	2014	2015
Hickory	2,190	2,264	2,395	2,305	2,259
Average	1,363	1,356	1,470	1,564	1,537

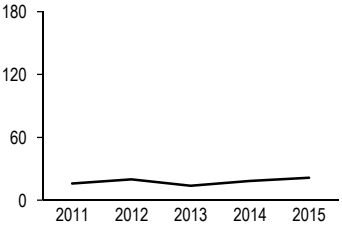
Effectiveness Measures

Complaints per 1,000 Collection Points



	2011	2012	2013	2014	2015
Hickory					
Average	29.5	32.8	44.9	41.6	28.9

Valid Complaints per 1,000 Collection Points



	2011	2012	2013	2014	2015
Hickory					
Average	16.1	20.1	13.8	18.6	21.6

Fiscal Year 2014–15

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. There is a $8 per month fee for residential refuse collection.

The city primarily 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 33,188 tons of residential refuse during FY 2014–15, at a cost of $73 per ton. The cost per ton does not include the disposal cost of $31, 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 2014)	108,556
Land Area (Square Miles)	55.05
Persons per Square Mile	1,972
Median Family Income U.S. Census 2010	$49,720

Service Profile

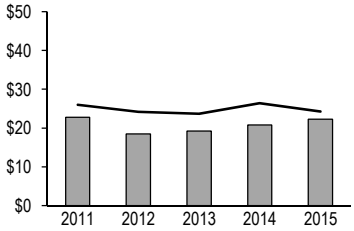
FTE Positions—Collection	22.5
FTE Positions—Other	2.0
Type of Equipment	9 automated packers 3 special
Size of Crews (most commonly used)	1 & 3 person
Weekly Routes	44
Average Distance to Disposal Site	10 miles
Average Daily Trips to Disposal Site	2
Percentage of Service Contracted	0%
Collection Frequency	1 x week
General Collection Location	Curbside
Residential Customers (number represents collection points)	49,900
Tons Collected	33,188
Monthly Service Fee	$8.00

Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	52.1%
Operating Costs	28.0%
Capital Costs	19.9%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,258,119
Operating Costs	$675,988
Capital Costs	$479,940
TOTAL	$2,414,047

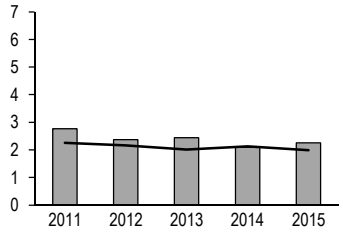
Resource Measures

Residential Refuse Collection Costs per Capita



	2011	2012	2013	2014	2015
High Point	$22.73	$18.49	$19.20	$20.76	$22.24
Average	$25.96	$24.15	$23.71	$26.43	$24.26

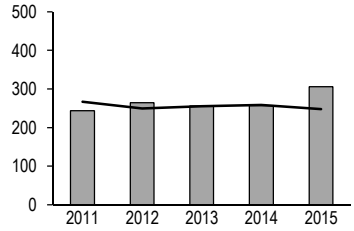
Residential Refuse FTEs per 10,000 Population



	2011	2012	2013	2014	2015
High Point	2.77	2.37	2.44	2.09	2.26
Average	2.26	2.17	2.01	2.13	1.99

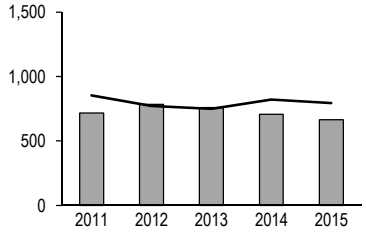
Workload Measures

Residential Refuse Tons per 1,000 Population



	2011	2012	2013	2014	2015
High Point	243	264	256	257	306
Average	267	250	255	258	248

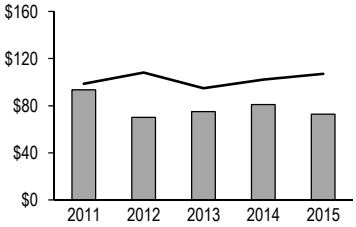
Residential Refuse Tons per 1,000 Collection Points



	2011	2012	2013	2014	2015
High Point	717	784	758	706	665
Average	853	771	749	820	793

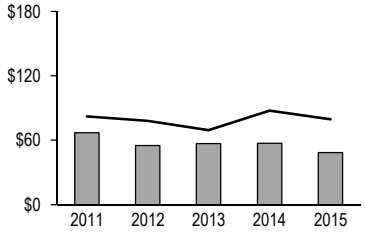
Efficiency Measures

Residential Refuse Collection Cost per Ton Collected



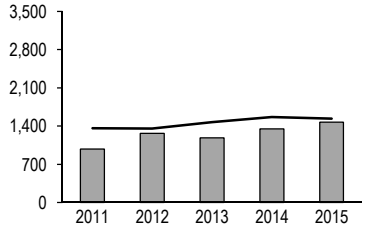
	2011	2012	2013	2014	2015
High Point	$93	$70	$75	$81	$73
Average	$99	$108	$95	$102	$107

Residential Refuse Collection Cost per Collection Point



	2011	2012	2013	2014	2015
High Point	$67	$55	$57	$57	$48
Average	$82	$78	$69	$87	$79

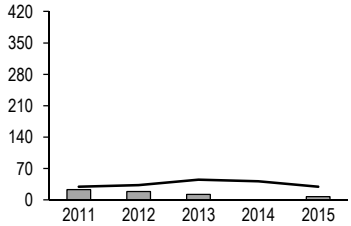
Refuse Tons Collected per Municipal Collection FTE



	2011	2012	2013	2014	2015
High Point	980	1,266	1,184	1,347	1,475
Average	1,363	1,356	1,470	1,564	1,537

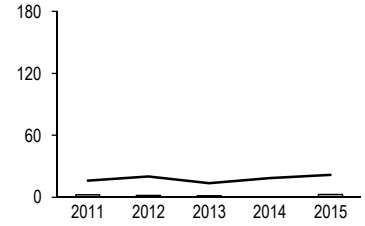
Effectiveness Measures

Complaints per 1,000 Collection Points



	2011	2012	2013	2014	2015
High Point	22.7	18.1	12.0		6.8
Average	29.5	32.8	44.9	41.6	28.9

Valid Complaints per 1,000 Collection Points



	2011	2012	2013	2014	2015
High Point	2.4	1.8	1.5		2.7
Average	16.1	20.1	13.8	18.6	21.6

Fiscal Year 2014–15

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 $15.12 for all solid waste collection.

The city employed collection workers going out with one person during FY 2014–15 typically in five trucks. Fifteen collection routes were used, with an average of one ten-mile trip per route per day to the landfill.

Each resident has one ninety-six-gallon roll-out cart provided and paid for by the city. A second cart may be obtained. The city collected 8,071 tons of residential refuse during FY 2014–15, at a cost per ton of $100. Not included in the cost per ton was a $36 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. The city is relying mostly on one-arm collection trucks.

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 2014)	33,955
Land Area (Square Miles)	22.22
Persons per Square Mile	1,528
Median Family Income U.S. Census 2010	$40,192

Service Profile

FTE Positions—Collection	6.0
FTE Positions—Other	0.5
Type of Equipment	2 automated packers 3 packers
Size of Crews (most commonly used)	1 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)	11,095
Tons Collected	8,071
Monthly Service Fee	$15.12

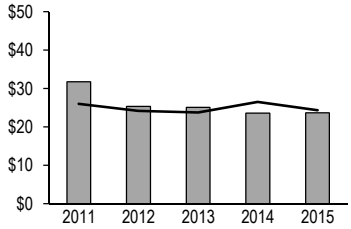
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	47.5%
Operating Costs	26.7%
Capital Costs	25.9%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$381,565
Operating Costs	$214,231
Capital Costs	$207,715
TOTAL	$803,511

Key: Salisbury ■ Benchmarking Average — Fiscal Years 2011 through 2015

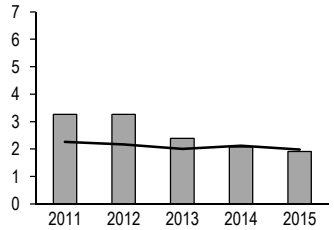
Resource Measures

Residential Refuse Collection Costs per Capita



	2011	2012	2013	2014	2015
Salisbury	$31.69	$25.34	$25.05	$23.51	$23.66
Average	$25.96	$24.15	$23.71	$26.43	$24.26

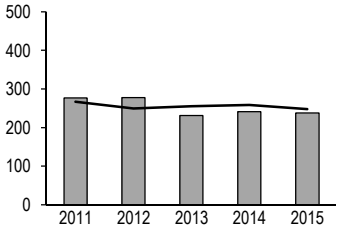
Residential Refuse FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Salisbury	3.26	3.26	2.39	2.08	1.91
Average	2.26	2.17	2.01	2.13	1.99

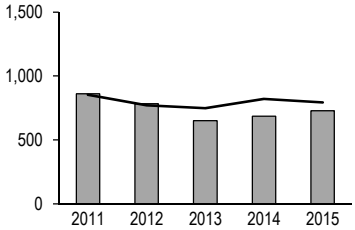
Workload Measures

Residential Refuse Tons per 1,000 Population



	2011	2012	2013	2014	2015
Salisbury	276	278	231	241	238
Average	267	250	255	258	248

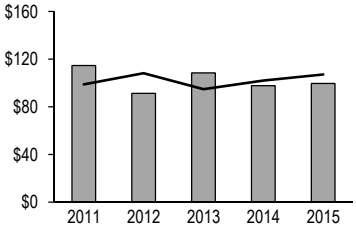
Residential Refuse Tons per 1,000 Collection Points



	2011	2012	2013	2014	2015
Salisbury	862	782	651	684	727
Average	853	771	749	820	793

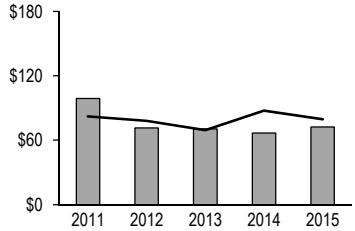
Efficiency Measures

Residential Refuse Collection Cost per Ton Collected



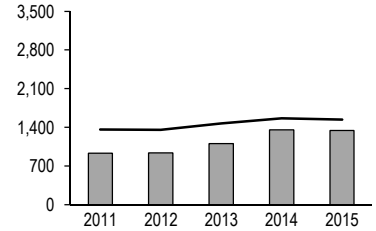
	2011	2012	2013	2014	2015
Salisbury	$115	$91	$108	$98	$100
Average	$99	$108	$95	$102	$107

Residential Refuse Collection Cost per Collection Point



	2011	2012	2013	2014	2015
Salisbury	$99	$71	$71	$67	$72
Average	$82	$78	$69	$87	$79

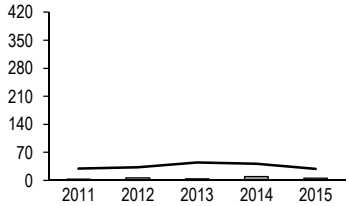
Refuse Tons Collected per Municipal Collection FTE



	2011	2012	2013	2014	2015
Salisbury	932	935	1,105	1,355	1,345
Average	1,363	1,356	1,470	1,564	1,537

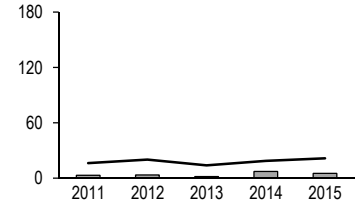
Effectiveness Measures

Complaints per 1,000 Collection Points



	2011	2012	2013	2014	2015
Salisbury	3.2	6.3	4.2	9.9	5.8
Average	29.5	32.8	44.9	41.6	28.9

Valid Complaints per 1,000 Collection Points



	2011	2012	2013	2014	2015
Salisbury	3.2	3.3	1.7	7.2	5.0
Average	16.1	20.1	13.8	18.6	21.6

Fiscal Year 2014–15

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 $19.00 fee per household for residential refuse collection service.

During FY 2014–15, 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 2014–15. 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 18,000 tons of residential refuse during the fiscal year, at a cost of $64 per ton. The cost per ton does not include the disposal cost of $39.32, 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 2014)	49,222
Land Area (Square Miles)	30.52
Persons per Square Mile	1,613
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)	17,850
Tons Collected	18,000
Monthly Service Fee	$19.00

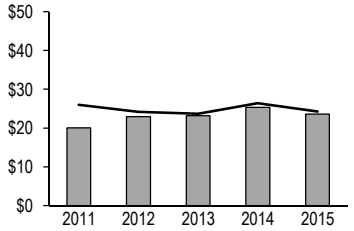
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	42.8%
Operating Costs	34.2%
Capital Costs	22.9%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$496,920
Operating Costs	$397,520
Capital Costs	$266,240
TOTAL	$1,160,680

Key: Wilson ■ Benchmarking Average — Fiscal Years 2011 through 2015

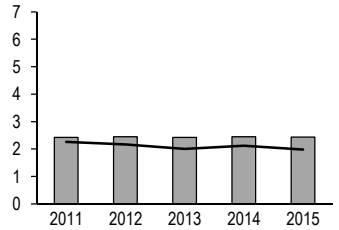
Resource Measures

Residential Refuse Collection Costs per Capita



	2011	2012	2013	2014	2015
Wilson	$20.00	$22.92	$23.21	$25.33	$23.58
Average	$25.96	$24.15	$23.71	$26.43	$24.26

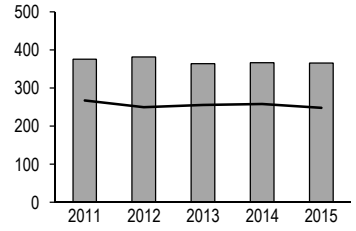
Residential Refuse FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Wilson	2.43	2.44	2.43	2.44	2.44
Average	2.26	2.17	2.01	2.13	1.99

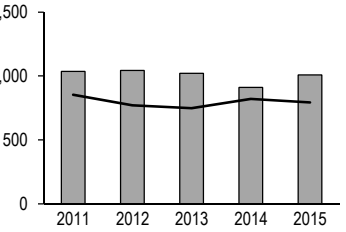
Workload Measures

Residential Refuse Tons per 1,000 Population



	2011	2012	2013	2014	2015
Wilson	375	381	364	367	366
Average	267	250	255	258	248

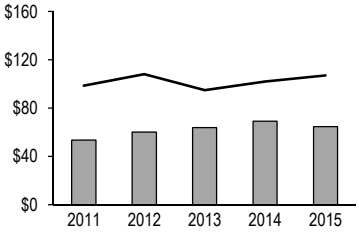
Residential Refuse Tons per 1,000 Collection Points



	2011	2012	2013	2014	2015
Wilson	1,036	1,043	1,020	911	1,008
Average	853	771	749	820	793

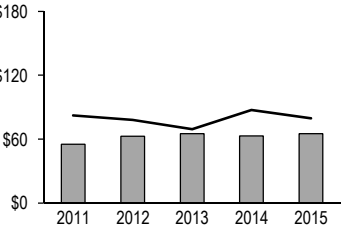
Efficiency Measures

Residential Refuse Collection Cost per Ton Collected



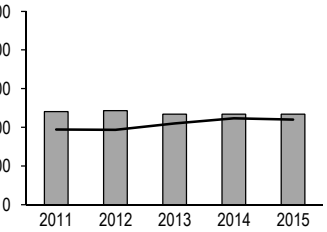
	2011	2012	2013	2014	2015
Wilson	$53	$60	$64	$69	$64
Average	$99	$108	$95	$102	$107

Residential Refuse Collection Cost per Collection Point



	2011	2012	2013	2014	2015
Wilson	$55	$63	$65	$63	$65
Average	$82	$78	$69	$87	$79

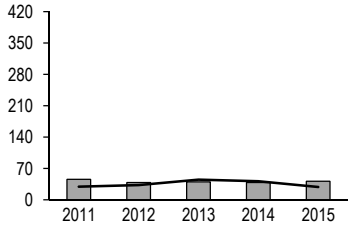
Refuse Tons Collected per Municipal Collection FTE



	2011	2012	2013	2014	2015
Wilson	1,686	1,702	1,636	1,636	1,636
Average	1,363	1,356	1,470	1,564	1,537

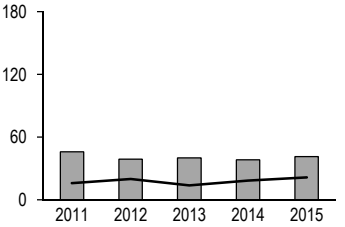
Effectiveness Measures

Complaints per 1,000 Collection Points



	2011	2012	2013	2014	2015
Wilson	45.9	39.0	40.1	38.4	41.4
Average	29.5	32.8	44.9	41.6	28.9

Valid Complaints per 1,000 Collection Points



	2011	2012	2013	2014	2015
Wilson	45.9	39.0	40.1	38.4	41.4
Average	16.1	20.1	13.8	18.6	21.6

Fiscal Year 2014–15

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 FY 2011–2012.

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 ten 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 2014–15.

The city collected 53,220 tons of residential refuse during FY 2014–15 from 77,907 collection points. The cost per ton was $116, 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 2014)	237,905
Land Area (Square Miles)	132.45
Persons per Square Mile	1,796
Median Family Income U.S. Census 2010	$51,491

Service Profile

FTE Positions—Collection	82.0
FTE Positions—Other	3.0
Type of Equipment	10 automated packers 16 packers
Size of Crews (most commonly used)	1 & 3 person
Weekly Routes	103
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)	77,907
Tons Collected	53,220
Monthly Service Fee	No

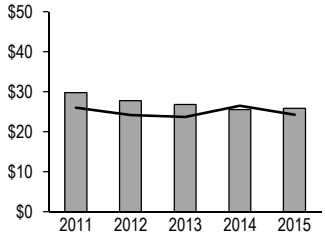
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	50.6%
Operating Costs	33.0%
Capital Costs	16.4%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$3,111,354
Operating Costs	$2,030,950
Capital Costs	$1,007,731
TOTAL	$6,150,035

Key: Winston-Salem ■ Benchmarking Average — Fiscal Years 2011 through 2015

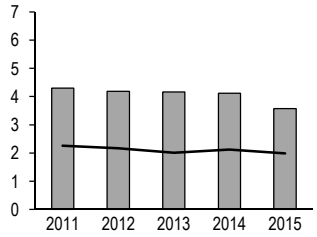
Resource Measures

Residential Refuse Collection Costs per Capita



	2011	2012	2013	2014	2015
Winston-Salem	$29.71	$27.72	$26.77	$25.48	$25.85
Average	$25.96	$24.15	$23.71	$26.43	$24.26

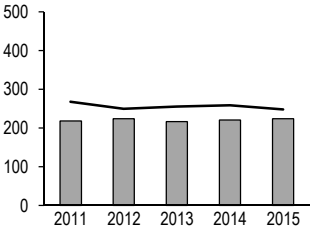
Residential Refuse FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Winston-Salem	4.30	4.18	4.17	4.12	3.57
Average	2.26	2.17	2.01	2.13	1.99

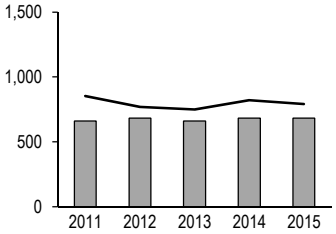
Workload Measures

Residential Refuse Tons per 1,000 Population



	2011	2012	2013	2014	2015
Winston-Salem	218	224	216	221	224
Average	267	250	255	258	248

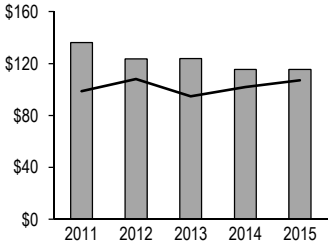
Residential Refuse Tons per 1,000 Collection Points



	2011	2012	2013	2014	2015
Winston-Salem	661	683	661	682	683
Average	853	771	749	820	793

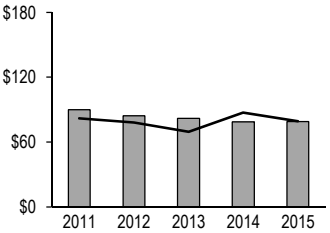
Efficiency Measures

Residential Refuse Collection Cost per Ton Collected



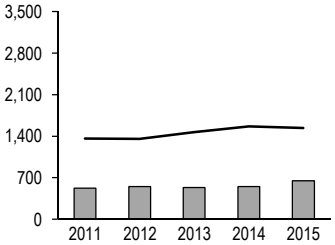
	2011	2012	2013	2014	2015
Winston-Salem	$136	$124	$124	$115	$116
Average	$99	$108	$95	$102	$107

Residential Refuse Collection Cost per Collection Point



	2011	2012	2013	2014	2015
Winston-Salem	$90	$84	$82	$79	$79
Average	$82	$78	$69	$87	$79

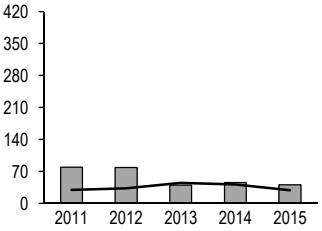
Refuse Tons Collected per Municipal Collection FTE



	2011	2012	2013	2014	2015
Winston-Salem	524	553	535	553	649
Average	1,363	1,356	1,470	1,564	1,537

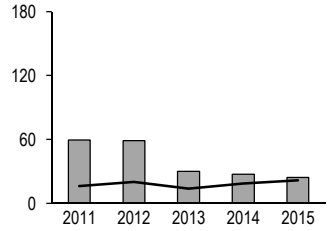
Effectiveness Measures

Complaints per 1,000 Collection Points



	2011	2012	2013	2014	2015
Winston-Salem	79.1	78.4	40.0	45.7	40.3
Average	29.5	32.8	44.9	41.6	28.9

Valid Complaints per 1,000 Collection Points



	2011	2012	2013	2014	2015
Winston-Salem	59.3	58.8	30.0	27.4	24.2
Average	16.1	20.1	13.8	18.6	21.6

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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	13,799	98%	3,618	24%	100%	NA
Asheville	0	1	1 x 2 weeks	No	29,651	82%	8,270	27%	100%	NA
Burlington	0	0	1 x 2 weeks	No	16,908	64%	2,605	18%	100%	NA
Cary	1	0	1 x 2 weeks	No	48,171	79%	11,983	26%	0%	13
Concord	0	1	1 x 2 weeks	No	29,536	83%	5,551	19%	100%	1.9
Greensboro	20	0	1 x 2 weeks	No	81,102	63%	13,234	19%	0%	19
Greenville	200	0	1 x week	No	17,145	na	4,446	14%	0%	18
Hickory	2	0	1 x week	Yes	12,200	84%	1,510	15%	86%	0.6
High Point	16	0	1 x 2 weeks	No	39,240	62%	7,957	19%	0%	7.5
Salisbury	0	0	1 x 2 weeks	No	10,429	56%	1,566	16%	100%	NA
Wilson	0	0	1 x week	No	19,850	40%	1,509	8%	0%	6.5
Winston-Salem	11	0	1 x 2 weeks	No	75,039	57%	14,554	21%	100%	2

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 2014–15

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 all residents. Residents pay a $2.41 fee per container per month. Most residents have a sixty-four gallon cart though some have eighteen gallon containers.

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 13,799 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 2014)	42,689
Land Area (Square Miles)	17.25
Persons per Square Mile	2,475
Median Family Income U.S. Census 2010	$97,201

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	13,799
Tons of Recyclables Collected	
Curbside	3,618
City Drop-Off Centers	0
Total Tons Collected	3,618
Monthly Service Fee	$2.41
Revenue from Sale of Recyclables	$0
Sale Revenue as Percentage of Cost	NA

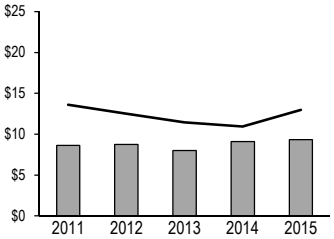
Full Cost Profile

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	$398,519
Capital Costs	$0
TOTAL	$398,519

Key: Apex ■ Benchmarking Average — Fiscal Years 2011 through 2015

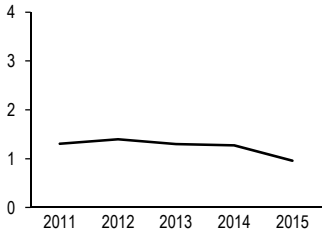
Resource Measures

Recycling Services Cost per Capita



	2011	2012	2013	2014	2015
Apex	$8.64	$8.76	$8.00	$9.12	$9.34
Average	$13.59	$12.49	$11.44	$10.92	$12.97

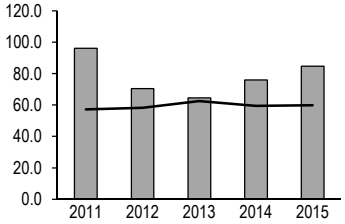
Recycling Services FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Apex					
Average	1.31	1.40	1.30	1.28	0.96

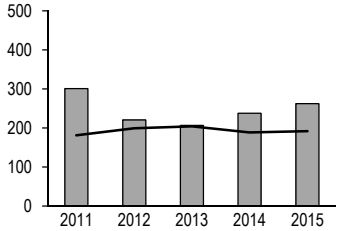
Workload Measures

Tons Recyclables Collected per 1,000 Population



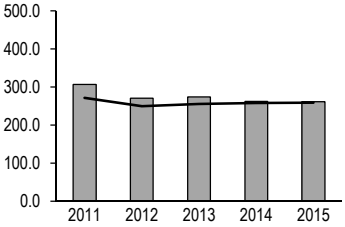
	2011	2012	2013	2014	2015
Apex	96.3	70.4	64.5	76.1	84.8
Average	57.3	58.2	62.5	59.4	60.0

Tons Recyclables Collected per 1,000 Collection Points



	2011	2012	2013	2014	2015
Apex	301	220	207	238	262
Average	181	199	204	189	192

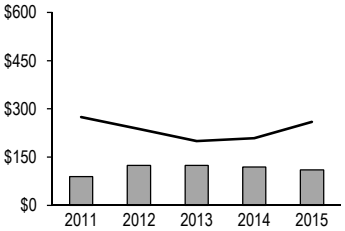
Tons Solid Waste Landfilled per 1,000 Population



	2011	2012	2013	2014	2015
Apex	306.8	270.8	274.0	262.2	261.8
Average	271.6	249.8	255.2	258.4	259.2

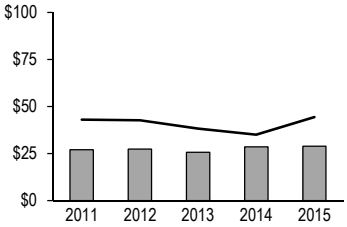
Efficiency Measures

Recycling Services Cost per Ton Collected



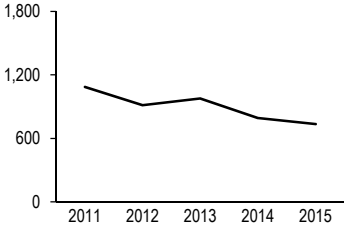
	2011	2012	2013	2014	2015
Apex	$90	$124	$124	$120	$110
Average	$274	$237	$200	$209	$260

Recycling Services Cost per Collection Point



	2011	2012	2013	2014	2015
Apex	$26.98	$27.41	$25.63	$28.52	$28.88
Average	$43.01	$42.66	$38.32	$34.99	$44.34

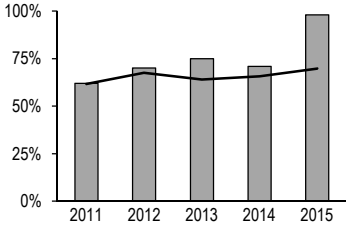
Tons Collected Curbside per Municipal FTE



	2011	2012	2013	2014	2015
Apex					
Average	1,086	915	976	792	737

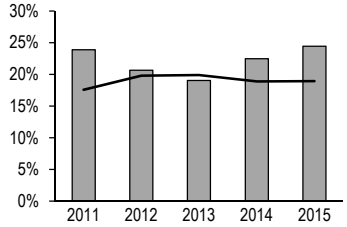
Effectiveness Measures

Community Set-Out Rate



	2011	2012	2013	2014	2015
Apex	62.0%	70.0%	75.0%	71.0%	98.0%
Average	61.7%	67.5%	64.0%	65.6%	69.8%

Tons Recycled as Percentage of Tons Refuse and Recyclables Collected



	2011	2012	2013	2014	2015
Apex	23.9%	20.6%	19.1%	22.5%	24.5%
Average	17.6%	19.8%	19.9%	18.9%	19.0%

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery

The city offers curbside recycling service to all residential customers. The service was provided by contract during FY 2014–15 by Curbside Management Incorporated.

Asheville charged a $7 monthly fee for all solid waste services. 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 plasttic 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 29,651 residences, with each residence receiving a ninety-five gallon or in some cases a sixty-five gallon cart. 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 is one drop-off center within Asheville. This center is set up for people who do not have curbside recycling pickup at their homes or businesses. Anyone can use this center to drop off their recycling during transfer station operating times.

Conditions Affecting Service, Performance, and Costs

Municipal Profile

Population (OSBM 2014)	89,248
Land Area (Square Miles)	45.52
Persons per Square Mile	1,961
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	1
Percentage of Service Contracted	100.0%
Collection Frequency	Every 2 weeks
General Collection Location	Curbside
Recyclables Sorted at Curb	No
Collection Points	29,651
Tons of Recyclables Collected	
Curbside	8,270
City Drop-Off Centers	0
Total Tons Collected	8,270
Monthly Service Fee	NA
Revenue from Sale of Recyclables	$0
Sale Revenue as Percentage of Cost	NA

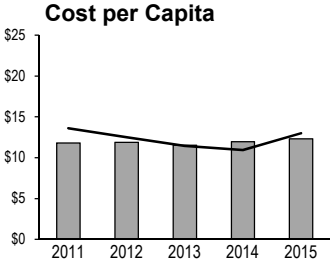
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	0.0%
Operating Costs	99.9%
Capital Costs	0.1%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$0
Operating Costs	$1,098,566
Capital Costs	$635
TOTAL	$1,099,201

Key: Asheville ■ Benchmarking Average — Fiscal Years 2011 through 2015

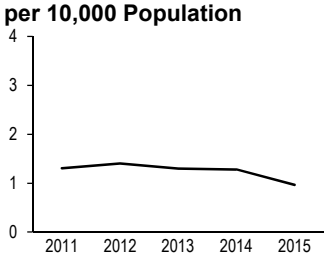
Resource Measures

Recycling Services Cost per Capita



	2011	2012	2013	2014	2015
Asheville	$11.81	$11.90	$11.54	$11.97	$12.32
Average	$13.59	$12.49	$11.44	$10.92	$12.97

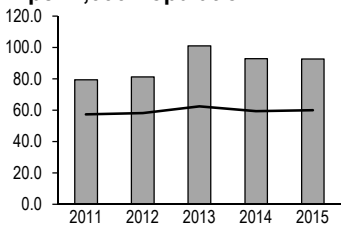
Recycling Services FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Asheville					
Average	1.31	1.40	1.30	1.28	0.96

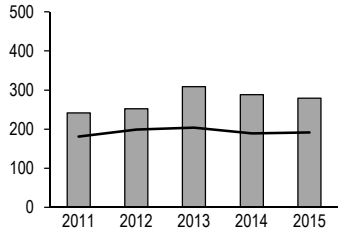
Workload Measures

Tons Recyclables Collected per 1,000 Population



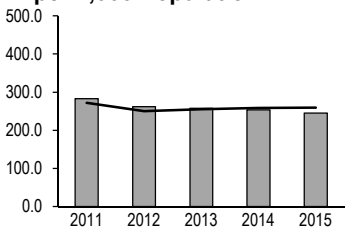
	2011	2012	2013	2014	2015
Asheville	79.3	81.2	101.0	92.8	92.7
Average	57.3	58.2	62.5	59.4	60.0

Tons Recyclables Collected per 1,000 Collection Points



	2011	2012	2013	2014	2015
Asheville	241	252	309	288	279
Average	181	199	204	189	192

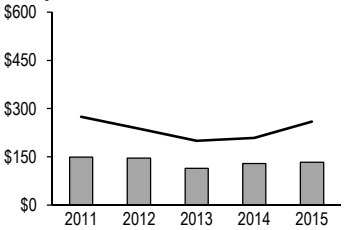
Tons Solid Waste Landfilled per 1,000 Population



	2011	2012	2013	2014	2015
Asheville	282.6	262.1	257.3	253.1	244.9
Average	271.6	249.8	255.2	258.4	259.2

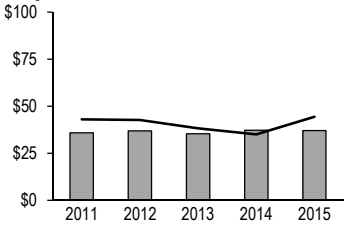
Efficiency Measures

Recycling Services Cost per Ton Collected



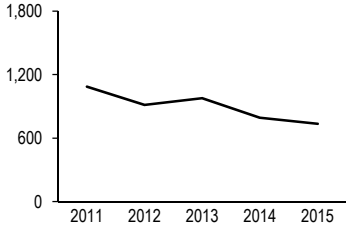
	2011	2012	2013	2014	2015
Asheville	$149	$147	$114	$129	$133
Average	$274	$237	$200	$209	$260

Recycling Services Cost per Collection Point



	2011	2012	2013	2014	2015
Asheville	$35.94	$36.92	$35.27	$37.20	$37.07
Average	$43.01	$42.66	$38.32	$34.99	$44.34

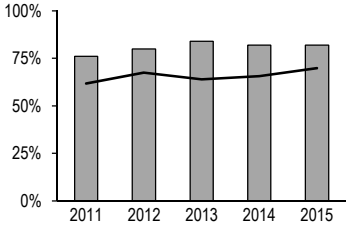
Tons Collected Curbside per Municipal FTE



	2011	2012	2013	2014	2015
Asheville					
Average	1,086	915	976	792	737

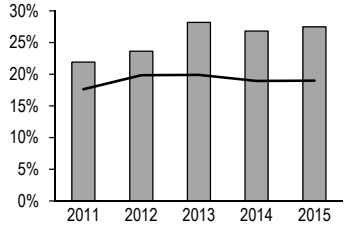
Effectiveness Measures

Community Set-Out Rate



	2011	2012	2013	2014	2015
Asheville	76.0%	80.0%	84.0%	82.0%	82.0%
Average	61.7%	67.5%	64.0%	65.6%	69.8%

Tons Recycled as Percentage of Tons Refuse and Recyclables Collected



	2011	2012	2013	2014	2015
Asheville	21.9%	23.6%	28.2%	26.8%	27.4%
Average	17.6%	19.8%	19.9%	18.9%	19.0%

Burlington Household Recycling

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery

Burlington offers curbside recycling to all city residents. The service was contracted through Waste Industries in FY 2014–15.

The city charges a monthly fee of $6.00 for recycling, which is included in the solid waste fee. Collection of recyclables is done every two weeks. Residents are provided with a ninety-five gallon roll-out cart. 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.

Conditions Affecting Service, Performance, and Costs

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

Municipal Profile

Population (OSBM 2014)	51,923
Land Area (Square Miles)	30.52
Persons per Square Mile	1,701
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	0
Percentage of Service Contracted	100%
Collection Frequency	Every 2 weeks
General Collection Location	Curbside
Recyclables Sorted at Curb	No
Collection Points	16,908
Tons of Recyclables Collected	
Curbside	2,605
City Drop-Off Centers	0
Total Tons Collected	2,605
Monthly Service Fee	$6.00
Revenue from Sale of Recyclables	$0
Sale Revenue as Percentage of Cost	NA

Full Cost Profile

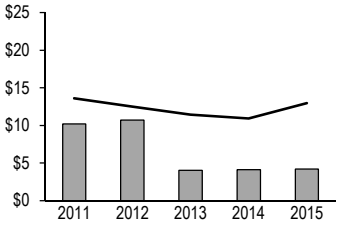
Cost Breakdown by Percentage	
Personal Services	0.0%
Operating Costs	100.0%
Capital Costs	0.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$0
Operating Costs	$218,083
Capital Costs	$0
TOTAL	$218,083

Burlington Household Recycling

Key: Burlington ■ Benchmarking Average — Fiscal Years 2011 through 2015

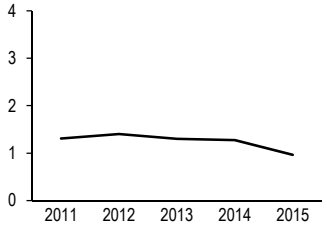
Resource Measures

Recycling Services Cost per Capita



	2011	2012	2013	2014	2015
Burlington	$10.20	$10.73	$4.05	$4.13	$4.20
Average	$13.59	$12.49	$11.44	$10.92	$12.97

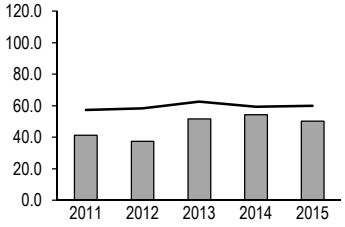
Recycling Services FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Burlington					
Average	1.31	1.40	1.30	1.28	0.96

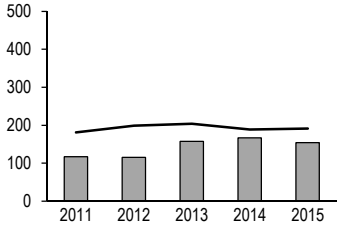
Workload Measures

Tons Recyclables Collected per 1,000 Population



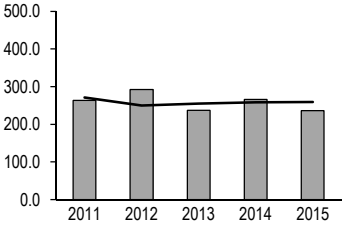
	2011	2012	2013	2014	2015
Burlington	41.3	37.4	51.6	54.3	50.2
Average	57.3	58.2	62.5	59.4	60.0

Tons Recyclables Collected per 1,000 Collection Points



	2011	2012	2013	2014	2015
Burlington	117	115	158	166	154
Average	181	199	204	189	192

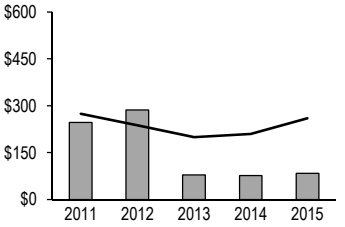
Tons Solid Waste Landfilled per 1,000 Population



	2011	2012	2013	2014	2015
Burlington	263.2	292.6	237.2	265.9	236.3
Average	271.6	249.8	255.2	258.4	259.2

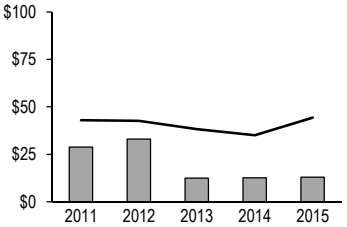
Efficiency Measures

Recycling Services Cost per Ton Collected



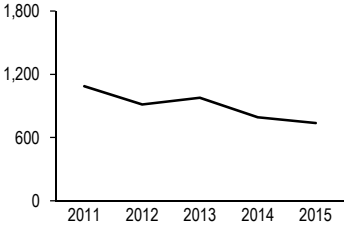
	2011	2012	2013	2014	2015
Burlington	$247	$287	$78	$76	$84
Average	$274	$237	$200	$209	$260

Recycling Services Cost per Collection Point



	2011	2012	2013	2014	2015
Burlington	$28.83	$33.06	$12.39	$12.66	$12.90
Average	$43.01	$42.66	$38.32	$34.99	$44.34

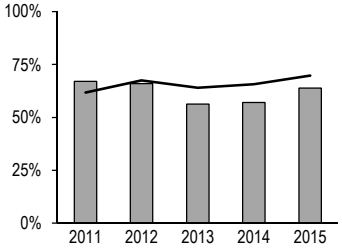
Tons Collected Curbside per Municipal FTE



	2011	2012	2013	2014	2015
Burlington					
Average	1,086	915	976	792	737

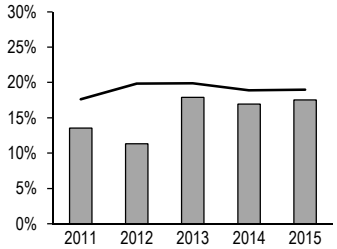
Effectiveness Measures

Community Set-Out Rate



	2011	2012	2013	2014	2015
Burlington	67.0%	66.0%	56.3%	57.0%	63.8%
Average	61.7%	67.5%	64.0%	65.6%	69.8%

Tons Recycled as Percentage of Tons Refuse and Recyclables Collected



	2011	2012	2013	2014	2015
Burlington	13.6%	11.3%	17.9%	17.0%	17.5%
Average	17.6%	19.8%	19.9%	18.9%	19.0%

Fiscal Year 2014–15

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 $15 fee, which covers both recycling and solid waste pickup. Citizens use a variety of different types of bins or roll-out carts.

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 11,362 tons from the curbside collection and gathered 621 tons at its drop-off site. The town changed to commingled recycling at the curb during FY 2006–07, eliminating curbside sorting.

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

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

Municipal Profile

Population (OSBM 2014)	148,333
Land Area (Square Miles)	56.47
Persons per Square Mile	2,627
Median Family Income U.S. Census 2010	$108,956

Service Profile

FTE Positions—Collection	12.0
FTE Positions—Other	1.0
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	48,171
Tons of Recyclables Collected	
Curbside	11,362
City Drop-Off Centers	621
Total Tons Collected	11,983
Monthly Service Fee	No
Revenue from Sale of Recyclables	$0
Sale Revenue as Percentage of Cost	0.0%

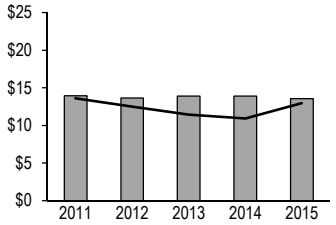
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	42.4%
Operating Costs	46.1%
Capital Costs	11.4%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$853,913
Operating Costs	$928,419
Capital Costs	$229,912
TOTAL	$2,012,244

Key: Cary ■ Benchmarking Average — Fiscal Years 2011 through 2015

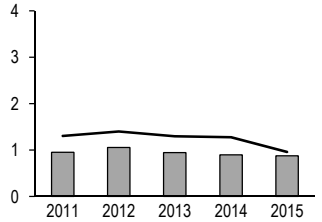
Resource Measures

Recycling Services Cost per Capita



	2011	2012	2013	2014	2015
Cary	$13.95	$13.64	$13.90	$13.90	$13.57
Average	$13.59	$12.49	$11.44	$10.92	$12.97

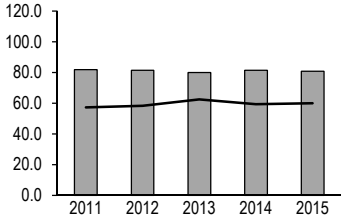
Recycling Services FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Cary	0.95	1.05	0.94	0.90	0.88
Average	1.31	1.40	1.30	1.28	0.96

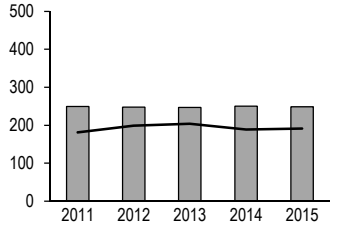
Workload Measures

Tons Recyclables Collected per 1,000 Population



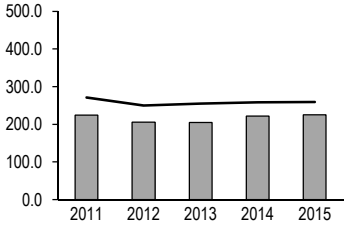
	2011	2012	2013	2014	2015
Cary	81.9	81.4	80.0	81.4	80.8
Average	57.3	58.2	62.5	59.4	60.0

Tons Recyclables Collected per 1,000 Collection Points



	2011	2012	2013	2014	2015
Cary	249	248	247	250	249
Average	181	199	204	189	192

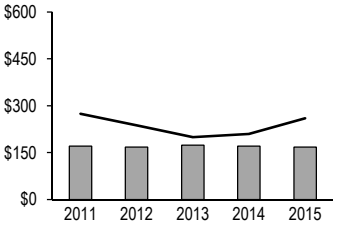
Tons Solid Waste Landfilled per 1,000 Population



	2011	2012	2013	2014	2015
Cary	224.4	205.4	205.1	221.5	225.1
Average	271.6	249.8	255.2	258.4	259.2

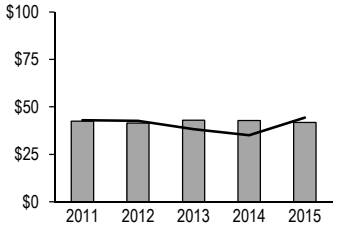
Efficiency Measures

Recycling Services Cost per Ton Collected



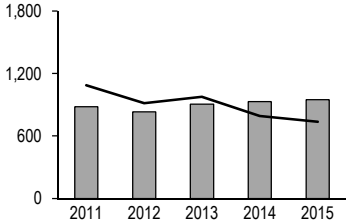
	2011	2012	2013	2014	2015
Cary	$170	$168	$174	$171	$168
Average	$274	$237	$200	$209	$260

Recycling Services Cost per Collection Point



	2011	2012	2013	2014	2015
Cary	$42.45	$41.50	$42.95	$42.75	$41.77
Average	$43.01	$42.66	$38.32	$34.99	$44.34

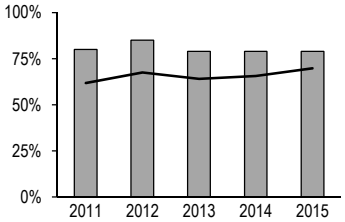
Tons Collected Curbside per Municipal FTE



	2011	2012	2013	2014	2015
Cary	882	832	904	930	947
Average	1,086	915	976	792	737

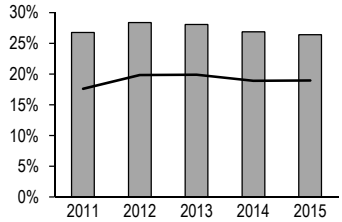
Effectiveness Measures

Community Set-Out Rate



	2011	2012	2013	2014	2015
Cary	80.0%	85.0%	79.0%	79.0%	79.0%
Average	61.7%	67.5%	64.0%	65.6%	69.8%

Tons Recycled as Percentage of Tons Refuse and Recyclables Collected



	2011	2012	2013	2014	2015
Cary	26.7%	28.4%	28.1%	26.9%	26.4%
Average	17.6%	19.8%	19.9%	18.9%	19.0%

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery
Concord provides biweekly curbside collection of recyclable materials from households. The city uses a contractor to provide recycling collection. Residents place materials into a ninety-five-gallon cart. 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 biweekly from each participating resident and delivered to a materials recovery facility (MRF) in Charlotte for separation and marketing.

The city received $40,684 from the sale of recyclables during the year offsetting some of the costs.

Conditions Affecting Service, Performance, and Costs
During FY 2011–2012, 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 calculated twice a year.

The costs for recyclables has fallen for Concord as it has for many cities due to a weak market for recyclable materials.

Municipal Profile

Population (OSBM 2014)	85,428
Land Area (Square Miles)	61.09
Persons per Square Mile	1,398
Median Family Income U.S. Census 2010	$63,643

Service Profile

FTE Positions—Collection	Contractor
FTE Positions—Other	1.0
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	29,536
Tons of Recyclables Collected	
Curbside	5,551
City Drop-Off Centers	0
Total Tons Collected	5,551
Monthly Service Fee	No
Revenue from Sale of Recyclables	$40,684
Sale Revenue as Percentage of Cost	4.8%

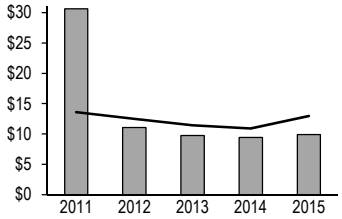
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	12.1%
Operating Costs	85.6%
Capital Costs	2.3%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$102,298
Operating Costs	$724,041
Capital Costs	$19,864
TOTAL	$846,203

Key: Concord ■ Benchmarking Average — Fiscal Years 2011 through 2015

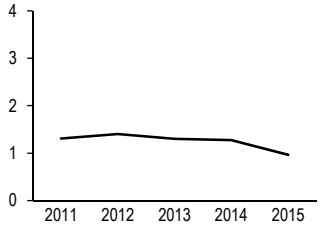
Resource Measures

Recycling Services Cost per Capita



	2011	2012	2013	2014	2015
Concord	$30.65	$11.08	$9.76	$9.41	$9.91
Average	$13.59	$12.49	$11.44	$10.92	$12.97

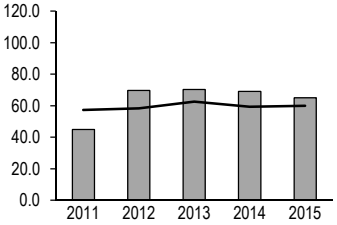
Recycling Services FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Concord					
Average	1.31	1.40	1.30	1.28	0.96

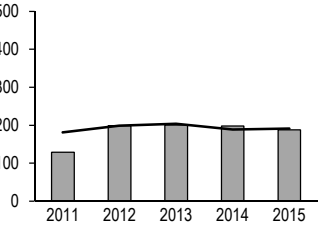
Workload Measures

Tons Recyclables Collected per 1,000 Population



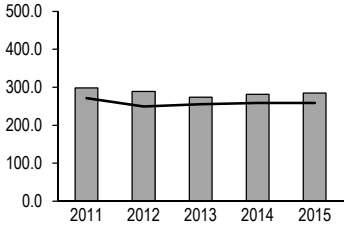
	2011	2012	2013	2014	2015
Concord	45.0	69.7	70.4	69.0	65.0
Average	57.3	58.2	62.5	59.4	60.0

Tons Recyclables Collected per 1,000 Collection Points



	2011	2012	2013	2014	2015
Concord	129	199	201	198	188
Average	181	199	204	189	192

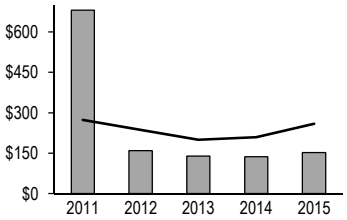
Tons Solid Waste Landfilled per 1,000 Population



	2011	2012	2013	2014	2015
Concord	298.8	288.9	273.7	281.4	284.6
Average	271.6	249.8	255.2	258.4	259.2

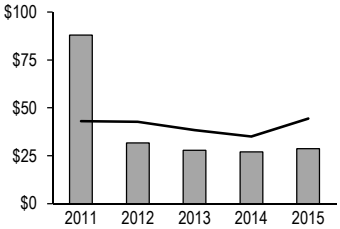
Efficiency Measures

Recycling Services Cost per Ton Collected



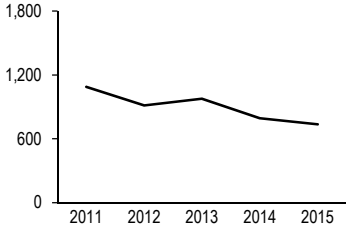
	2011	2012	2013	2014	2015
Concord	$681	$159	$139	$136	$152
Average	$274	$237	$200	$209	$260

Recycling Services Cost per Collection Point



	2011	2012	2013	2014	2015
Concord	$88.07	$31.67	$27.88	$27.03	$28.65
Average	$43.01	$42.66	$38.32	$34.99	$44.34

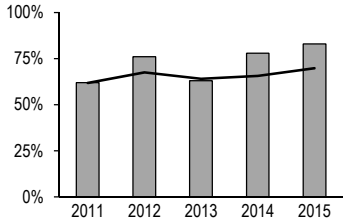
Tons Collected Curbside per Municipal FTE



	2011	2012	2013	2014	2015
Concord					
Average	1,086	915	976	792	737

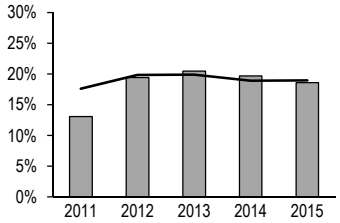
Effectiveness Measures

Community Set-Out Rate



	2011	2012	2013	2014	2015
Concord	62.0%	76.0%	63.0%	78.0%	83.0%
Average	61.7%	67.5%	64.0%	65.6%	69.8%

Tons Recycled as Percentage of Tons Refuse and Recyclables Collected



	2011	2012	2013	2014	2015
Concord	13.1%	19.4%	20.4%	19.7%	18.6%
Average	17.6%	19.8%	19.9%	18.9%	19.0%

Greensboro Household Recycling

Fiscal Year 2014–15

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-six or sixty-four-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 2014–15 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 2014–15 was $397,017 partially offsetting program costs. 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 b-weekly basis.

Municipal Profile

Population (OSBM 2014)	280,803
Land Area (Square Miles)	128.11
Persons per Square Mile	2,192
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	81,102
Tons of Recyclables Collected	
Curbside	13,234
City Drop-Off Centers	0
Total Tons Collected	13,234
Monthly Service Fee	No
Revenue from Sale of Recyclables	$397,017
Sale Revenue as Percentage of Cost	16.3%

Full Cost Profile

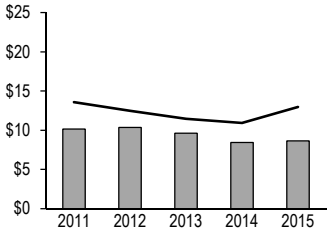
Cost Breakdown by Percentage	
Personal Services	36.2%
Operating Costs	63.8%
Capital Costs	0.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$880,707
Operating Costs	$1,550,990
Capital Costs	$0
TOTAL	$2,431,697

Greensboro Household Recycling

Key: Greensboro ■ Benchmarking Average — Fiscal Years 2011 through 2015

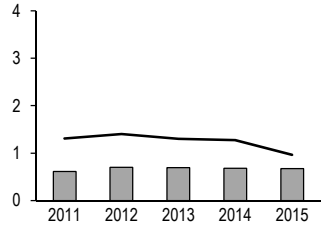
Resource Measures

Recycling Services Cost per Capita



	2011	2012	2013	2014	2015
Greensboro	$10.15	$10.35	$9.64	$8.45	$8.66
Average	$13.59	$12.49	$11.44	$10.92	$12.97

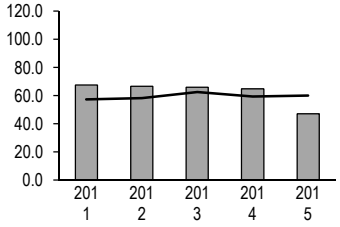
Recycling Services FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Greensboro	0.61	0.70	0.69	0.68	0.68
Average	1.31	1.40	1.30	1.28	0.96

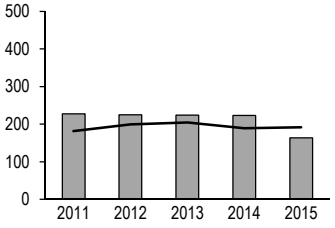
Workload Measures

Tons Recyclables Collected per 1,000 Population



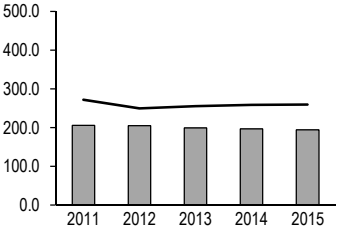
	2011	2012	2013	2014	2015
Greensboro	67.6	66.6	66.0	64.9	47.1
Average	57.3	58.2	62.5	59.4	60.0

Tons Recyclables Collected per 1,000 Collection Points



	2011	2012	2013	2014	2015
Greensboro	228	225	224	223	163
Average	181	199	204	189	192

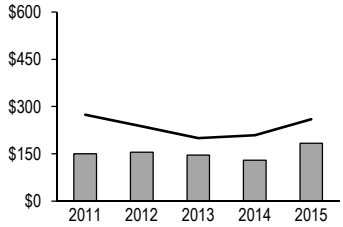
Tons Solid Waste Landfilled per 1,000 Population



	2011	2012	2013	2014	2015
Greensboro	206.2	205.2	199.5	196.4	194.7
Average	271.6	249.8	255.2	258.4	259.2

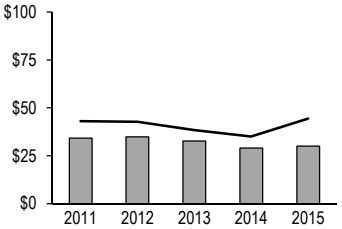
Efficiency Measures

Recycling Services Cost per Ton Collected



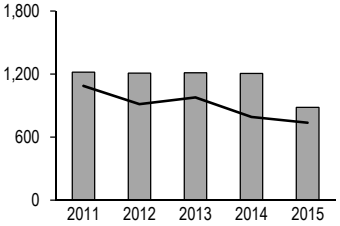
	2011	2012	2013	2014	2015
Greensboro	$150	$155	$146	$130	$184
Average	$274	$237	$200	$209	$260

Recycling Services Cost per Collection Point



	2011	2012	2013	2014	2015
Greensboro	$34.17	$34.95	$32.69	$29.04	$29.98
Average	$43.01	$42.66	$38.32	$34.99	$44.34

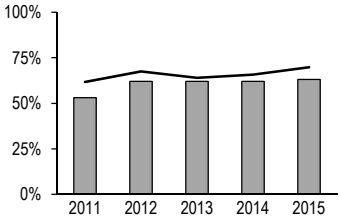
Tons Collected Curbside per Municipal FTE



	2011	2012	2013	2014	2015
Greensboro	1,218	1,208	1,211	1,205	882
Average	1,086	915	976	792	737

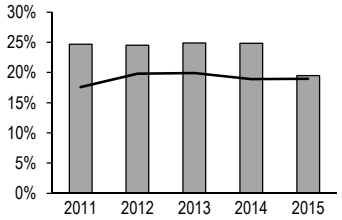
Effectiveness Measures

Community Set-Out Rate



	2011	2012	2013	2014	2015
Greensboro	53.0%	62.0%	62.0%	62.0%	63.0%
Average	61.7%	67.5%	64.0%	65.6%	69.8%

Tons Recycled as Percentage of Tons Refuse and Recyclables Collected



	2011	2012	2013	2014	2015
Greensboro	24.7%	24.5%	24.9%	24.8%	19.5%
Average	17.6%	19.8%	19.9%	18.9%	19.0%

Fiscal Year 2014–15

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

The apparent drop in collected tonnage in FY 2013–14 reports only items which were taken to the local material recovery facility. The drop appears to reflect more accurate reporting excluding items such as concrete, tree limbs and other material rather than actual service change in recyclables.

Greenville introduced new recycling carts in FY 2013–14 which generated service complaints during the transition period.

Municipal Profile

Population (OSBM 2014)	87,436
Land Area (Square Miles)	29.84
Persons per Square Mile	2,930
Median Family Income U.S. Census 2010	$50,395

Service Profile

FTE Positions—Collection	16.0
FTE Positions—Other	2.0
Number of City Drop-Off Centers	200
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	17,145
Tons of Recyclables Collected	
Curbside	4,446
City Drop-Off Centers	0
Total Tons Collected	4,446
Monthly Service Fee	No
Revenue from Sale of Recyclables	$0
Sale Revenue as Percentage of Cost	0.0%

Full Cost Profile

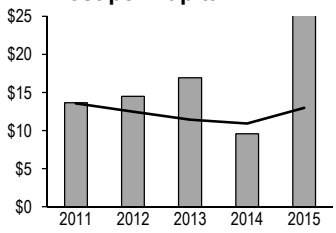
Cost Breakdown by Percentage	
Personal Services	44.2%
Operating Costs	42.6%
Capital Costs	13.3%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,068,619
Operating Costs	$1,029,531
Capital Costs	$321,303
TOTAL	$2,419,453

Greenville Household Recycling

Key: Greenville ■ Benchmarking Average — Fiscal Years 2011 through 2015

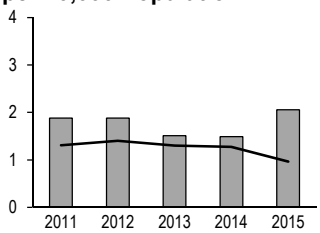
Resource Measures

Recycling Services Cost per Capita



	2011	2012	2013	2014	2015
Greenville	$13.65	$14.50	$16.92	$9.61	$27.67
Average	$13.59	$12.49	$11.44	$10.92	$12.97

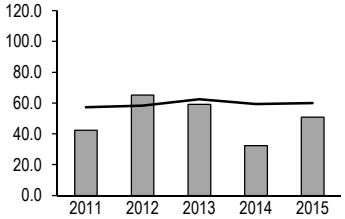
Recycling Services FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Greenville	1.88	1.88	1.51	1.49	2.06
Average	1.31	1.40	1.30	1.28	0.96

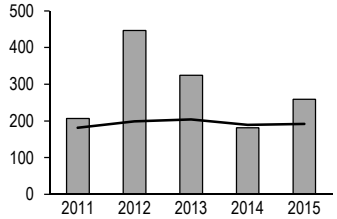
Workload Measures

Tons Recyclables Collected per 1,000 Population



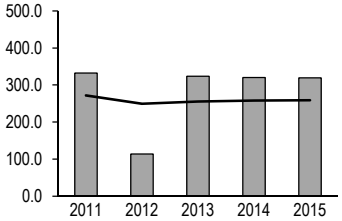
	2011	2012	2013	2014	2015
Greenville	42.3	65.1	59.2	32.3	50.8
Average	57.3	58.2	62.5	59.4	60.0

Tons Recyclables Collected per 1,000 Collection Points



	2011	2012	2013	2014	2015
Greenville	206	446	325	181	259
Average	181	199	204	189	192

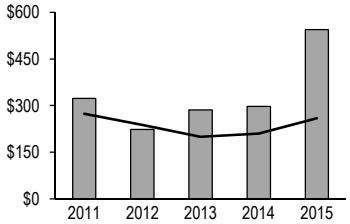
Tons Solid Waste Landfilled per 1,000 Population



	2011	2012	2013	2014	2015
Greenville	332.2	113.6	323.7	320.4	319.7
Average	271.6	249.8	255.2	258.4	259.2

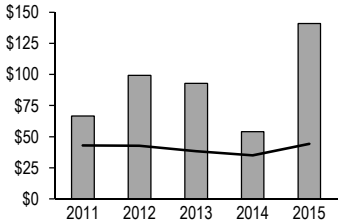
Efficiency Measures

Recycling Services Cost per Ton Collected



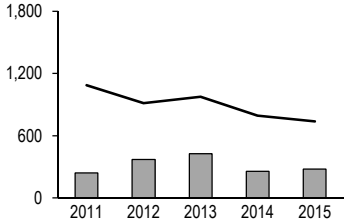
	2011	2012	2013	2014	2015
Greenville	$323	$223	$286	$297	$544
Average	$274	$237	$200	$209	$260

Recycling Services Cost per Collection Point



	2011	2012	2013	2014	2015
Greenville	$66.69	$99.36	$92.80	$53.89	$141.1
Average	$43.01	$42.66	$38.32	$34.99	$44.34

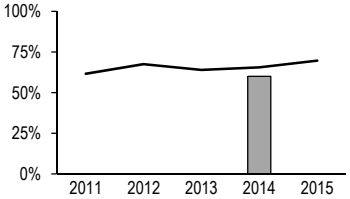
Tons Collected Curbside per Municipal FTE



	2011	2012	2013	2014	2015
Greenville	240	369	425	256	278
Average	1,086	915	976	792	737

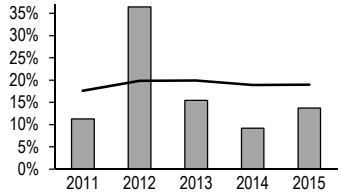
Effectiveness Measures

Community Set-Out Rate



	2011	2012	2013	2014	2015
Greenville				60.0%	
Average	61.7%	67.5%	64.0%	65.6%	69.8%

Tons Recycled as Percentage of Tons Refuse and Recyclables Collected



	2011	2012	2013	2014	2015
Greenville	11.3%	36.4%	15.5%	9.2%	13.7%
Average	17.6%	19.8%	19.9%	18.9%	19.0%

Fiscal Year 2014–15

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 2014–145 the city collected $65,050 in revenue from the sale of recyclables partially offsetting program costs.

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.

Municipal Profile

Population (OSBM 2014)	40,332
Land Area (Square Miles)	55.05
Persons per Square Mile	733
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	12,200
Tons of Recyclables Collected	
Curbside	1,298
City Drop-Off Centers	212
Total Tons Collected	1,510
Monthly Service Fee	No
Revenue from Sale of Recyclables	$65,050
Sale Revenue as Percentage of Cost	5.6%

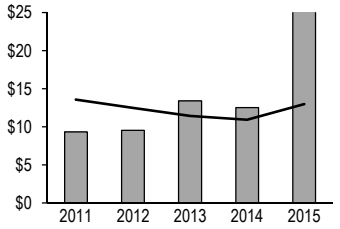
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	2.0%
Operating Costs	97.6%
Capital Costs	0.4%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$23,014
Operating Costs	$1,123,846
Capital Costs	$4,951
TOTAL	$1,151,811

Key: Hickory ■ Benchmarking Average — Fiscal Years 2011 through 2015

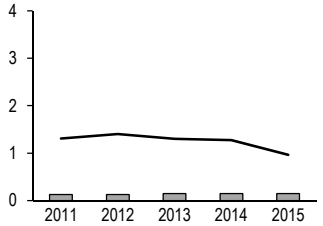
Resource Measures

Recycling Services Cost per Capita



	2011	2012	2013	2014	2015
Hickory	$9.33	$9.53	$13.43	$12.53	$28.56
Average	$13.59	$12.49	$11.44	$10.92	$12.97

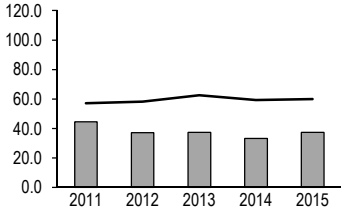
Recycling Services FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Hickory	0.13	0.13	0.15	0.15	0.15
Average	1.31	1.40	1.30	1.28	0.96

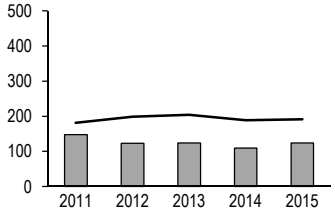
Workload Measures

Tons Recyclables Collected per 1,000 Population



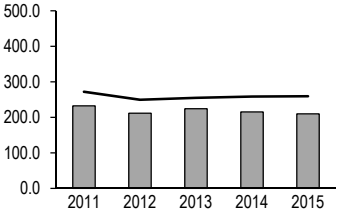
	2011	2012	2013	2014	2015
Hickory	44.6	37.2	37.4	33.2	37.4
Average	57.3	58.2	62.5	59.4	60.0

Tons Recyclables Collected per 1,000 Collection Points



	2011	2012	2013	2014	2015
Hickory	148	123	124	110	124
Average	181	199	204	189	192

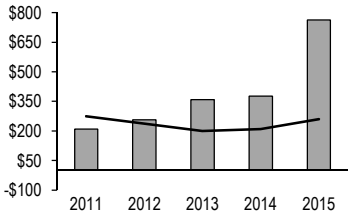
Tons Solid Waste Landfilled per 1,000 Population



	2011	2012	2013	2014	2015
Hickory	232.2	211.8	224.3	214.9	210.0
Average	271.6	249.8	255.2	258.4	259.2

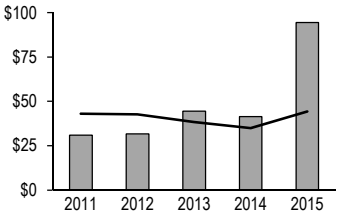
Efficiency Measures

Recycling Services Cost per Ton Collected



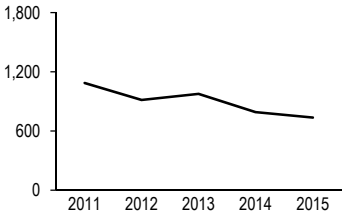
	2011	2012	2013	2014	2015
Hickory	$209	$256	$359	$377	$763
Average	$274	$237	$200	$209	$260

Recycling Services Cost per Collection Point



	2011	2012	2013	2014	2015
Hickory	$30.90	$31.58	$44.44	$41.32	$94.41
Average	$43.01	$42.66	$38.32	$34.99	$44.34

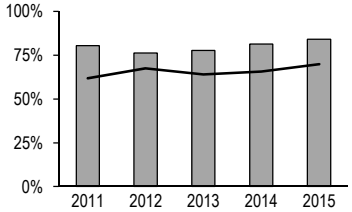
Tons Collected Curbside per Municipal FTE



	2011	2012	2013	2014	2015
Hickory					
Average	1,086	915	976	792	737

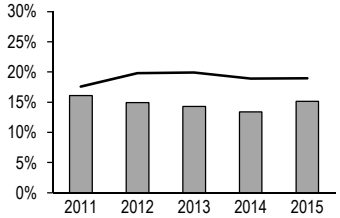
Effectiveness Measures

Community Set-Out Rate



	2011	2012	2013	2014	2015
Hickory	80.4%	76.2%	77.8%	81.4%	84.0%
Average	61.7%	67.5%	64.0%	65.6%	69.8%

Tons Recycled as Percentage of Tons Refuse and Recyclables Collected



	2011	2012	2013	2014	2015
Hickory	16.1%	14.9%	14.3%	13.4%	15.1%
Average	17.6%	19.8%	19.9%	18.9%	19.0%

Fiscal Year 2014–15

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 collection 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.

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. Sales of recyclable materials were $507,232 for the year partially offsetting program costs.

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 requests.

Municipal Profile

Population (OSBM 2014)	108,556
Land Area (Square Miles)	54.73
Persons per Square Mile	1,983
Median Family Income U.S. Census 2010	$49,720

Service Profile

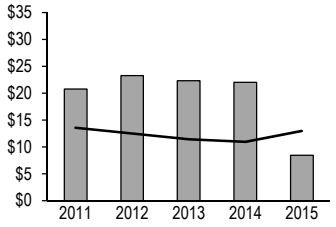
FTE Positions—Collection	6.0
FTE Positions—Other	1.5
Number of City Drop-Off Centers	16
Other Drop-Off Centers	0
Percentage of Service Contracted	0%
Collection Frequency	Every 2 weeks
General Collection Location	Curbside
Recyclables Sorted at Curb	No
Collection Points	39,240
Tons of Recyclables Collected	
Curbside	7,957
City Drop-Off Centers	0
Total Tons Collected	7,957
Monthly Service Fee	$2.00
Revenue from Sale of Recyclables	$507,232
Sale Revenue as Percentage of Cost	55.2%

Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	41.9%
Operating Costs	31.9%
Capital Costs	26.1%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$385,137
Operating Costs	$293,277
Capital Costs	$239,861
TOTAL	$918,275

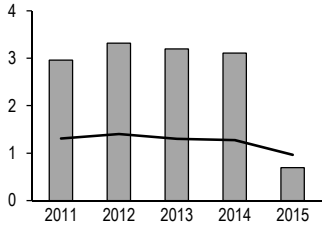
Resource Measures

Recycling Services Cost per Capita



	2011	2012	2013	2014	2015
High Point	$20.78	$23.28	$22.29	$22.04	$8.46
Average	$13.59	$12.49	$11.44	$10.92	$12.97

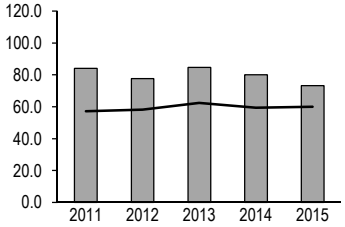
Recycling Services FTEs per 10,000 Population



	2011	2012	2013	2014	2015
High Point	2.96	3.32	3.20	3.11	0.69
Average	1.31	1.40	1.30	1.28	0.96

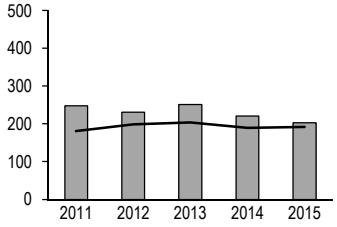
Workload Measures

Tons Recyclables Collected per 1,000 Population



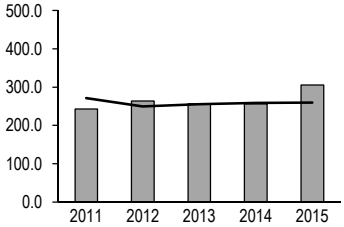
	2011	2012	2013	2014	2015
High Point	84.1	77.7	84.8	80.0	73.3
Average	57.3	58.2	62.5	59.4	60.0

Tons Recyclables Collected per 1,000 Collection Points



	2011	2012	2013	2014	2015
High Point	248	231	251	220	203
Average	181	199	204	189	192

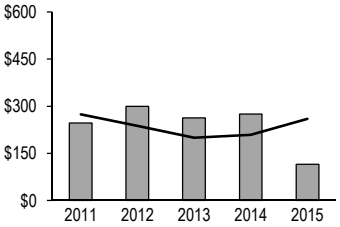
Tons Solid Waste Landfilled per 1,000 Population



	2011	2012	2013	2014	2015
High Point	243.3	264.0	256.0	256.5	305.7
Average	271.6	249.8	255.2	258.4	259.2

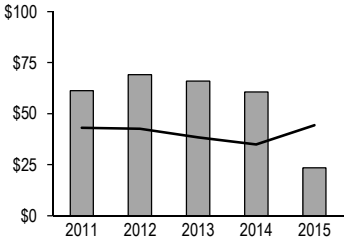
Efficiency Measures

Recycling Services Cost per Ton Collected



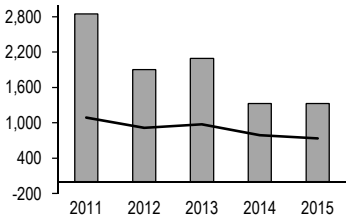
	2011	2012	2013	2014	2015
High Point	$247	$300	$263	$275	$115
Average	$274	$237	$200	$209	$260

Recycling Services Cost per Collection Point



	2011	2012	2013	2014	2015
High Point	$61.25	$69.10	$65.99	$60.67	$23.40
Average	$43.01	$42.66	$38.32	$34.99	$44.34

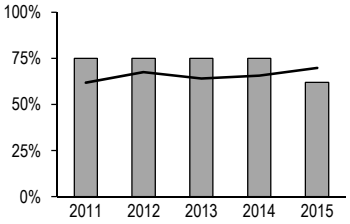
Tons Collected Curbside per Municipal FTE



	2011	2012	2013	2014	2015
High Point	2,848	1,904	2,093	1,329	1,326
Average	1,086	915	976	792	737

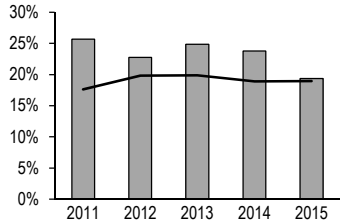
Effectiveness Measures

Community Set-Out Rate



	2011	2012	2013	2014	2015
High Point	75.0%	75.0%	75.0%	75.0%	62.0%
Average	61.7%	67.5%	64.0%	65.6%	69.8%

Tons Recycled as Percentage of Tons Refuse and Recyclables Collected



	2011	2012	2013	2014	2015
High Point	25.7%	22.7%	24.9%	23.8%	19.3%
Average	17.6%	19.8%	19.9%	18.9%	19.0%

Salisbury Household Recycling

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery

Salisbury provides every other week curbside collection of recyclable materials from households. The city charged a monthly recycling fee of $4.03 in FY 2014–15. The city provides and pays for the ninety-six-gallon recycling roll-out containers that residents use. The city contracts 100 percent of its recycling program. Recyclables are collected by the contractor and taken to the 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
- all plastics
- 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 2014)	33,955
Land Area (Square Miles)	22.22
Persons per Square Mile	1,528
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	Every 2 weeks
General Collection Location	Curbside
Recyclables Sorted at Curb	No
Collection Points	10,429
Tons of Recyclables Collected	
Curbside	1,558
City Drop-Off Centers	0
Total Tons Collected	1,558
Monthly Service Fee	$4.03
Revenue from Sale of Recyclables	$0
Sale Revenue as Percentage of Cost	NA

Full Cost Profile

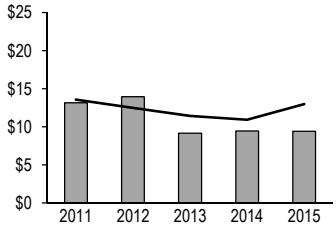
Cost Breakdown by Percentage	
Personal Services	0.0%
Operating Costs	100.0%
Capital Costs	0.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$0
Operating Costs	$319,801
Capital Costs	$0
TOTAL	$319,801

Salisbury Household Recycling

Key: Salisbury ■ Benchmarking Average — Fiscal Years 2011 through 2015

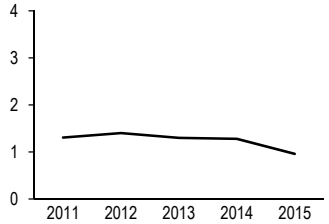
Resource Measures

Recycling Services Cost per Capita



	2011	2012	2013	2014	2015
Salisbury	$13.16	$13.94	$9.18	$9.45	$9.42
Average	$13.59	$12.49	$11.44	$10.92	$12.97

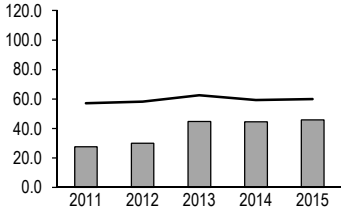
Recycling Services FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Salisbury					
Average	1.31	1.40	1.30	1.28	0.96

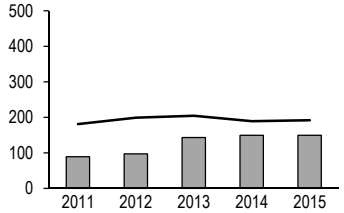
Workload Measures

Tons Recyclables Collected per 1,000 Population



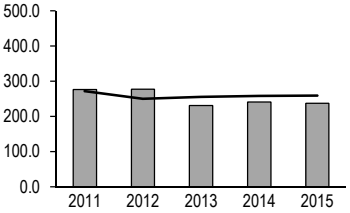
	2011	2012	2013	2014	2015
Salisbury	27.5	30.1	44.8	44.7	45.9
Average	57.3	58.2	62.5	59.4	60.0

Tons Recyclables Collected per 1,000 Collection Points



	2011	2012	2013	2014	2015
Salisbury	89	97	143	150	149
Average	181	199	204	189	192

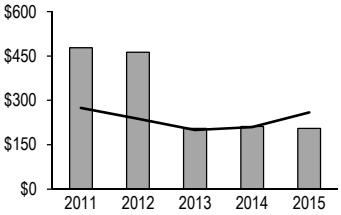
Tons Solid Waste Landfilled per 1,000 Population



	2011	2012	2013	2014	2015
Salisbury	276.4	277.6	231.3	241.1	237.7
Average	271.6	249.8	255.2	258.4	259.2

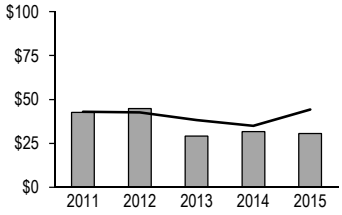
Efficiency Measures

Recycling Services Cost per Ton Collected



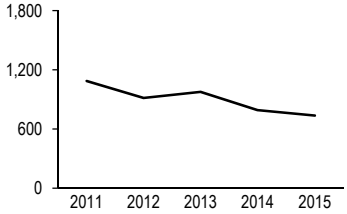
	2011	2012	2013	2014	2015
Salisbury	$478	$463	$205	$212	$205
Average	$274	$237	$200	$209	$260

Recycling Services Cost per Collection Point



	2011	2012	2013	2014	2015
Salisbury	$42.58	$44.74	$29.25	$31.69	$30.66
Average	$43.01	$42.66	$38.32	$34.99	$44.34

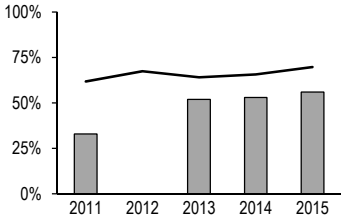
Tons Collected Curbside per Municipal FTE



	2011	2012	2013	2014	2015
Salisbury					
Average	1,086	915	976	792	737

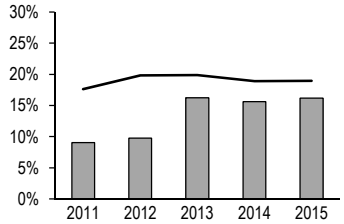
Effectiveness Measures

Community Set-Out Rate



	2011	2012	2013	2014	2015
Salisbury	33.0%		52.0%	53.0%	56.0%
Average	61.7%	67.5%	64.0%	65.6%	69.8%

Tons Recycled as Percentage of Tons Refuse and Recyclables Collected



	2011	2012	2013	2014	2015
Salisbury	9.1%	9.8%	16.2%	15.6%	16.2%
Average	17.6%	19.8%	19.9%	18.9%	19.0%

Wilson Household Recycling

Fiscal Year 2014–15

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 2014)	49,222
Land Area (Square Miles)	30.52
Persons per Square Mile	1,613
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	No
Collection Points	19,850
Tons of Recyclables Collected	
Curbside	1,509
City Drop-Off Centers	0
Total Tons Collected	1,509
Monthly Service Fee	$19.00
Revenue from Sale of Recyclables	$0
Sale Revenue as Percentage of Cost	NA

Full Cost Profile

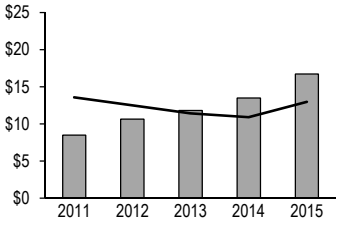
Cost Breakdown by Percentage	
Personal Services	35.7%
Operating Costs	53.4%
Capital Costs	11.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$293,864
Operating Costs	$439,745
Capital Costs	$90,294
TOTAL	$823,903

Wilson — Household Recycling

Key: Wilson ■ Benchmarking Average — Fiscal Years 2011 through 2015

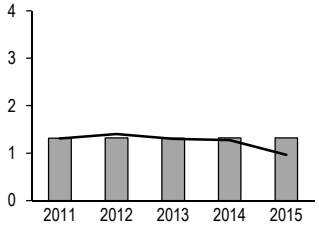
Resource Measures

Recycling Services Cost per Capita



	2011	2012	2013	2014	2015
Wilson	$8.49	$10.65	$11.80	$13.49	$16.74
Average	$13.59	$12.49	$11.44	$10.92	$12.97

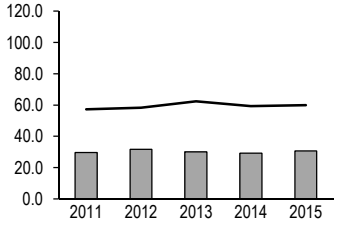
Recycling Services FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Wilson	1.32	1.32	1.31	1.32	1.32
Average	1.31	1.40	1.30	1.28	0.96

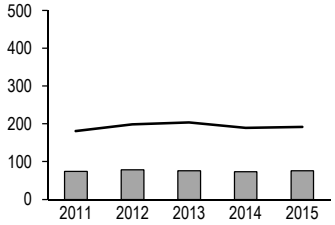
Workload Measures

Tons Recyclables Collected per 1,000 Population



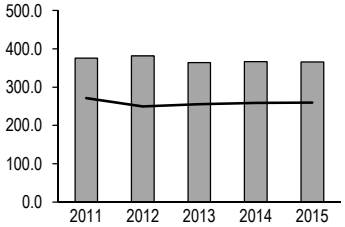
	2011	2012	2013	2014	2015
Wilson	29.7	31.7	30.0	29.3	30.7
Average	57.3	58.2	62.5	59.4	60.0

Tons Recyclables Collected per 1,000 Collection Points



	2011	2012	2013	2014	2015
Wilson	74	78	76	73	76
Average	181	199	204	189	192

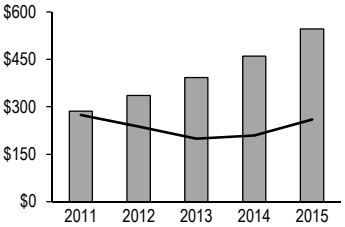
Tons Solid Waste Landfilled per 1,000 Population



	2011	2012	2013	2014	2015
Wilson	375.2	381.2	364.1	366.6	365.7
Average	271.6	249.8	255.2	258.4	259.2

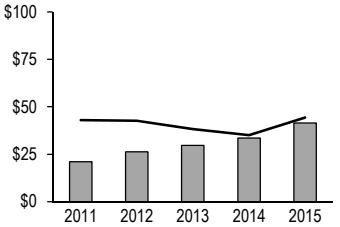
Efficiency Measures

Recycling Services Cost per Ton Collected



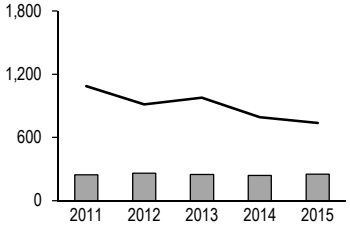
	2011	2012	2013	2014	2015
Wilson	$286	$336	$393	$460	$546
Average	$274	$237	$200	$209	$260

Recycling Services Cost per Collection Point



	2011	2012	2013	2014	2015
Wilson	$21.08	$26.29	$29.69	$33.55	$41.51
Average	$43.01	$42.66	$38.32	$34.99	$44.34

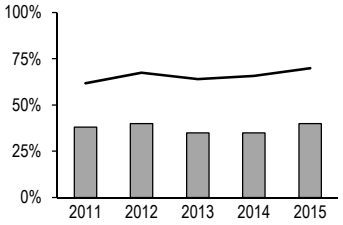
Tons Collected Curbside per Municipal FTE



	2011	2012	2013	2014	2015
Wilson	245	260	248	240	252
Average	1,086	915	976	792	737

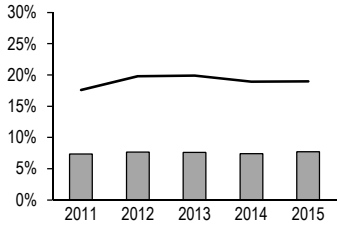
Effectiveness Measures

Community Set-Out Rate



	2011	2012	2013	2014	2015
Wilson	38.0%	40.0%	35.0%	35.0%	40.0%
Average	61.7%	67.5%	64.0%	65.6%	69.8%

Tons Recycled as Percentage of Tons Refuse and Recyclables Collected



	2011	2012	2013	2014	2015
Wilson	7.3%	7.7%	7.6%	7.4%	7.7%
Average	17.6%	19.8%	19.9%	18.9%	19.0%

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery
Winston-Salem provides biweekly curbside household recycling service to its single-family residences using ninety-six-gallon carts. 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 city does not charge a recycling fee. Revenue to the city for the sale of recyclables was $249,764 during the year partially offsetting program costs.

Conditions Affecting Service, Performance, and Costs
In FY 2011–12, 60 percent of the cost of Winston-Salem's recycling program was funded by landfill tipping fees. The remaining 40 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 ninety-six-gallon cart that is rolled to the curb for collection. The service was also changed to a biweekly collection. The city anticipates signficant cost savings and increased participation from a single-stream program.

Municipal Profile

Population (OSBM 2014)	237,905
Land Area (Square Miles)	132.45
Persons per Square Mile	1,796
Median Family Income U.S. Census 2010	$51,491

Service Profile

FTE Positions—Collection	Contractor
FTE Positions—Other	2.0
Number of City Drop-Off Centers	11
Other Drop-Off Centers	0
Percentage of Service Contracted	100%
Collection Frequency	Every 2 weeks
General Collection Location	Curbside
Recyclables Sorted at Curb	No
Collection Points	75,039
Tons of Recyclables Collected	
Curbside	14,299
City Drop-Off Centers	255
Total Tons Collected	14,554
Monthly Service Fee	No
Revenue from Sale of Recyclables	$249,764
Sale Revenue as Percentage of Cost	15.3%

Full Cost Profile

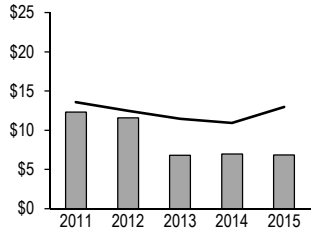
Cost Breakdown by Percentage	
Personal Services	4.5%
Operating Costs	95.5%
Capital Costs	0.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$72,984
Operating Costs	$1,554,310
Capital Costs	$0
TOTAL	$1,627,294

Winston-Salem Household Recycling

Key: Winston-Salem ■ Benchmarking Average — Fiscal Years 2011 through 2015

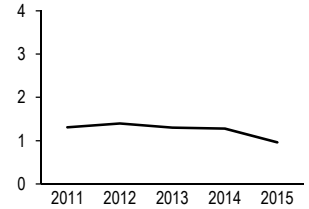
Resource Measures

Recycling Services Cost per Capita



	2011	2012	2013	2014	2015
Winston-Salem	$12.30	$11.58	$6.80	$6.98	$6.84
Average	$13.59	$12.49	$11.44	$10.92	$12.97

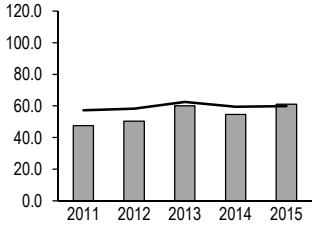
Recycling Services FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Winston-Salem					
Average	1.31	1.40	1.30	1.28	0.96

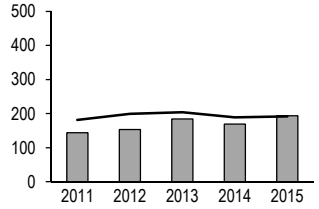
Workload Measures

Tons Recyclables Collected per 1,000 Population



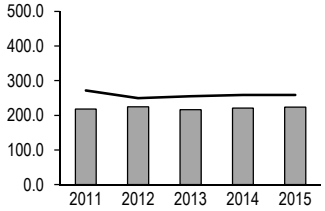
	2011	2012	2013	2014	2015
Winston-Salem	47.5	50.3	60.1	54.7	61.2
Average	57.3	58.2	62.5	59.4	60.0

Tons Recyclables Collected per 1,000 Collection Points



	2011	2012	2013	2014	2015
Winston-Salem	144	154	184	169	194
Average	181	199	204	189	192

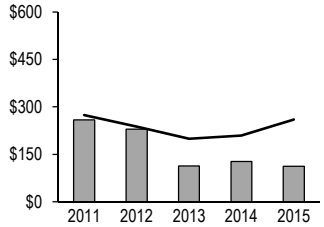
Tons Solid Waste Landfilled per 1,000 Population



	2011	2012	2013	2014	2015
Winston-Salem	218.2	224.2	216.1	220.8	223.7
Average	271.6	249.8	255.2	258.4	259.2

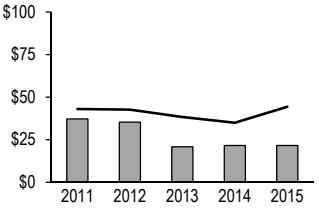
Efficiency Measures

Recycling Services Cost per Ton Collected



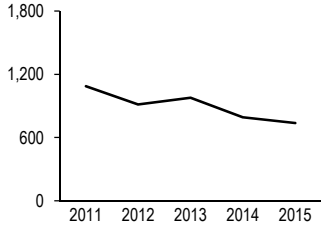
	2011	2012	2013	2014	2015
Winston-Salem	$259	$230	$113	$128	$112
Average	$274	$237	$200	$209	$260

Recycling Services Cost per Collection Point



	2011	2012	2013	2014	2015
Winston-Salem	$37.25	$35.34	$20.85	$21.62	$21.69
Average	$43.01	$42.66	$38.32	$34.99	$44.34

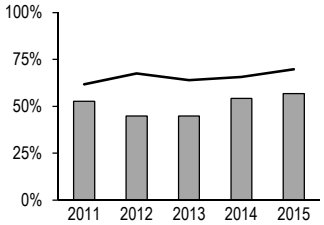
Tons Collected Curbside per Municipal FTE



	2011	2012	2013	2014	2015
Winston-Salem					
Average	1,086	915	976	792	737

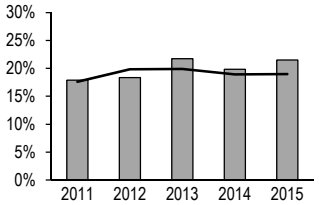
Effectiveness Measures

Community Set-Out Rate



	2011	2012	2013	2014	2015
Winston-Salem	52.6%	44.9%	44.9%	54.2%	56.8%
Average	61.7%	67.5%	64.0%	65.6%	69.8%

Tons Recycled as Percentage of Tons Refuse and Recyclables Collected



	2011	2012	2013	2014	2015
Winston-Salem	17.9%	18.3%	21.8%	19.8%	21.5%
Average	17.6%	19.8%	19.9%	18.9%	19.0%

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 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	Seasonal Leaves	
Apex	Curbside	1 x week	NA	13,274	6,133	NA	12.35
Asheville	Curbside	2 x month	NA	29,918	7,624	NA	14.9
Burlington	Curbside	1 x week	4 sweeps	16,937	2,995	1,636	10.5
Cary	Curbside	1 x week	3 sweeps	48,377	14,194	7,386	23
Chapel Hill	Curbside	1 x week	5-6 sweeps	11,960	2,995	5,700	16.853
Concord	Curbside	1 x week	3 sweeps	29,536	6,116	1,964	23.45
Greensboro	Curbside	1 x week	2 sweeps	81,102	13,233	12,525	45.94
Greenville	Curbside	1 x week	1 x week	19,000	NA	NA	21.3
Hickory	Curbside	1 x week	2 sweeps	12,200	2,829	4,133	9.75
High Point	Curbside	1 x week	2 sweeps	39,240	4,318	2,490	18.58
Salisbury	Curbside	1 x week	1 x 3 weeks	10,961	2,070	2,632	8.5
Wilson	Curbside	1 x week	1 x 3 weeks	19,850	6,360	1,742	15.5
Winston-Salem	Curbside	Yard Waste Cart 1 x week Brush every 10 days	3 sweeps	79, 907 for brush/leaves 13,467 for yard waste	5,417	11,626	75.89

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 2014–15

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.

Apex made a major purchase of new leaf and grappler trucks for leaf collection in FY 2013–14, which pushed up capital costs but helped with productivity.

Municipal Profile

Population (OSBM 2014)	42,689
Land Area (Square Miles)	17.25
Persons per Square Mile	2,475
Median Family Income U.S. Census 2010	$97,201

Service Profile

FTE Positions—Collection	11.0
FTE Positions—Other	1.4
Collection Frequency	
Yard Waste	1 x week
Collection Points	13,274
Tons Collected	
Yard Waste	6,133
Seasonal Leaves	with yard waste
Total Tons Collected	6,133
Monthly Service Fee	$4.00

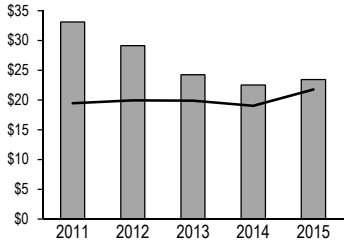
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	55.7%
Operating Costs	22.4%
Capital Costs	21.9%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$556,634
Operating Costs	$224,423
Capital Costs	$218,723
TOTAL	$999,780

Key: Apex ■ Benchmarking Average — Fiscal Years 2011 through 2015

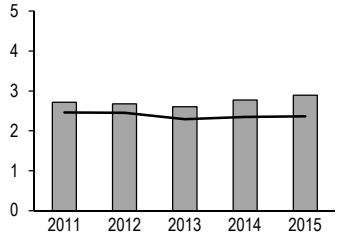
Resource Measures

Yard Waste and Leaf Collection Costs per Capita



	2011	2012	2013	2014	2015
Apex	$33.12	$29.13	$24.23	$22.53	$23.42
Average	$19.44	$19.93	$19.87	$19.01	$21.78

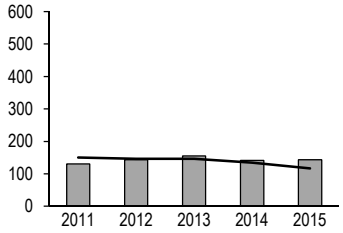
Yard Waste and Leaf Collection FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Apex	2.7	2.7	2.6	2.8	2.9
Average	2.5	2.4	2.3	2.3	2.4

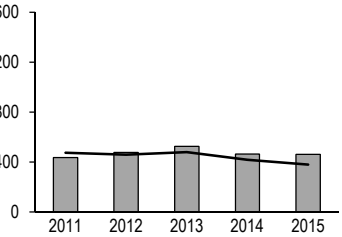
Workload Measures

Yard Waste and Leaf Tons Collected per 1,000 Population



	2011	2012	2013	2014	2015
Apex	131	143	155	141	144
Average	151	146	146	134	117

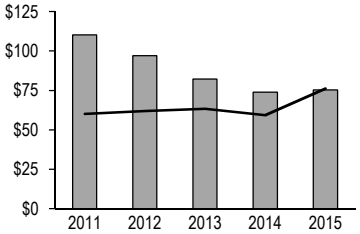
Yard Waste and Leaf Tons Collected per 1,000 Collection Points



	2011	2012	2013	2014	2015
Apex	436	476	526	463	462
Average	473	459	478	418	380

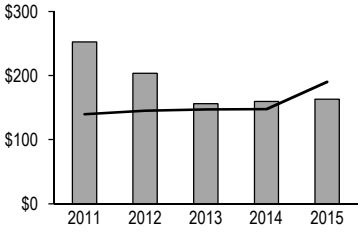
Efficiency Measures

Yard Waste and Leaf Collection Cost per Collection Point



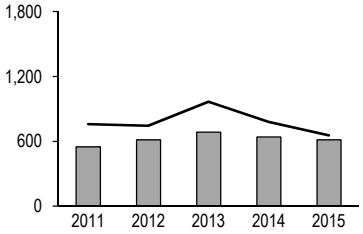
	2011	2012	2013	2014	2015
Apex	$110	$97	$82	$74	$75
Average	$60	$62	$63	$59	$76

Yard Waste and Leaf Collection Cost per Ton Collected



	2011	2012	2013	2014	2015
Apex	$253	$204	$156	$160	$163
Average	$140	$145	$147	$148	$190

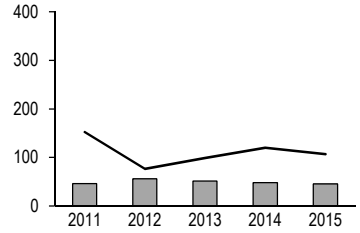
Yard Waste and Leaf Tons Collected per Collection FTE



	2011	2012	2013	2014	2015
Apex	549	615	685	642	613
Average	758	745	966	779	655

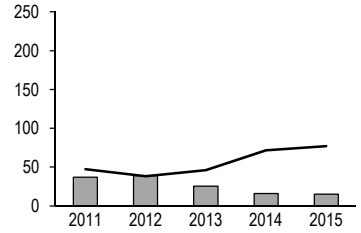
Effectiveness Measures

Collection Complaints per 10,000 Collection Points



	2011	2012	2013	2014	2015
Apex	46	56	51	48	45
Average	152	77	98	120	107

Valid Complaints per 10,000 Collection Points



	2011	2012	2013	2014	2015
Apex	37	39	26	16	15
Average	47	38	46	71	77

Fiscal Year 2014–15

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 4 feet and no wider than 6 inches. Grass clippings and materials cut by contractors are not collected.

There are three one-person crews on knucklebooms, scheduled for approximately three-and-one-half days per week. Three three-person crews operating rear packers collect yard waste four 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 FY 2011–12 which damaged trees and led to an increase in the tons of yard waste collected.

Municipal Profile

Population (OSBM 2014)	89,248
Land Area (Square Miles)	45.52
Persons per Square Mile	1,961
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	29,918
Tons Collected	
Yard Waste	7,624
Seasonal Leaves	with yard waste
Total Tons Collected	7,624
Monthly Service Fee	No

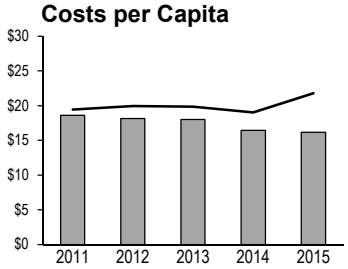
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	41.4%
Operating Costs	46.2%
Capital Costs	12.4%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$597,636
Operating Costs	$667,148
Capital Costs	$179,084
TOTAL	$1,443,868

Key: Asheville ■ Benchmarking Average — Fiscal Years 2011 through 2015

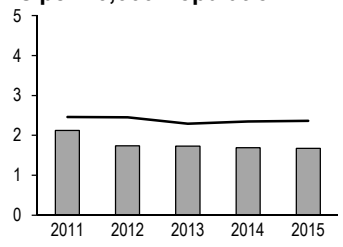
Resource Measures

Yard Waste and Leaf Collection Costs per Capita



	2011	2012	2013	2014	2015
Asheville	$18.63	$18.17	$17.99	$16.46	$16.18
Average	$19.44	$19.93	$19.87	$19.01	$21.78

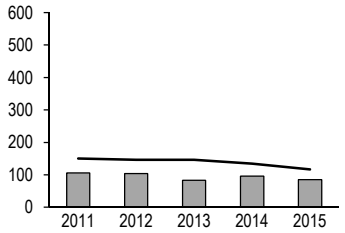
Yard Waste and Leaf Collection FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Asheville	2.1	1.7	1.7	1.7	1.7
Average	2.5	2.4	2.3	2.3	2.4

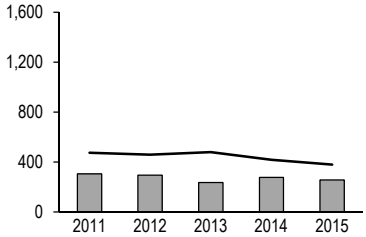
Workload Measures

Yard Waste and Leaf Tons Collected per 1,000 Population



	2011	2012	2013	2014	2015
Asheville	106	104	83	96	85
Average	151	146	146	134	117

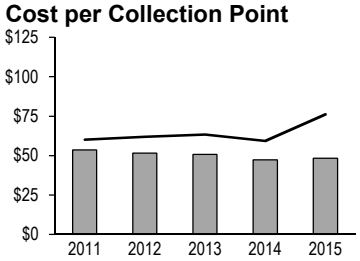
Yard Waste and Leaf Tons Collected per 1,000 Collection Points



	2011	2012	2013	2014	2015
Asheville	304	294	234	277	255
Average	473	459	478	418	380

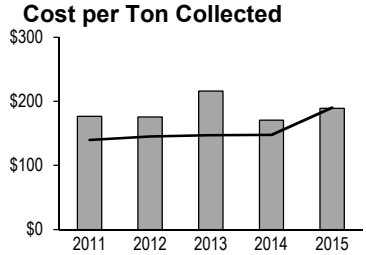
Efficiency Measures

Yard Waste and Leaf Collection Cost per Collection Point



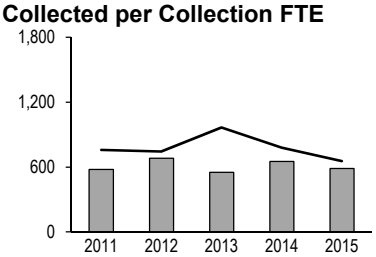
	2011	2012	2013	2014	2015
Asheville	$54	$52	$51	$47	$48
Average	$60	$62	$63	$59	$76

Yard Waste and Leaf Collection Cost per Ton Collected



	2011	2012	2013	2014	2015
Asheville	$176	$176	$216	$171	$189
Average	$140	$145	$147	$148	$190

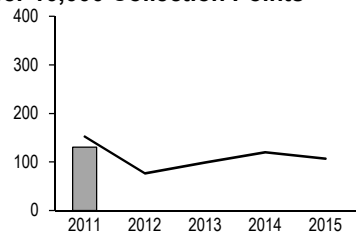
Yard Waste and Leaf Tons Collected per Collection FTE



	2011	2012	2013	2014	2015
Asheville	579	682	552	652	586
Average	758	745	966	779	655

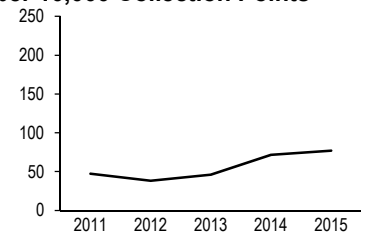
Effectiveness Measures

Collection Complaints per 10,000 Collection Points



	2011	2012	2013	2014	2015
Asheville	130				
Average	152	77	98	120	107

Valid Complaints per 10,000 Collection Points



	2011	2012	2013	2014	2015
Asheville					
Average	47	38	46	71	77

Fiscal Year 2014–15

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 50 pounds each week. There is a $4.50 charge for each 3 cubic yards of yard waste removed; the first 3 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 Cemetery 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.

Municipal Profile

Population (OSBM 2014)	51,923
Land Area (Square Miles)	30.52
Persons per Square Mile	1,701
Median Family Income U.S. Census 2010	$46,461

Service Profile

FTE Positions—Collection	10.0
FTE Positions—Other	0.5
Collection Frequency	
Yard Waste	1 x week
Seasonal Leaf Collection	4 sweeps
Collection Points	16,937
Tons Collected	
Yard Waste	2,995
Seasonal Leaves	1,636
Total Tons Collected	4,631
Monthly Service Fee	$4.50 for special bulk pickup, 3 cubic yards

Full Cost Profile

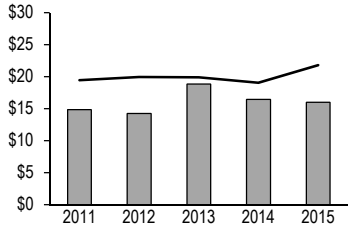
Cost Breakdown by Percentage	
Personal Services	46.7%
Operating Costs	31.3%
Capital Costs	22.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$388,153
Operating Costs	$259,995
Capital Costs	$182,842
TOTAL	$830,990

Burlington Yard Waste/Leaf Collection

Key: Burlington ■ Benchmarking Average — Fiscal Years 2011 through 2015

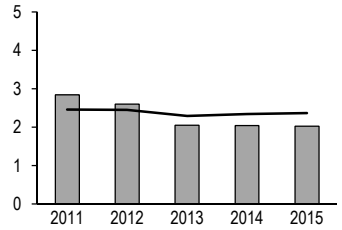
Resource Measures

Yard Waste and Leaf Collection Costs per Capita



	2011	2012	2013	2014	2015
Burlington	$14.83	$14.24	$18.84	$16.44	$16.00
Average	$19.44	$19.93	$19.87	$19.01	$21.78

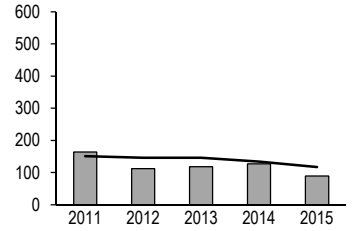
Yard Waste and Leaf Collection FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Burlington	2.8	2.6	2.1	2.0	2.0
Average	2.5	2.4	2.3	2.3	2.4

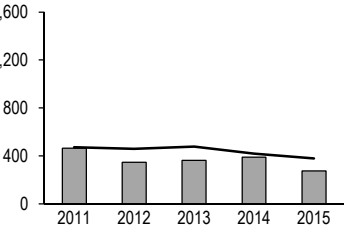
Workload Measures

Yard Waste and Leaf Tons Collected per 1,000 Population



	2011	2012	2013	2014	2015
Burlington	164	112	118	127	89
Average	151	146	146	134	117

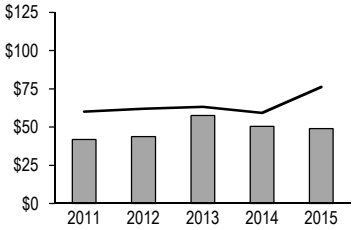
Yard Waste and Leaf Tons Collected per 1,000 Collection Points



	2011	2012	2013	2014	2015
Burlington	464	345	362	390	273
Average	473	459	478	418	380

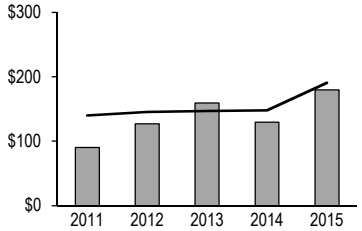
Efficiency Measures

Yard Waste and Leaf Collection Cost per Collection Point



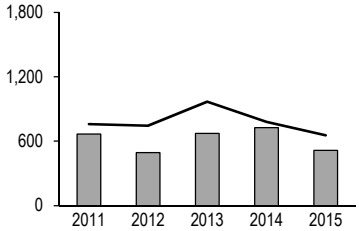
	2011	2012	2013	2014	2015
Burlington	$42	$44	$58	$50	$49
Average	$60	$62	$63	$59	$76

Yard Waste and Leaf Collection Cost per Ton Collected



	2011	2012	2013	2014	2015
Burlington	$90	$127	$159	$129	$179
Average	$140	$145	$147	$148	$190

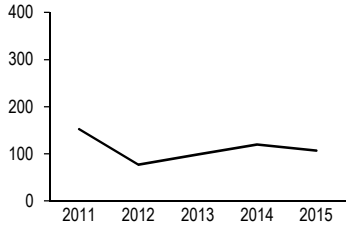
Yard Waste and Leaf Tons Collected per Collection FTE



	2011	2012	2013	2014	2015
Burlington	667	495	674	727	515
Average	758	745	966	779	655

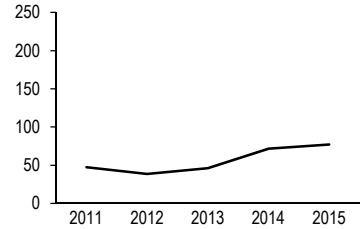
Effectiveness Measures

Collection Complaints per 10,000 Collection Points



	2011	2012	2013	2014	2015
Burlington					
Average	152	77	98	120	107

Valid Complaints per 10,000 Collection Points



	2011	2012	2013	2014	2015
Burlington					
Average	47	38	46	71	77

Fiscal Year 2014–15

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 4 feet in length and less than 4 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.

Conditions Affecting Service, Performance, and Costs
Cary defines valid complaints as those that have been verified in the field by a supervisor.

Municipal Profile

Population (OSBM 2014)	148,333
Land Area (Square Miles)	56.47
Persons per Square Mile	2,627
Median Family Income U.S. Census 2010	$108,956

Service Profile

FTE Positions—Collection	23.0
FTE Positions—Other	0.0
Collection Frequency	
Yard Waste	1 x week
Seasonal Leaf Collection	3 sweeps
Collection Points	48,377
Tons Collected	
Yard Waste	14,194
Seasonal Leaves	7,386
Total Tons Collected	21,580
Monthly Service Fee	Included in solid waste fee

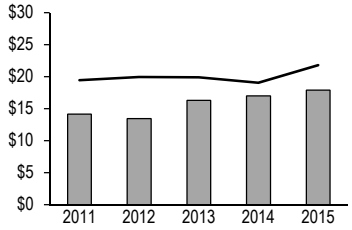
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	51.8%
Operating Costs	38.2%
Capital Costs	10.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,376,394
Operating Costs	$1,013,698
Capital Costs	$265,520
TOTAL	$2,655,612

Key: Cary ■ Benchmarking Average — Fiscal Years 2011 through 2015

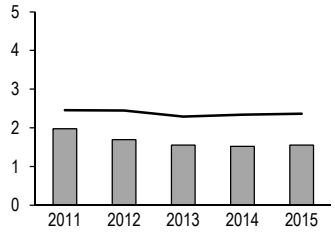
Resource Measures

Yard Waste and Leaf Collection Costs per Capita



	2011	2012	2013	2014	2015
Cary	$14.12	$13.41	$16.27	$16.97	$17.90
Average	$19.44	$19.93	$19.87	$19.01	$21.78

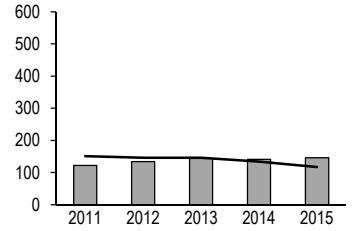
Yard Waste and Leaf Collection FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Cary	2.0	1.7	1.6	1.5	1.6
Average	2.5	2.4	2.3	2.3	2.4

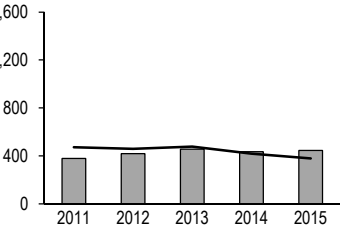
Workload Measures

Yard Waste and Leaf Tons Collected per 1,000 Population



	2011	2012	2013	2014	2015
Cary	122	134	144	141	145
Average	151	146	146	134	117

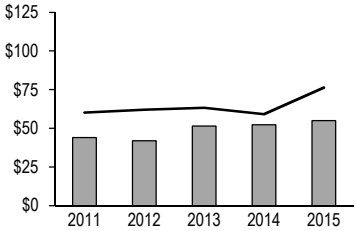
Yard Waste and Leaf Tons Collected per 1,000 Collection Points



	2011	2012	2013	2014	2015
Cary	379	420	455	434	446
Average	473	459	478	418	380

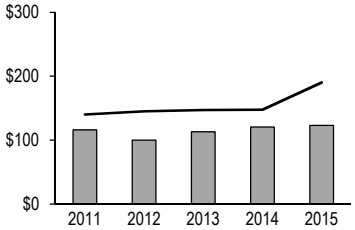
Efficiency Measures

Yard Waste and Leaf Collection Cost per Collection Point



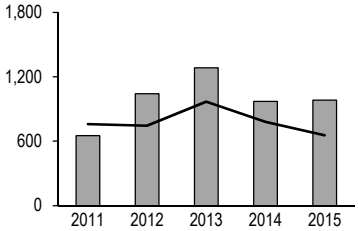
	2011	2012	2013	2014	2015
Cary	$44	$42	$51	$52	$55
Average	$60	$62	$63	$59	$76

Yard Waste and Leaf Collection Cost per Ton Collected



	2011	2012	2013	2014	2015
Cary	$116	$100	$113	$120	$123
Average	$140	$145	$147	$148	$190

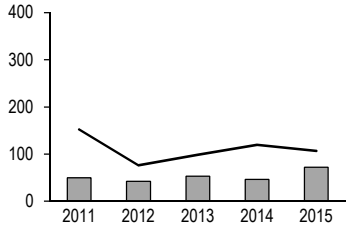
Yard Waste and Leaf Tons Collected per Collection FTE



	2011	2012	2013	2014	2015
Cary	652	1,042	1,283	971	981
Average	758	745	966	779	655

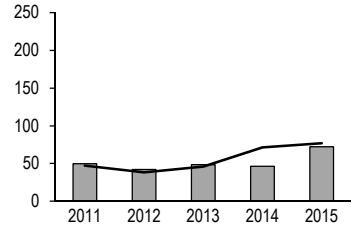
Effectiveness Measures

Collection Complaints per 10,000 Collection Points



	2011	2012	2013	2014	2015
Cary	50	42	53	46	72
Average	152	77	98	120	107

Valid Complaints per 10,000 Collection Points



	2011	2012	2013	2014	2015
Cary	50	42	49	46	72
Average	47	38	46	71	77

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery
Yard waste collection is managed by the Solid Waste Services Division of the Public Works Department. Yard waste includes organic materials including leaves, stems, grass, limbs, and other residential organic matter. The town does not collect large logs or stumps and does not clear debris from lots.

Yard waste is collected once per week curbside with no monthly fee. Yard waste is collected by seven 3-person crews using rear packers two days per week. The Town prefers loose waste to be placed in roll carts, another rigid container, or paper yard waste bags for collection. However, the Town will collect loose yard waste. The Town does not collect yard waste in plastic bags.

Residents can rent a 10 cubic yard roll-off container for large projects. These larger loads are collected by a one-person crew using a knuckle-boom truck and a hook-lift truck 5 days per week.

Seasonal leaf collection is managed by the Streets and Construction Services Division of the Public Works Department. Seasonal leaf collection is run with five or six cycles in a season from mid-October to early March. Only loose leaves and pine straw free of limbs or other debris are collected curbside. Leaf crews consist of a driver, a raker, and a machine operator. Crews may make use of seasonal labor, and three to six crews are used depending on the volume of leaves at the curb for collection. During peak leaf fall, crews also pull the curb line in conjunction with street sweepers from the Stormwater Program of the Public Works Department.

Conditions Affecting Service, Performance, and Costs
The Town of Chapel Hill began participation in the benchmarking project in July 2015, with FY 2014–15 being the first reporting year.

Complaints only include leaf collection. In FY 2014-15 we did not track complaints for yard waste.

Municipal Profile

Population (OSBM 2014)	59,758
Land Area (Square Miles)	21.17
Persons per Square Mile	2,823
Median Family Income U.S. Census 2010	$61,405

Service Profile

FTE Positions—Collection	15.6
FTE Positions—Other	1.3
Collection Frequency	
Yard Waste	1 x week
Seasonal Leaf Collection	5-6 sweeps
Collection Points	11,960
Tons Collected	
Yard Waste	2,995
Seasonal Leaves	5,700
Total Tons Collected	8,695
Monthly Service Fee	No

Full Cost Profile

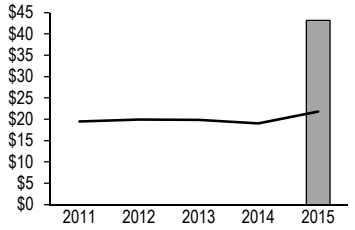
Cost Breakdown by Percentage	
Personal Services	37.3%
Operating Costs	56.0%
Capital Costs	6.7%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$963,070
Operating Costs	$1,444,380
Capital Costs	$171,870
TOTAL	$2,579,320

Chapel Hill — Yard Waste/Leaf Collection

Key: Chapel Hill ■ Benchmarking Average — Fiscal Years 2011 through 2015

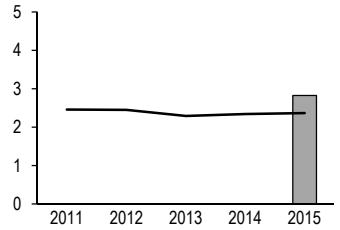
Resource Measures

Yard Waste and Leaf Collection Costs per Capita



	2011	2012	2013	2014	2015
Chapel Hill					$43.16
Average	$19.44	$19.93	$19.87	$19.01	$21.78

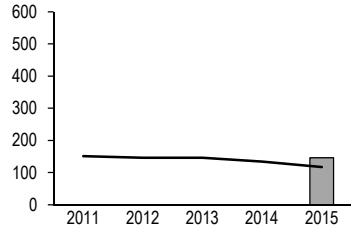
Yard Waste and Leaf Collection FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Chapel Hill					2.8
Average	2.5	2.4	2.3	2.3	2.4

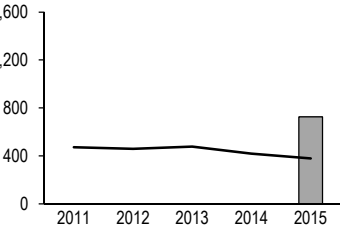
Workload Measures

Yard Waste and Leaf Tons Collected per 1,000 Population



	2011	2012	2013	2014	2015
Chapel Hill					146
Average	151	146	146	134	117

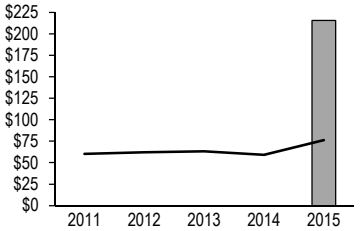
Yard Waste and Leaf Tons Collected per 1,000 Collection Points



	2011	2012	2013	2014	2015
Chapel Hill					727
Average	473	459	478	418	380

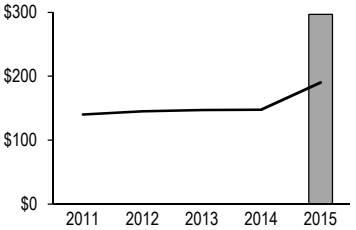
Efficiency Measures

Yard Waste and Leaf Collection Cost per Collection Point



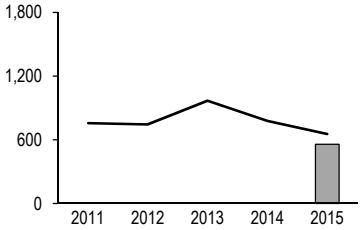
	2011	2012	2013	2014	2015
Chapel Hill					$216
Average	$60	$62	$63	$59	$76

Yard Waste and Leaf Collection Cost per Ton Collected



	2011	2012	2013	2014	2015
Chapel Hill					$297
Average	$140	$145	$147	$148	$190

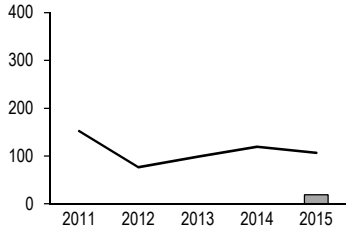
Yard Waste and Leaf Tons Collected per Collection FTE



	2011	2012	2013	2014	2015
Chapel Hill					558
Average	758	745	966	779	655

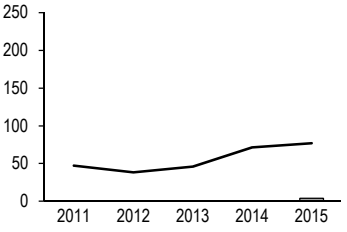
Effectiveness Measures

Collection Complaints per 10,000 Collection Points



	2011	2012	2013	2014	2015
Chapel Hill					19
Average	152	77	98	120	107

Valid Complaints per 10,000 Collection Points



	2011	2012	2013	2014	2015
Chapel Hill					4
Average	47	38	46	71	77

Fiscal Year 2014–15

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. 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

Municipal Profile

Population (OSBM 2014)	85,428
Land Area (Square Miles)	61.09
Persons per Square Mile	1,398
Median Family Income U.S. Census 2010	$63,643

Service Profile

FTE Positions—Collection	21.33
FTE Positions—Other	2.12
Collection Frequency	
Yard Waste	1 x week
Seasonal Leaf Collection	3 sweeps
Collection Points	29,536
Tons Collected	
Yard Waste	6,116
Seasonal Leaves	1,964
Total Tons Collected	8,080
Monthly Service Fee	No

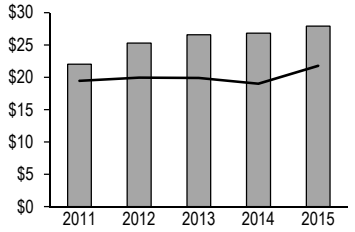
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	50.3%
Operating Costs	32.7%
Capital Costs	17.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,198,338
Operating Costs	$779,376
Capital Costs	$405,319
TOTAL	$2,383,033

Key: Concord ■ Benchmarking Average — Fiscal Years 2011 through 2015

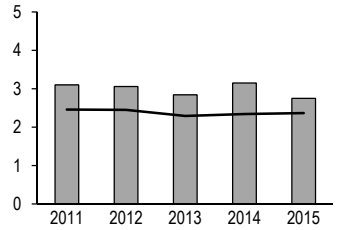
Resource Measures

Yard Waste and Leaf Collection Costs per Capita



	2011	2012	2013	2014	2015
Concord	$22.02	$25.30	$26.55	$26.81	$27.90
Average	$19.44	$19.93	$19.87	$19.01	$21.78

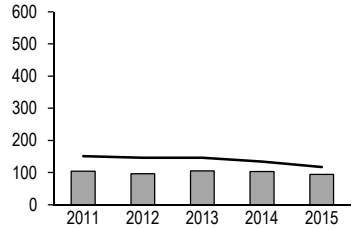
Yard Waste and Leaf Collection FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Concord	3.1	3.1	2.8	3.1	2.7
Average	2.5	2.4	2.3	2.3	2.4

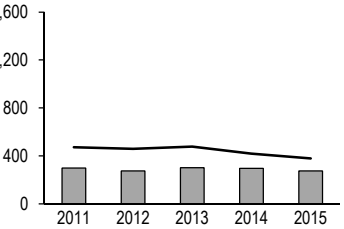
Workload Measures

Yard Waste and Leaf Tons Collected per 1,000 Population



	2011	2012	2013	2014	2015
Concord	104	96	105	103	95
Average	151	146	146	134	117

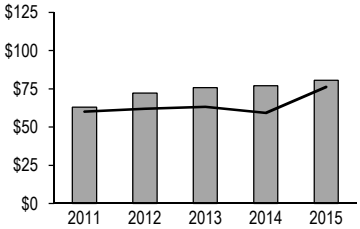
Yard Waste and Leaf Tons Collected per 1,000 Collection Points



	2011	2012	2013	2014	2015
Concord	298	273	300	296	274
Average	473	459	478	418	380

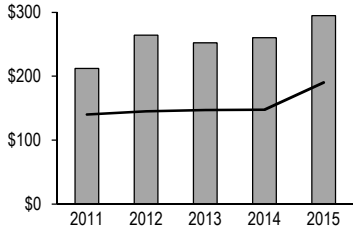
Efficiency Measures

Yard Waste and Leaf Collection Cost per Collection Point



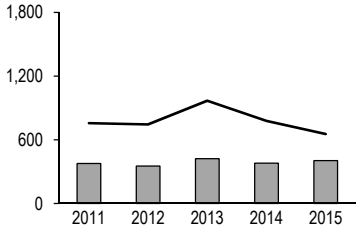
	2011	2012	2013	2014	2015
Concord	$63	$72	$76	$77	$81
Average	$60	$62	$63	$59	$76

Yard Waste and Leaf Collection Cost per Ton Collected



	2011	2012	2013	2014	2015
Concord	$212	$264	$252	$260	$295
Average	$140	$145	$147	$148	$190

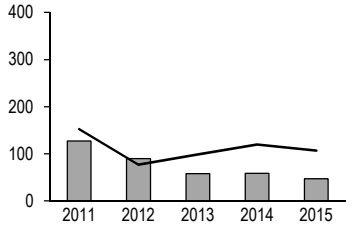
Yard Waste and Leaf Tons Collected per Collection FTE



	2011	2012	2013	2014	2015
Concord	379	353	422	382	403
Average	758	745	966	779	655

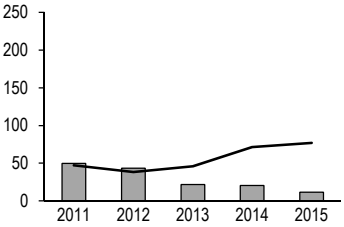
Effectiveness Measures

Collection Complaints per 10,000 Collection Points



	2011	2012	2013	2014	2015
Concord	127	90	57	58	47
Average	152	77	98	120	107

Valid Complaints per 10,000 Collection Points



	2011	2012	2013	2014	2015
Concord	50	43	22	20	12
Average	47	38	46	71	77

Fiscal Year 2014–15

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 50 pounds or 5 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 2014)	280,803
Land Area (Square Miles)	128.11
Persons per Square Mile	2,192
Median Family Income U.S. Census 2010	$52,752

Service Profile

FTE Positions—Collection	44.79
FTE Positions—Other	1.15
Collection Frequency	
Yard Waste	1 x week
Seasonal Leaf Collection	2 sweeps
Collection Points	81,102
Tons Collected	
Yard Waste	13,233
Seasonal Leaves	12,525
Total Tons Collected	25,758
Monthly Service Fee	No

Full Cost Profile

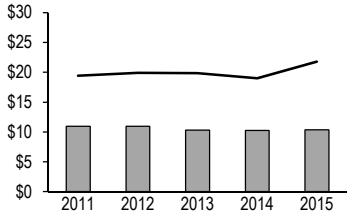
Cost Breakdown by Percentage	
Personal Services	37.2%
Operating Costs	62.8%
Capital Costs	0.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,081,890
Operating Costs	$1,826,221
Capital Costs	$0
TOTAL	$2,908,111

Greensboro Yard Waste/Leaf Collection

Key: Greensboro ■ Benchmarking Average — Fiscal Years 2011 through 2015

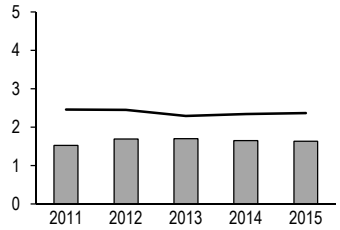
Resource Measures

Yard Waste and Leaf Collection Costs per Capita



	2011	2012	2013	2014	2015
Greensboro	$10.95	$10.93	$10.32	$10.24	$10.36
Average	$19.44	$19.93	$19.87	$19.01	$21.78

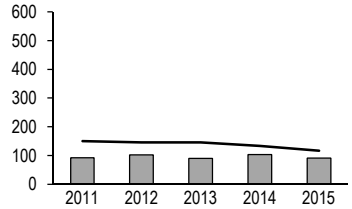
Yard Waste and Leaf Collection FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Greensboro	1.5	1.7	1.7	1.6	1.6
Average	2.5	2.4	2.3	2.3	2.4

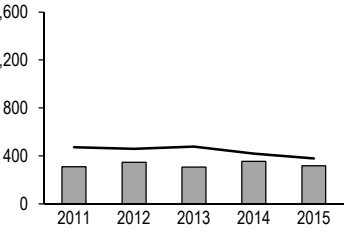
Workload Measures

Yard Waste and Leaf Tons Collected per 1,000 Population



	2011	2012	2013	2014	2015
Greensboro	92	103	91	103	92
Average	151	146	146	134	117

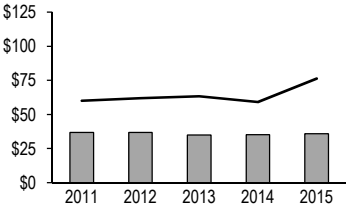
Yard Waste and Leaf Tons Collected per 1,000 Collection Points



	2011	2012	2013	2014	2015
Greensboro	310	346	308	355	318
Average	473	459	478	418	380

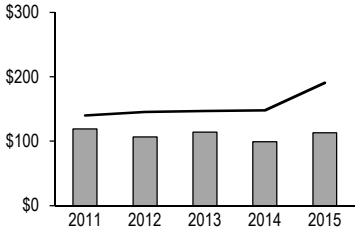
Efficiency Measures

Yard Waste and Leaf Collection Cost per Collection Point



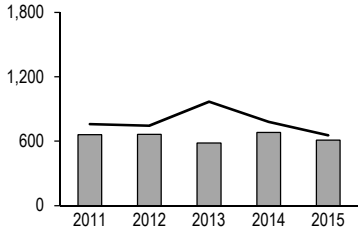
	2011	2012	2013	2014	2015
Greensboro	$37	$37	$35	$35	$36
Average	$60	$62	$63	$59	$76

Yard Waste and Leaf Collection Cost per Ton Collected



	2011	2012	2013	2014	2015
Greensboro	$119	$106	$114	$99	$113
Average	$140	$145	$147	$148	$190

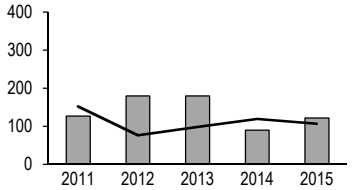
Yard Waste and Leaf Tons Collected per Collection FTE



	2011	2012	2013	2014	2015
Greensboro	661	662	582	683	611
Average	758	745	966	779	655

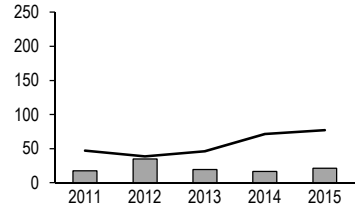
Effectiveness Measures

Collection Complaints per 10,000 Collection Points



	2011	2012	2013	2014	2015
Greensboro	127	180	180	90	122
Average	152	77	98	120	107

Valid Complaints per 10,000 Collection Points



	2011	2012	2013	2014	2015
Greensboro	18	35	19	16	21
Average	47	38	46	71	77

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery
Greenville collects yard waste once per week curbside. Yard waste includes tree limbs up to 6 feet in length or 4 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 experienced equipment breakdowns and personnel changes during FY 2013–14 which led to a high level of complaints.

Municipal Profile

Population (OSBM 2014)	87,436
Land Area (Square Miles)	34.90
Persons per Square Mile	2,505
Median Family Income U.S. Census 2010	$50,395

Service Profile

FTE Positions—Collection	20.3
FTE Positions—Other	1.0
Collection Frequency	
Yard Waste	1 x week
Seasonal Leaf Collection	1 x week
Collection Points	19,000
Tons Collected	
Yard Waste	na
Seasonal Leaves	na
Total Tons Collected	na
Monthly Service Fee	No

Full Cost Profile

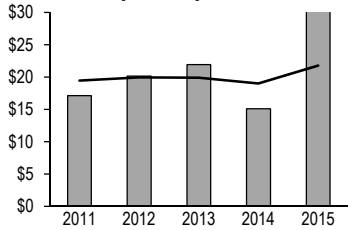
Cost Breakdown by Percentage	
Personal Services	44.1%
Operating Costs	42.6%
Capital Costs	13.3%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,262,630
Operating Costs	$1,218,678
Capital Costs	$380,209
TOTAL	$2,861,517

Greenville Yard Waste/Leaf Collection

Key: Greenville ■ Benchmarking Average — Fiscal Years 2011 through 2015

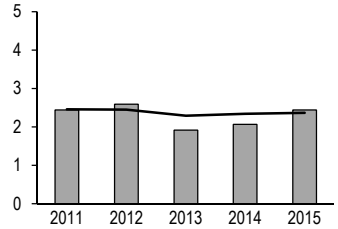
Resource Measures

Yard Waste and Leaf Collection Costs per Capita



	2011	2012	2013	2014	2015
Greenville	$17.13	$20.12	$21.94	$15.10	$32.73
Average	$19.44	$19.93	$19.87	$19.01	$21.78

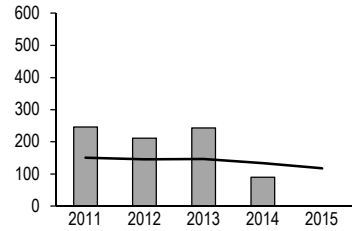
Yard Waste and Leaf Collection FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Greenville	2.4	2.6	1.9	2.1	2.4
Average	2.5	2.4	2.3	2.3	2.4

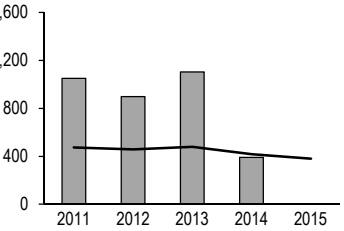
Workload Measures

Yard Waste and Leaf Tons Collected per 1,000 Population



	2011	2012	2013	2014	2015
Greenville	247	212	244	90	
Average	151	146	146	134	117

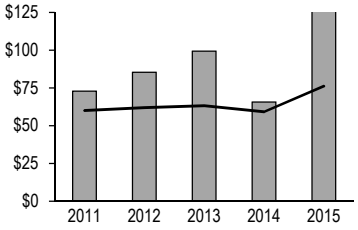
Yard Waste and Leaf Tons Collected per 1,000 Collection Points



	2011	2012	2013	2014	2015
Greenville	1,050	900	1,105	392	
Average	473	459	478	418	380

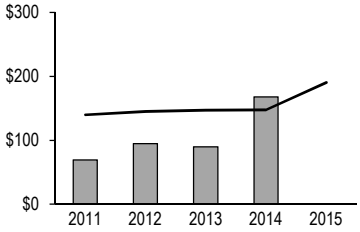
Efficiency Measures

Yard Waste and Leaf Collection Cost per Collection Point



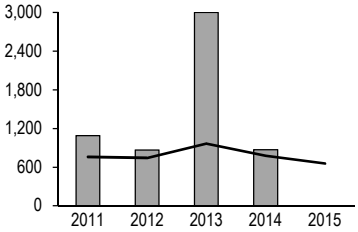
	2011	2012	2013	2014	2015
Greenville	$73	$86	$99	$66	$151
Average	$60	$62	$63	$59	$76

Yard Waste and Leaf Collection Cost per Ton Collected



	2011	2012	2013	2014	2015
Greenville	$69	$95	$90	$168	
Average	$140	$145	$147	$148	$190

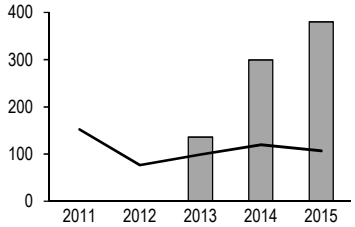
Yard Waste and Leaf Tons Collected per Collection FTE



	2011	2012	2013	2014	2015
Greenville	1,091	867	3,000	872	
Average	758	745	966	779	655

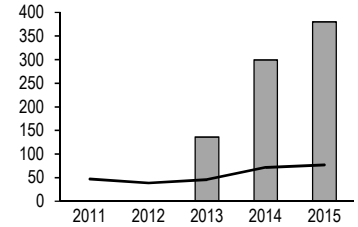
Effectiveness Measures

Collection Complaints per 10,000 Collection Points



	2011	2012	2013	2014	2015
Greenville			136	299	380
Average	152	77	98	120	107

Valid Complaints per 10,000 Collection Points



	2011	2012	2013	2014	2015
Greenville			136	299	380
Average	47	38	46	71	77

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery
Hickory collects yard waste once per week curbside. Yard waste includes tree limbs less than 6 feet in length and 6 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, so complaint data cannot be reported for this service area.

Municipal Profile

Population (OSBM 2014)	40,332
Land Area (Square Miles)	29.84
Persons per Square Mile	1,352
Median Family Income U.S. Census 2010	$54,093

Service Profile

FTE Positions—Collection	17.83
FTE Positions—Other	0.8
Collection Frequency	
Yard Waste	1 x week
Seasonal Leaf Collection	2 sweeps
Collection Points	12,200
Tons Collected	
Yard Waste	2,829
Seasonal Leaves	4,133
Total Tons Collected	6,962
Monthly Service Fee	No

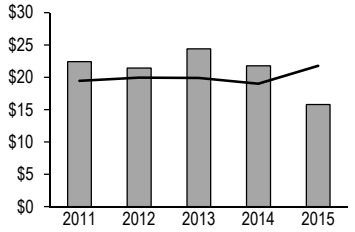
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	38.9%
Operating Costs	39.3%
Capital Costs	21.8%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$247,775
Operating Costs	$250,508
Capital Costs	$138,865
TOTAL	$637,148

Key: Hickory ■ Benchmarking Average — Fiscal Years 2011 through 2015

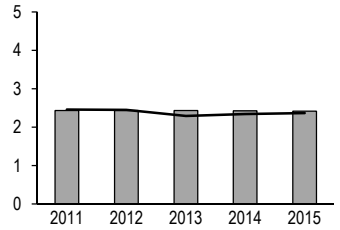
Resource Measures

Yard Waste and Leaf Collection Costs per Capita



	2011	2012	2013	2014	2015
Hickory	$22.42	$21.43	$24.38	$21.78	$15.80
Average	$19.44	$19.93	$19.87	$19.01	$21.78

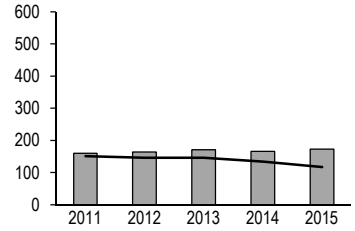
Yard Waste and Leaf Collection FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Hickory	2.4	2.4	2.4	2.4	2.4
Average	2.5	2.4	2.3	2.3	2.4

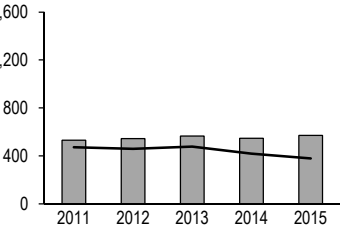
Workload Measures

Yard Waste and Leaf Tons Collected per 1,000 Population



	2011	2012	2013	2014	2015
Hickory	160	164	171	166	173
Average	151	146	146	134	117

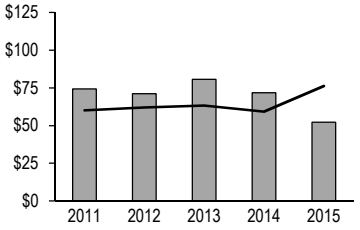
Yard Waste and Leaf Tons Collected per 1,000 Collection Points



	2011	2012	2013	2014	2015
Hickory	531	544	565	546	571
Average	473	459	478	418	380

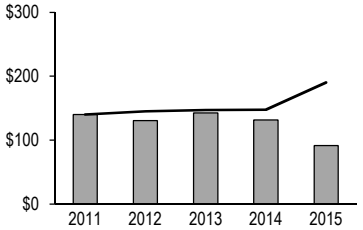
Efficiency Measures

Yard Waste and Leaf Collection Cost per Collection Point



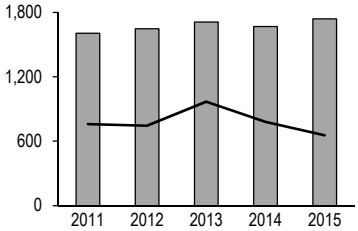
	2011	2012	2013	2014	2015
Hickory	$74	$71	$81	$72	$52
Average	$60	$62	$63	$59	$76

Yard Waste and Leaf Collection Cost per Ton Collected



	2011	2012	2013	2014	2015
Hickory	$140	$131	$143	$131	$92
Average	$140	$145	$147	$148	$190

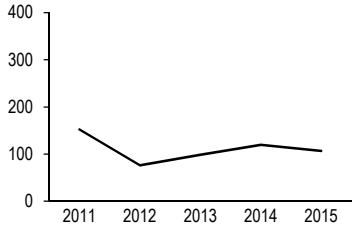
Yard Waste and Leaf Tons Collected per Collection FTE



	2011	2012	2013	2014	2015
Hickory	1,606	1,646	1,709	1,667	1,741
Average	758	745	966	779	655

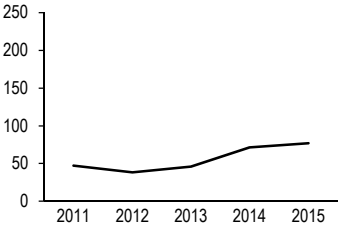
Effectiveness Measures

Collection Complaints per 10,000 Collection Points



	2011	2012	2013	2014	2015
Hickory					
Average	152	77	98	120	107

Valid Complaints per 10,000 Collection Points



	2011	2012	2013	2014	2015
Hickory					
Average	47	38	46	71	77

Fiscal Year 2014–15

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 of one person each on truck-mounted vacuum trucks and five crews with four 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

Municipal Profile

Population (OSBM 2014)	108,556
Land Area (Square Miles)	55.05
Persons per Square Mile	1,972
Median Family Income	$49,720
U.S. Census 2010	

Service Profile

FTE Positions—Collection	17.8
FTE Positions—Other	0.8
Collection Frequency	
Yard Waste	1 x week
Seasonal Leaf Collection	2 sweeps
Collection Points	39,240
Tons Collected	
Yard Waste	4,318
Seasonal Leaves	2,490
Total Tons Collected	6,808
Monthly Service Fee	No

Full Cost Profile

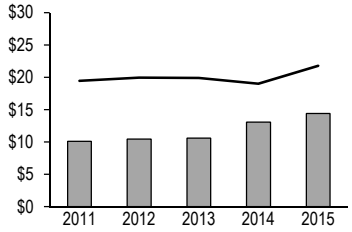
Cost Breakdown by Percentage	
Personal Services	55.1%
Operating Costs	27.3%
Capital Costs	17.6%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$862,188
Operating Costs	$426,459
Capital Costs	$275,400
TOTAL	$1,564,047

High Point — Yard Waste/Leaf Collection

Key: High Point ■ Benchmarking Average — Fiscal Years 2011 through 2015

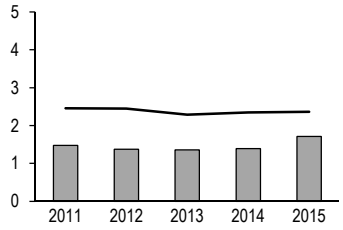
Resource Measures

Yard Waste and Leaf Collection Costs per Capita



	2011	2012	2013	2014	2015
High Point	$10.12	$10.45	$10.61	$13.08	$14.41
Average	$19.44	$19.93	$19.87	$19.01	$21.78

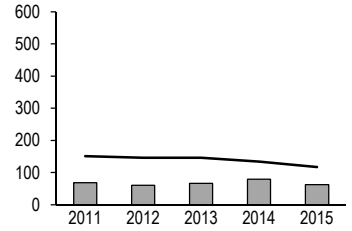
Yard Waste and Leaf Collection FTEs per 10,000 Population



	2011	2012	2013	2014	2015
High Point	1.5	1.4	1.4	1.4	1.7
Average	2.5	2.4	2.3	2.3	2.4

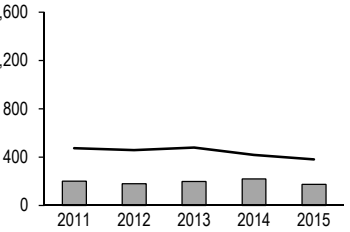
Workload Measures

Yard Waste and Leaf Tons Collected per 1,000 Population



	2011	2012	2013	2014	2015
High Point	68	60	67	80	63
Average	151	146	146	134	117

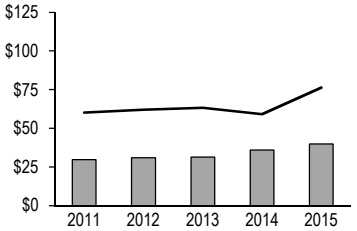
Yard Waste and Leaf Tons Collected per 1,000 Collection Points



	2011	2012	2013	2014	2015
High Point	200	179	197	219	173
Average	473	459	478	418	380

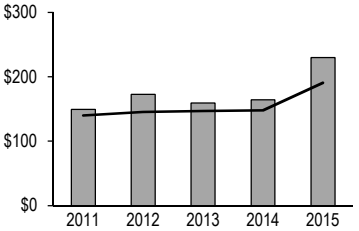
Efficiency Measures

Yard Waste and Leaf Collection Cost per Collection Point



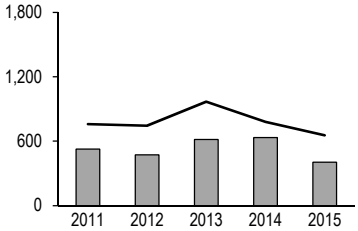
	2011	2012	2013	2014	2015
High Point	$30	$31	$31	$36	$40
Average	$60	$62	$63	$59	$76

Yard Waste and Leaf Collection Cost per Ton Collected



	2011	2012	2013	2014	2015
High Point	$149	$173	$159	$164	$230
Average	$140	$145	$147	$148	$190

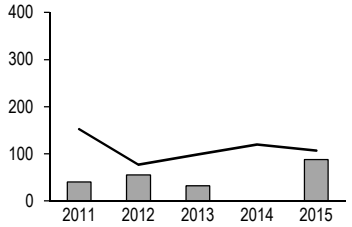
Yard Waste and Leaf Tons Collected per Collection FTE



	2011	2012	2013	2014	2015
High Point	526	473	616	634	405
Average	758	745	966	779	655

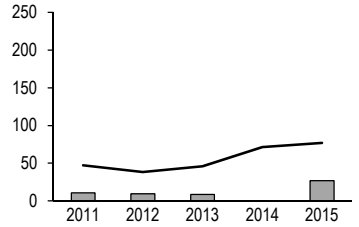
Effectiveness Measures

Collection Complaints per 10,000 Collection Points



	2011	2012	2013	2014	2015
High Point	40	55	32		88
Average	152	77	98	120	107

Valid Complaints per 10,000 Collection Points



	2011	2012	2013	2014	2015
High Point	10	9	9		27
Average	47	38	46	71	77

Fiscal Year 2014–15

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 or 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. This service includes costs to manage a treatment and process site where material is ground up and a composting site. Three positions operate these sites and are included in the positions.

Conditions Affecting Service, Performance, and Costs
The startup of the Salisbury composting site caused some of the data on tons of material collected to be lost during the transition. The tonnage numbers reported for FY2014–15 are lower than the actual but an adjustment was not possible.

Municipal Profile

Population (OSBM 2014)	33,955
Land Area (Square Miles)	22.22
Persons per Square Mile	1,528
Median Family Income	$40,192
U.S. Census 2010	

Service Profile

FTE Positions—Collection	8.0
FTE Positions—Other	0.5
Collection Frequency	
Yard Waste	1 x week
Seasonal Leaf Collection	1 x 3 weeks
Collection Points	10,961
Tons Collected	
Yard Waste	2,070
Seasonal Leaves	2,632
Total Tons Collected	4,702
Monthly Service Fee	No

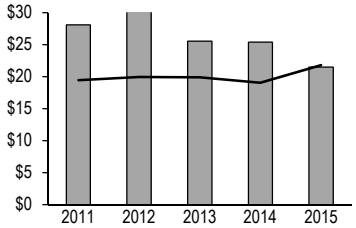
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	64.5%
Operating Costs	26.0%
Capital Costs	9.4%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$470,322
Operating Costs	$189,803
Capital Costs	$68,573
TOTAL	$728,698

Key: Salisbury ■ Benchmarking Average — Fiscal Years 2011 through 2015

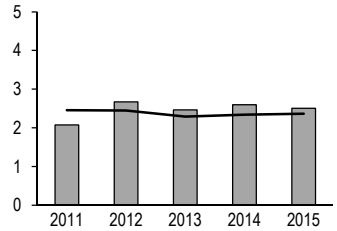
Resource Measures

Yard Waste and Leaf Collection Costs per Capita



	2011	2012	2013	2014	2015
Salisbury	$28.10	$32.47	$25.52	$25.40	$21.46
Average	$19.44	$19.93	$19.87	$19.01	$21.78

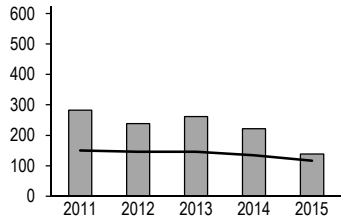
Yard Waste and Leaf Collection FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Salisbury	2.1	2.7	2.5	2.6	2.5
Average	2.5	2.4	2.3	2.3	2.4

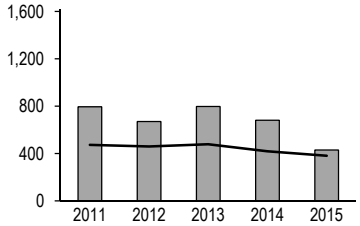
Workload Measures

Yard Waste and Leaf Tons Collected per 1,000 Population



	2011	2012	2013	2014	2015
Salisbury	283	239	262	221	138
Average	151	146	146	134	117

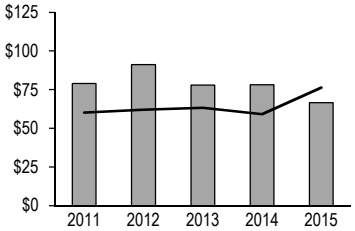
Yard Waste and Leaf Tons Collected per 1,000 Collection Points



	2011	2012	2013	2014	2015
Salisbury	795	671	798	681	429
Average	473	459	478	418	380

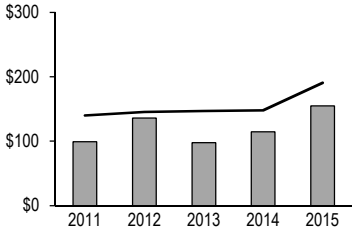
Efficiency Measures

Yard Waste and Leaf Collection Cost per Collection Point



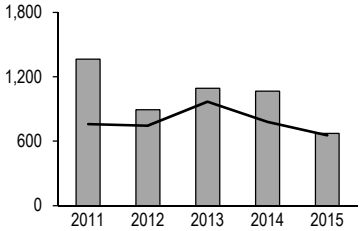
	2011	2012	2013	2014	2015
Salisbury	$79	$91	$78	$78	$66
Average	$60	$62	$63	$59	$76

Yard Waste and Leaf Collection Cost per Ton Collected



	2011	2012	2013	2014	2015
Salisbury	$99	$136	$98	$115	$155
Average	$140	$145	$147	$148	$190

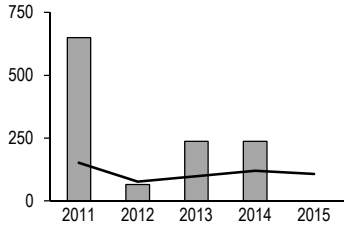
Yard Waste and Leaf Tons Collected per Collection FTE



	2011	2012	2013	2014	2015
Salisbury	1,363	894	1,094	1,066	672
Average	758	745	966	779	655

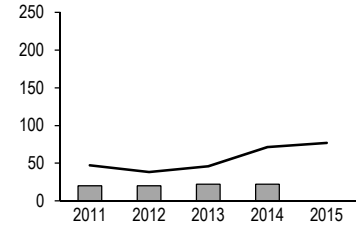
Effectiveness Measures

Collection Complaints per 10,000 Collection Points



	2011	2012	2013	2014	2015
Salisbury	650	65	237	237	
Average	152	77	98	120	107

Valid Complaints per 10,000 Collection Points



	2011	2012	2013	2014	2015
Salisbury	20	20	22	22	
Average	47	38	46	71	77

Fiscal Year 2014–15

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 Tuesdays and Fridays and three or four three-person crews on Mondays and Thursdays 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 FY 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 2014)	49,222
Land Area (Square Miles)	30.52
Persons per Square Mile	1,613
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	19,850
Tons Collected	
Yard Waste	6,360
Seasonal Leaves	1,742
Total Tons Collected	8,102
Monthly Service Fee	Included in solid waste fee

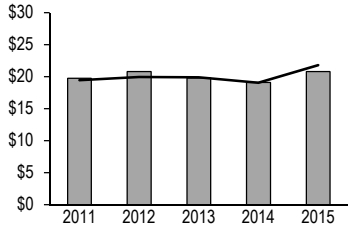
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	45.8%
Operating Costs	32.1%
Capital Costs	22.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$468,360
Operating Costs	$328,102
Capital Costs	$225,147
TOTAL	$1,021,609

Key: Wilson ■ Benchmarking Average — Fiscal Years 2011 through 2015

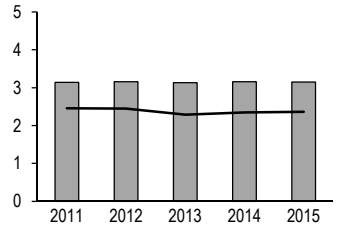
Resource Measures

Yard Waste and Leaf Collection Costs per Capita



	2011	2012	2013	2014	2015
Wilson	$19.71	$20.80	$19.76	$19.07	$20.76
Average	$19.44	$19.93	$19.87	$19.01	$21.78

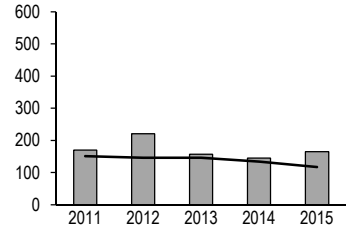
Yard Waste and Leaf Collection FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Wilson	3.1	3.2	3.1	3.2	3.1
Average	2.5	2.4	2.3	2.3	2.4

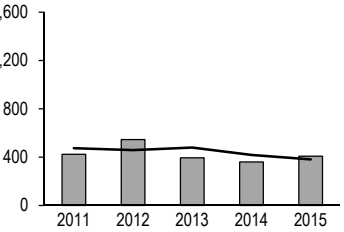
Workload Measures

Yard Waste and Leaf Tons Collected per 1,000 Population



	2011	2012	2013	2014	2015
Wilson	170	221	157	145	165
Average	151	146	146	134	117

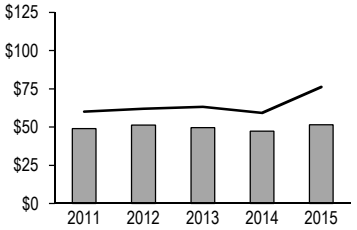
Yard Waste and Leaf Tons Collected per 1,000 Collection Points



	2011	2012	2013	2014	2015
Wilson	422	545	394	360	408
Average	473	459	478	418	380

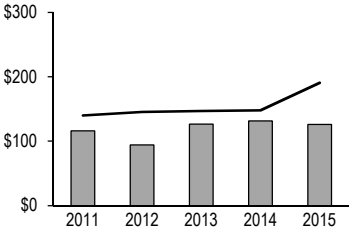
Efficiency Measures

Yard Waste and Leaf Collection Cost per Collection Point



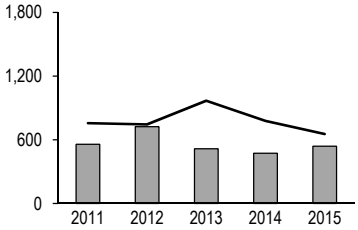
	2011	2012	2013	2014	2015
Wilson	$49	$51	$50	$47	$51
Average	$60	$62	$63	$59	$76

Yard Waste and Leaf Collection Cost per Ton Collected



	2011	2012	2013	2014	2015
Wilson	$116	$94	$126	$132	$126
Average	$140	$145	$147	$148	$190

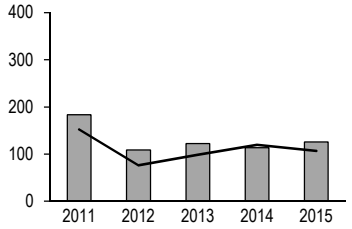
Yard Waste and Leaf Tons Collected per Collection FTE



	2011	2012	2013	2014	2015
Wilson	560	723	516	474	540
Average	758	745	966	779	655

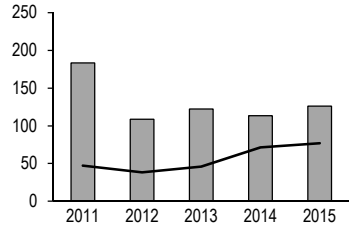
Effectiveness Measures

Collection Complaints per 10,000 Collection Points



	2011	2012	2013	2014	2015
Wilson	183	109	122	113	126
Average	152	77	98	120	107

Valid Complaints per 10,000 Collection Points



	2011	2012	2013	2014	2015
Wilson	183	109	122	113	126
Average	47	38	46	71	77

Fiscal Year 2014–15

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 6 inches in diameter or 6 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 FY 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 the total 77,907 collection points.

Municipal Profile

Population (OSBM 2014)	237,905
Land Area (Square Miles)	132.45
Persons per Square Mile	1,796
Median Family Income U.S. Census 2010	$51,491

Service Profile

FTE Positions—Collection	74.5
FTE Positions—Other	1.4
Collection Frequency	
Yard Waste	1 x week
Seasonal Leaf Collection	1 x 3 weeks
Brush	1 x 10 days
Collection Points	
Brush	77,907
Leaves	77,907
Yard Waste Cart	17,193
Tons Collected	
Yard Waste	5,417
Seasonal Leaves	11,626
Total Tons Collected	17,043
Monthly Service Fee	No

Full Cost Profile

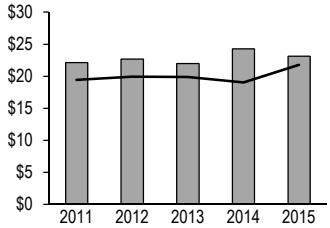
Cost Breakdown by Percentage	
Personal Services	49.9%
Operating Costs	31.5%
Capital Costs	18.6%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$2,745,128
Operating Costs	$1,732,721
Capital Costs	$1,020,118
TOTAL	$5,497,967

Winston-Salem Yard Waste/Leaf Collection

Key: Winston-Salem ■ Benchmarking Average — Fiscal Years 2011 through 2015

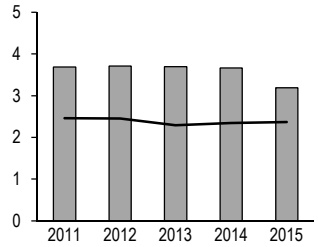
Resource Measures

Yard Waste and Leaf Collection Costs per Capita



	2011	2012	2013	2014	2015
Winston-Salem	$22.13	$22.69	$21.99	$24.26	$23.11
Average	$19.44	$19.93	$19.87	$19.01	$21.78

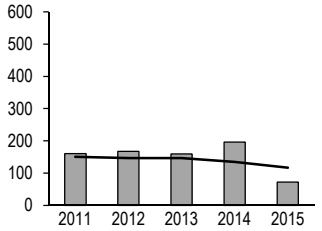
Yard Waste and Leaf Collection FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Winston-Salem	3.7	3.7	3.7	3.7	3.2
Average	2.5	2.4	2.3	2.3	2.4

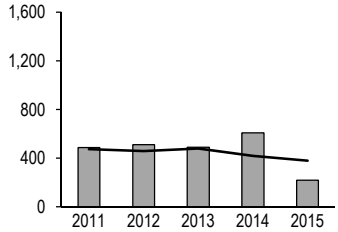
Workload Measures

Yard Waste and Leaf Tons Collected per 1,000 Population



	2011	2012	2013	2014	2015
Winston-Salem	161	167	159	196	72
Average	151	146	146	134	117

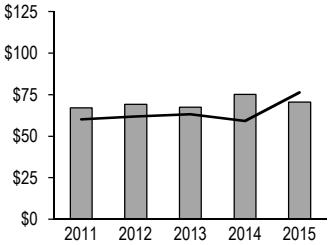
Yard Waste and Leaf Tons Collected per 1,000 Collection Points



	2011	2012	2013	2014	2015
Winston-Salem	486	510	489	607	219
Average	473	459	478	418	380

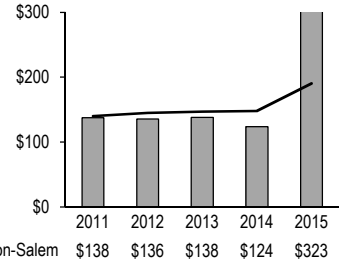
Efficiency Measures

Yard Waste and Leaf Collection Cost per Collection Point



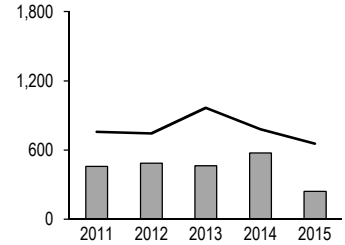
	2011	2012	2013	2014	2015
Winston-Salem	$67	$69	$67	$75	$71
Average	$60	$62	$63	$59	$76

Yard Waste and Leaf Collection Cost per Ton Collected



	2011	2012	2013	2014	2015
Winston-Salem	$138	$136	$138	$124	$323
Average	$140	$145	$147	$148	$190

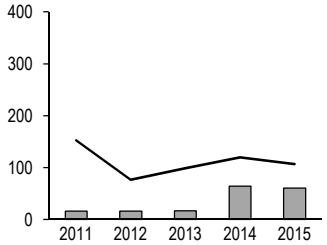
Yard Waste and Leaf Tons Collected per Collection FTE



	2011	2012	2013	2014	2015
Winston-Salem	457	484	464	575	241
Average	758	745	966	779	655

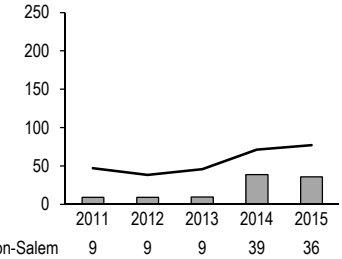
Effectiveness Measures

Collection Complaints per 10,000 Collection Points



	2011	2012	2013	2014	2015
Winston-Salem	16	16	16	64	60
Average	152	77	98	120	107

Valid Complaints per 10,000 Collection Points



	2011	2012	2013	2014	2015
Winston-Salem	9	9	9	39	36
Average	47	38	46	71	77

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	Yes	67	14.1	74	IBR	35	613	648	1,502	35,418	1,006
Asheville	Yes	223	8.9	204	IBR	444	4,257	4,701	5,019	114,954	5,475
Burlington	Yes	127	10.9	154	UCR	318	2,147	2,465	2,690	39,553	2,720
Cary	Yes	186	10.7	127	IBR	100	2,033	2,133	2,525	146,840	3,837
Cahpel Hill	No	118	12.1	75	UCR	84	1,358	1,442	3,272	37,804	1,374
Concord	No	169.25	9.5	192	IBR	120	2,599	2,719	2,056	87,475	3,669
Greensboro	Yes	673	10.8	240	IBR	1,201	10,102	11,303	15,737	291,040	8,630
Greenville	Yes	188	10.5	172	UCR	481	3,331	3,812	4,287	84,261	4,022
Hickory	No	117	8.6	138	IBR	141	1,773	1,914	3,348	72,796	3,359
High Point	No	239	10.9	239	UCR	509	3,636	4,145	4,256	119,271	4,437
Salisbury	Yes	81	8.9	91	IBR	198	1,564	1,762	2,620	36,456	1,827
Wilson	Yes	121	9.7	128	UCR	251	2,004	2,255	3,004	81,983	2,281
Winston-Salem	Yes	560	11.3	481	IBR	1,859	13,355	15,214	36,918	250,576	8,951

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 2014–15

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 sixty-seven sworn officer positions authorized for the year, with an average length of service of nearly fourteen years. Police services occupies a headquarters located in downtown Apex, newly built in 2010, which houses all divisions in the department. 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 247 Part I cases in FY 2014–15.

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 2014)	42,689
Land Area (Square Miles)	17.25
Persons per Square Mile	2,475
Median Family Income	$97,201
U.S. Census 2010	

Service Profile

FTE Positions—Sworn	67.0
FTE Positions—Other	6.8
Marked and Unmarked Patrol Vehicles	74
Part I Crimes Reported	
Homicide	1
Rape	7
Robbery	9
Assault	18
Burglary	115
Larceny	485
Auto Theft	10
Arson	3
TOTAL	648
Part II Crimes Reported	1,502
Part I Crimes Cleared	
Persons	33
Property	214
TOTAL	247
Reporting Format	IBR
Number of Calls Dispatched	35,418
Number of Traffic Accidents	1,006
Property Damage for Accidents	$4,234,426

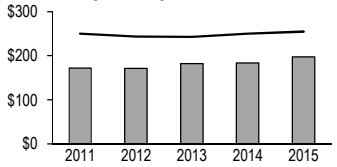
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	67.2%
Operating Costs	23.0%
Capital Costs	9.9%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$5,664,037
Operating Costs	$1,935,396
Capital Costs	$830,984
TOTAL	$8,430,417

Key: Apex ■ Benchmarking Average — Fiscal Years 2011 through 2015

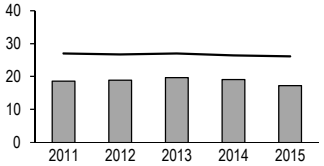
Resource Measures

Police Services Costs per Capita



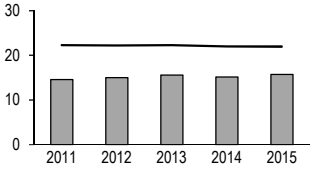
	2011	2012	2013	2014	2015
Apex	$172	$171	$182	$184	$197
Average	$250	$244	$243	$250	$255

Total Police Services Personnel per 10,000 Population



	2011	2012	2013	2014	2015
Apex	18.5	18.9	19.6	19.1	17.3
Average	27.0	26.8	27.0	26.4	26.1

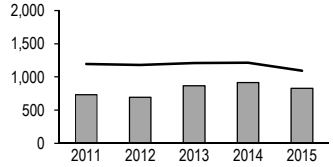
Sworn Police Officers per 10,000 Population



	2011	2012	2013	2014	2015
Apex	14.6	15.0	15.6	15.1	15.7
Average	22.3	22.3	22.3	22.0	22.0

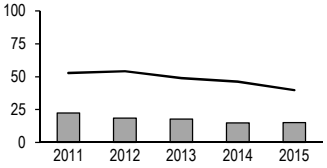
Workload Measures

Calls Dispatched per 1,000 Population



	2011	2012	2013	2014	2015
Apex	734	694	866	915	830
Average	1,195	1,178	1,211	1,214	1,094

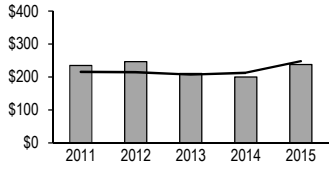
Part I Crimes per 1,000 Population



	2011	2012	2013	2014	2015
Apex	22.4	18.5	17.9	14.8	15.2
Average	52.8	54.2	48.8	46.4	39.8

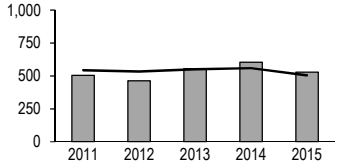
Efficiency Measures

Police Services Cost per Call Dispatched



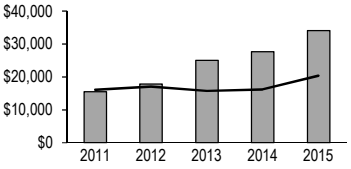
	2011	2012	2013	2014	2015
Apex	$235	$247	$211	$201	$238
Average	$215	$215	$207	$213	$248

Calls Dispatched per Sworn Officer



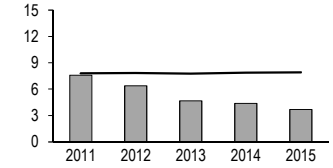
	2011	2012	2013	2014	2015
Apex	504	463	555	604	529
Average	543	535	551	559	505

Police Services Cost per Part I Case Cleared



	2011	2012	2013	2014	2015
Apex	$15,558	$17,842	$25,093	$27,720	$34,131
Average	$16,108	$17,093	$15,771	$16,220	$20,374

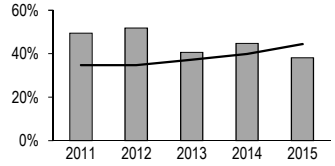
Part I Cases Cleared per Sworn Officer



	2011	2012	2013	2014	2015
Apex	7.6	6.4	4.7	4.4	3.7
Average	7.8	7.8	7.8	7.9	7.9

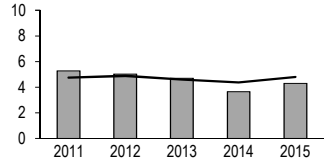
Effectiveness Measures

Percentage of Part I Cases Cleared of Those Reported



	2011	2012	2013	2014	2015
Apex	49.5%	51.9%	40.7%	44.7%	38.1%
Average	34.8%	34.7%	37.3%	39.9%	44.4%

Response Time to High Priority Calls in Minutes



	2011	2012	2013	2014	2015
Apex	5.3	5.0	4.7	3.7	4.3
Average	4.7	4.9	4.6	4.4	4.8

Fiscal Year 2014–15

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 233 sworn officer positions authorized for the year, with an average length of service of about 8.9 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 Mondays 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 1,820 Part I cases in FY 2014–15. 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.

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 2014)	89,248
Land Area (Square Miles)	45.52
Persons per Square Mile	1,961
Median Family Income U.S. Census 2010	$53,350

Service Profile

FTE Positions—Sworn	233.0
FTE Positions—Other	55.0
Marked and Unmarked Patrol Vehicles	204
Part I Crimes Reported	
Homicide	2
Rape	38
Robbery	158
Assault	246
Burglary	788
Larceny	3,188
Auto Theft	265
Arson	16
TOTAL	4,701
Part II Crimes Reported	5,019
Part I Crimes Cleared	
Persons	314
Property	1,506
TOTAL	1,820
Reporting Format	IBR
Number of Calls Dispatched	114,954
Number of Traffic Accidents	5,475
Property Damage for Accidents	$18,418,640

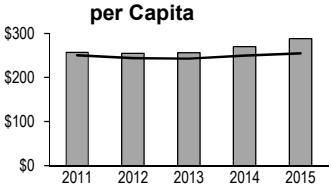
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	66.2%
Operating Costs	23.9%
Capital Costs	9.8%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$17,036,268
Operating Costs	$6,159,974
Capital Costs	$2,525,608
TOTAL	$25,721,850

Key: Asheville ■ Benchmarking Average — Fiscal Years 2011 through 2015

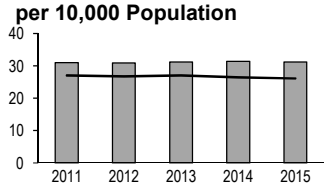
Resource Measures

Police Services Costs per Capita



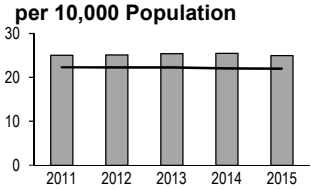
	2011	2012	2013	2014	2015
Asheville	$256.86	$254	$256	$270	$288
Average	$250	$244	$243	$250	$255

Total Police Services Personnel per 10,000 Population



	2011	2012	2013	2014	2015
Asheville	31.0	30.9	31.2	31.4	31.1
Average	27.0	26.8	27.0	26.4	26.1

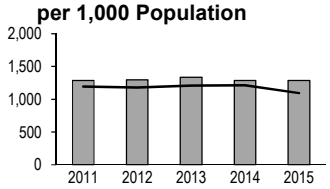
Sworn Police Officers per 10,000 Population



	2011	2012	2013	2014	2015
Asheville	25.0	25.1	25.4	25.5	25.0
Average	22.3	22.3	22.3	22.0	22.0

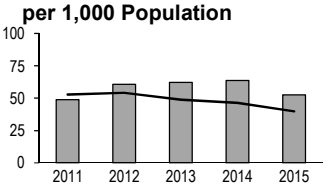
Workload Measures

Calls Dispatched per 1,000 Population



	2011	2012	2013	2014	2015
Asheville	1,289	1,299	1,338	1,289	1,288
Average	1,195	1,178	1,211	1,214	1,094

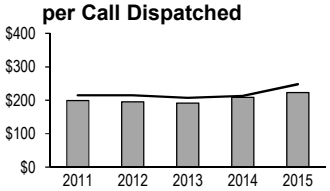
Part I Crimes per 1,000 Population



	2011	2012	2013	2014	2015
Asheville	48.9	60.9	62.1	63.6	52.7
Average	52.8	54.2	48.8	46.4	39.8

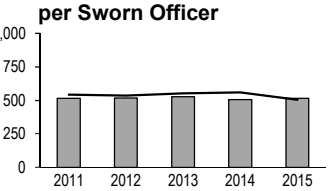
Efficiency Measures

Police Services Cost per Call Dispatched



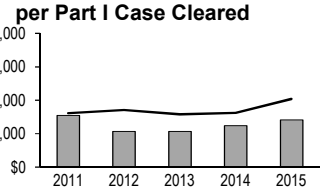
	2011	2012	2013	2014	2015
Asheville	$199	$196	$191	$209	$224
Average	$215	$215	$207	$213	$248

Calls Dispatched per Sworn Officer



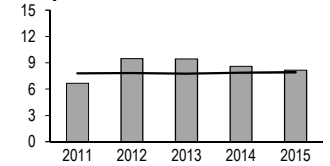
	2011	2012	2013	2014	2015
Asheville	516	517	527	506	515
Average	543	535	551	559	505

Police Services Cost per Part I Case Cleared



	2011	2012	2013	2014	2015
Asheville	$15,442	$10,698	$10,684	$12,350	$14,133
Average	$16,108	$17,093	$15,771	$16,220	$20,374

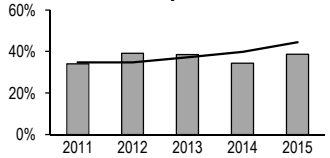
Part I Cases Cleared per Sworn Officer



	2011	2012	2013	2014	2015
Asheville	6.7	9.5	9.4	8.6	8.2
Average	7.8	7.8	7.8	7.9	7.9

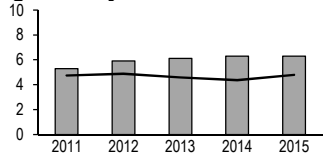
Effectiveness Measures

Percentage of Part I Cases Cleared of Those Reported



	2011	2012	2013	2014	2015
Asheville	34.0%	39.1%	38.6%	34.4%	38.7%
Average	34.8%	34.7%	37.3%	39.9%	44.4%

Response Time to High Priority Calls in Minutes



	2011	2012	2013	2014	2015
Asheville	5.3	5.9	6.1	6.3	6.3
Average	4.7	4.9	4.6	4.4	4.8

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery
The Burlington Police Department provides an array of police services, including patrol, investigations, a telephone based reporting unit, a canine unit, a traffic unit, a special response team, a drug enforcement unit, DARE and school resource officers, and other programs.

The town had 127 sworn officer positions authorized for the year, with an average length of service of 10.9 years. Police services occupies its own separate building. There are also several substations that are not regularly staffed..

Burlington's uniform patrol officers work a rotating day or night shift. The officers rotate from days to nights or nights to days every twenty-eight days. They work a modified DuPont schedule in which they work twelve-hour shifts for a total of 2,093 hours per year (13 Kelly hours). The schedule includes eighty-four court hours and does not include the forty training hours that are accomplished on overtime. Half the officers work either days or nights, on Monday and Tuesday, off Wednesday and Thursday, work Friday, Saturday, and Sunday. They then are off Monday and Tuesday, work Wednesday and Thursday, and are off Friday, Saturday, and Sunday. The other half of the uniformed patrol officers work the opposite days on or off to provide twenty-four-hour, seven-day-a-week, fifty-two-week-a-year coverage.

Vehicles are assigned following a take-home policy. All sworn employees with the exception of one Assistant Chief and one Captain 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 3,182 Part I cases in FY 2014–15.

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 2014)	51,923
Land Area (Square Miles)	30.52
Persons per Square Mile	1,701
Median Family Income U.S. Census 2010	$46,461

Service Profile

FTE Positions—Sworn	127.0
FTE Positions—Other	33.0
Marked and Unmarked Patrol Vehicles	154
Part I Crimes Reported	
Homicide	5
Rape	20
Robbery	88
Assault	205
Burglary	412
Larceny	1,636
Auto Theft	91
Arson	8
TOTAL	2,465
Part II Crimes Reported	2,690
Part I Crimes Cleared	
Persons	404
Property	2,778
TOTAL	3,182
Reporting Format	UCR
Number of Calls Dispatched	39,553
Number of Traffic Accidents	2,720
Property Damage for Accidents	$10,379,034

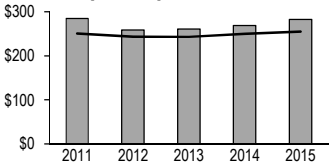
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	75.7%
Operating Costs	14.6%
Capital Costs	9.7%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$11,118,886
Operating Costs	$2,148,034
Capital Costs	$1,418,736
TOTAL	$14,685,656

Key: Burlington ■ Benchmarking Average — Fiscal Years 2011 through 2015

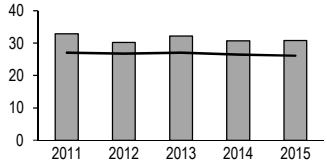
Resource Measures

Police Services Costs per Capita



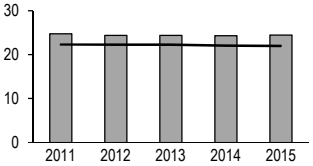
	2011	2012	2013	2014	2015
Burlington	$284.64	$258	$261	$269	$283
Average	$250	$244	$243	$250	$255

Total Police Services Personnel per 10,000 Population



	2011	2012	2013	2014	2015
Burlington	32.9	30.2	32.2	30.7	30.8
Average	27.0	26.8	27.0	26.4	26.1

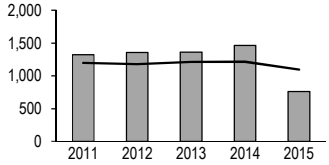
Sworn Police Officers per 10,000 Population



	2011	2012	2013	2014	2015
Burlington	24.8	24.4	24.4	24.3	24.5
Average	22.3	22.3	22.3	22.0	22.0

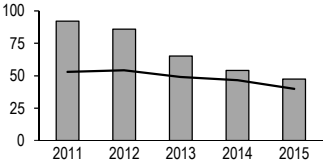
Workload Measures

Calls Dispatched per 1,000 Population



	2011	2012	2013	2014	2015
Burlington	1,323	1,358	1,360	1,462	762
Average	1,195	1,178	1,211	1,214	1,094

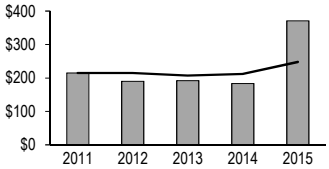
Part I Crimes per 1,000 Population



	2011	2012	2013	2014	2015
Burlington	92.1	86.1	65.3	54.0	47.5
Average	52.8	54.2	48.8	46.4	39.8

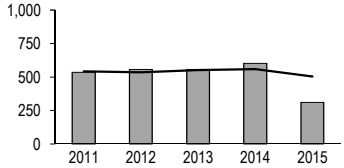
Efficiency Measures

Police Services Cost per Call Dispatched



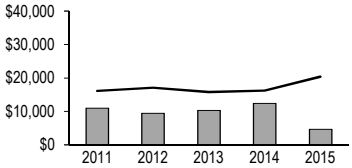
	2011	2012	2013	2014	2015
Burlington	$215	$190	$192	$184	$371
Average	$215	$215	$207	$213	$248

Calls Dispatched per Sworn Officer



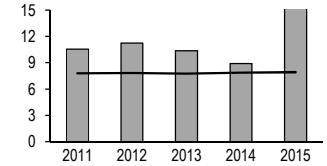
	2011	2012	2013	2014	2015
Burlington	534	557	557	601	311
Average	543	535	551	559	505

Police Services Cost per Part I Case Cleared



	2011	2012	2013	2014	2015
Burlington	$10,917	$9,431	$10,299	$12,425	$4,615
Average	$16,108	$17,093	$15,771	$16,220	$20,374

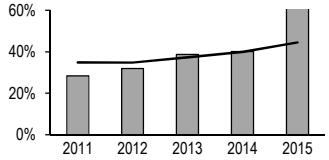
Part I Cases Cleared per Sworn Officer



	2011	2012	2013	2014	2015
Burlington	10.5	11.2	10.4	8.9	25.1
Average	7.8	7.8	7.8	7.9	7.9

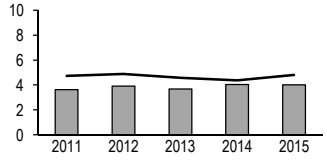
Effectiveness Measures

Percentage of Part I Cases Cleared of Those Reported



	2011	2012	2013	2014	2015
Burlington	28.3%	31.8%	38.7%	40.0%	129.1%
Average	34.8%	34.7%	37.3%	39.9%	44.4%

Response Time to High Priority Calls in Minutes



	2011	2012	2013	2014	2015
Burlington	3.6	3.9	3.7	4.1	4.0
Average	4.7	4.9	4.6	4.4	4.8

Fiscal Year 2014–15

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 186 sworn officer positions authorized for the fiscal year, with an average length of service of 10.7 years. The primary police headquarters is located in a three-story building shared with the town's technology services department. The department also operates two 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 that is life-threatening in nature.

The police department was successful in clearing a total of 740 Part I cases in FY 2014–15.

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 2014)	148,333
Land Area (Square Miles)	56.47
Persons per Square Mile	2,627
Median Family Income	$108,956
U.S. Census 2010	

Service Profile

FTE Positions—Sworn	186.0
FTE Positions—Other	14.0
Marked and Unmarked Patrol Vehicles	127
Part I Crimes Reported	
Homicide	5
Rape	13
Robbery	30
Assault	52
Burglary	366
Larceny	1,582
Auto Theft	77
Arson	8
TOTAL	2,133
Part II Crimes Reported	2,525
Part I Crimes Cleared	
Persons	93
Property	647
TOTAL	740
Reporting Format	IBR
Number of Calls Dispatched	146,840
Number of Traffic Accidents	3,837
Property Damage for Accidents	$15,064,042

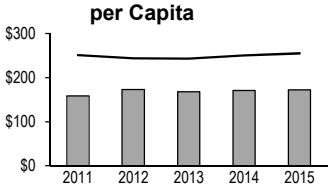
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	74.1%
Operating Costs	20.5%
Capital Costs	5.4%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$18,918,635
Operating Costs	$5,227,035
Capital Costs	$1,371,456
TOTAL	$25,517,126

Key: Cary ■ Benchmarking Average — Fiscal Years 2011 through 2015

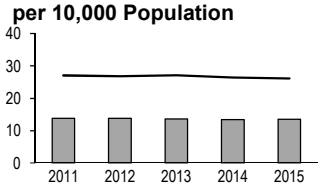
Resource Measures

Police Services Costs per Capita



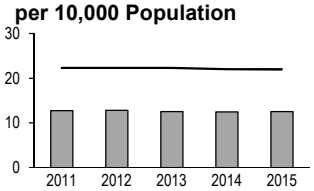
	2011	2012	2013	2014	2015
Cary	$158.67	$173	$168	$171	$172
Average	$250	$244	$243	$250	$255

Total Police Services Personnel per 10,000 Population



	2011	2012	2013	2014	2015
Cary	13.8	13.8	13.6	13.4	13.5
Average	27.0	26.8	27.0	26.4	26.1

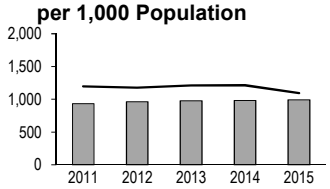
Sworn Police Officers per 10,000 Population



	2011	2012	2013	2014	2015
Cary	12.8	12.8	12.6	12.4	12.5
Average	22.3	22.3	22.3	22.0	22.0

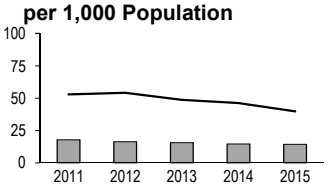
Workload Measures

Calls Dispatched per 1,000 Population



	2011	2012	2013	2014	2015
Cary	931	964	979	981	990
Average	1,195	1,178	1,211	1,214	1,094

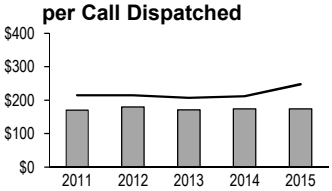
Part I Crimes per 1,000 Population



	2011	2012	2013	2014	2015
Cary	17.7	16.5	15.6	14.7	14.4
Average	52.8	54.2	48.8	46.4	39.8

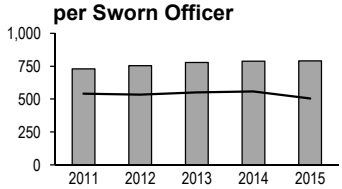
Efficiency Measures

Police Services Cost per Call Dispatched



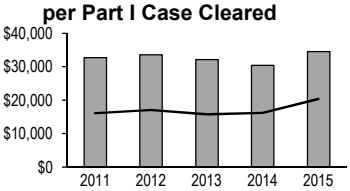
	2011	2012	2013	2014	2015
Cary	$170	$180	$171	$174	$174
Average	$215	$215	$207	$213	$248

Calls Dispatched per Sworn Officer



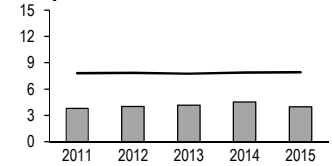
	2011	2012	2013	2014	2015
Cary	729	754	779	789	789
Average	543	535	551	559	505

Police Services Cost per Part I Case Cleared



	2011	2012	2013	2014	2015
Cary	$32,694	$33,603	$32,099	$30,388	$34,483
Average	$16,108	$17,093	$15,771	$16,220	$20,374

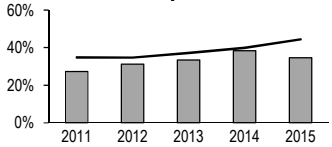
Part I Cases Cleared per Sworn Officer



	2011	2012	2013	2014	2015
Cary	3.8	4.0	4.2	4.5	4.0
Average	7.8	7.8	7.8	7.9	7.9

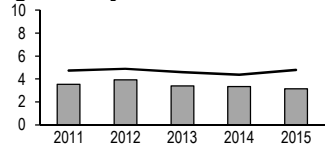
Effectiveness Measures

Percentage of Part I Cases Cleared of Those Reported



	2011	2012	2013	2014	2015
Cary	27.4%	31.3%	33.5%	38.3%	34.7%
Average	34.8%	34.7%	37.3%	39.9%	44.4%

Response Time to High Priority Calls in Minutes



	2011	2012	2013	2014	2015
Cary	3.6	3.9	3.4	3.3	3.1
Average	4.7	4.9	4.6	4.4	4.8

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery
The Town of Chapel Hill Police Department provides an array of police services, including patrol, investigations, a special response unit, bicycle patrol, drug enforcement, and a canine unit.

The town had 118 sworn officer positions authorized for the fiscal year, with an average length of service of 12.16 years. Police headquarters is located in a separate building. The department also operates four substations. Three of the substations function as offices for community services and the fourth is located downtown and functions as a space for report processing but is not regularly staffed.

In order to provide continuous service to the citizens of Chapel Hill, officers work twelve hour shifts and are assigned to either day (6am to 6pm) or night (6pm to 6am) shifts. Each shift selects a number of officers to report 1-2 hours early to cover calls that occur leading up to shift change.

Vehicles are allocated to divisions in the department and are assigned by unit level supervisors. Individual assignments are made for certain positions, but the only officers allowed to take home vehicles are K9 units and administrative oficers and on-call investigators.

The town defines a high priority call as one that requires immediate police attention to protect persons or render emergency aid.

The police department was successful in clearing a total of 287 Part I cases in FY 2014–15.

Conditions Affecting Service, Performance, and Costs
The Town of Chapel Hill began participation in the benchmarking project in July 2015, with FY 2014–15 being the first reporting year.

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 2014)	59,758
Land Area (Square Miles)	21.17
Persons per Square Mile	2,823
Median Family Income U.S. Census 2010	$61,405

Service Profile

FTE Positions—Sworn	118.0
FTE Positions—Other	18.0
Marked and Unmarked Patrol Vehicles	75
Part I Crimes Reported	
Homicide	5
Rape	15
Robbery	27
Assault	37
Burglary	321
Larceny	969
Auto Theft	65
Arson	3
TOTAL	1,442
Part II Crimes Reported	3,272
Part I Crimes Cleared	
Persons	45
Property	242
TOTAL	287
Reporting Format	UCR
Number of Calls Dispatched	37,804
Number of Traffic Accidents	1,374
Property Damage for Accidents	$4,501,841

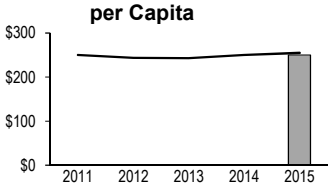
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	68.9%
Operating Costs	24.6%
Capital Costs	6.5%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$10,286,855
Operating Costs	$3,676,534
Capital Costs	$966,460
TOTAL	$14,929,849

Key: Chapel Hill ■ Benchmarking Average — Fiscal Years 2011 through 2015

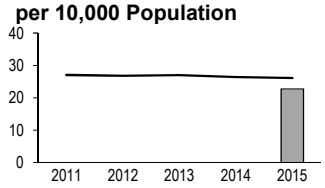
Resource Measures

Police Services Costs per Capita



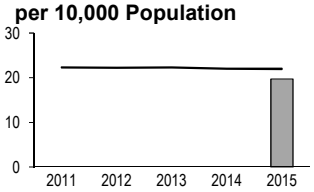
	2011	2012	2013	2014	2015
Chapel Hill					$250
Average	$250	$244	$243	$250	$255

Total Police Services Personnel per 10,000 Population



	2011	2012	2013	2014	2015
Chapel Hill					22.8
Average	27.0	26.8	27.0	26.4	26.1

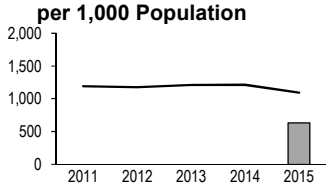
Sworn Police Officers per 10,000 Population



	2011	2012	2013	2014	2015
Chapel Hill					19.7
Average	22.3	22.3	22.3	22.0	22.0

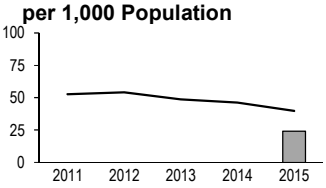
Workload Measures

Calls Dispatched per 1,000 Population



	2011	2012	2013	2014	2015
Chapel Hill					633
Average	1,195	1,178	1,211	1,214	1,094

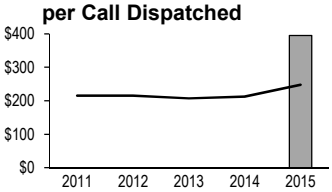
Part I Crimes per 1,000 Population



	2011	2012	2013	2014	2015
Chapel Hill					24.1
Average	52.8	54.2	48.8	46.4	39.8

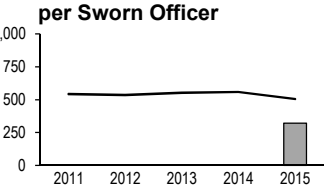
Efficiency Measures

Police Services Cost per Call Dispatched



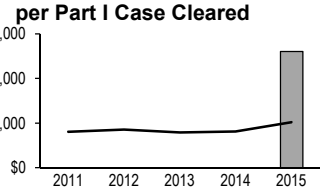
	2011	2012	2013	2014	2015
Chapel Hill					$395
Average	$215	$215	$207	$213	$248

Calls Dispatched per Sworn Officer



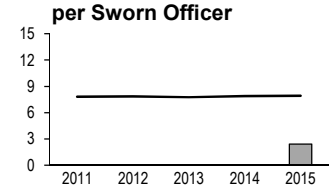
	2011	2012	2013	2014	2015
Chapel Hill					320
Average	543	535	551	559	505

Police Services Cost per Part I Case Cleared



	2011	2012	2013	2014	2015
Chapel Hill					$52,020
Average	$16,108	$17,093	$15,771	$16,220	$20,374

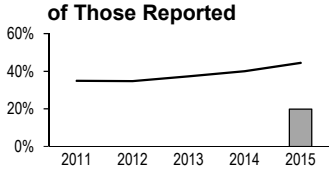
Part I Cases Cleared per Sworn Officer



	2011	2012	2013	2014	2015
Chapel Hill					2.4
Average	7.8	7.8	7.8	7.9	7.9

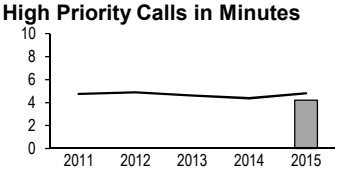
Effectiveness Measures

Percentage of Part I Cases Cleared of Those Reported



	2011	2012	2013	2014	2015
Chapel Hill					19.9%
Average	34.8%	34.7%	37.3%	39.9%	44.4%

Response Time to High Priority Calls in Minutes



	2011	2012	2013	2014	2015
Chapel Hill					4.2
Average	4.7	4.9	4.6	4.4	4.8

Fiscal Year 2014–15

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 169.25 sworn officer positions authorized for the fiscal year, with an average length of service of 9.5 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 2,719 Part I cases in FY 2014–15.

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.

Concord's high clearance rate has been driven by a focus on clearing larceny cases by arrest or by leads exhausted as quickly as possible. Since larcenies are the largest category of Part I crimes, this effort has substantially improved the overall clearance rate.

Municipal Profile

Population (OSBM 2014)	85,428
Land Area (Square Miles)	61.09
Persons per Square Mile	1,398
Median Family Income U.S. Census 2010	$63,643

Service Profile

FTE Positions—Sworn	169.25
FTE Positions—Other	20.0
Marked and Unmarked Patrol Vehicles	192
Part I Crimes Reported	
Homicide	4
Rape	15
Robbery	55
Assault	46
Burglary	325
Larceny	2,162
Auto Theft	107
Arson	5
TOTAL	2,719
Part II Crimes Reported	2,056
Part I Crimes Cleared	
Persons	103
Property	1,613
TOTAL	1,716
Reporting Format	IBR
Number of Calls Dispatched	87,475
Number of Traffic Accidents	3,669
Property Damage for Accidents	$12,705,648

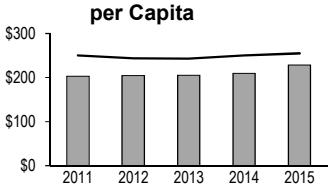
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	68.6%
Operating Costs	21.7%
Capital Costs	9.7%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$13,390,904
Operating Costs	$4,247,439
Capital Costs	$1,891,139
TOTAL	$19,529,482

Key: Concord ■ Benchmarking Average — Fiscal Years 2011 through 2015

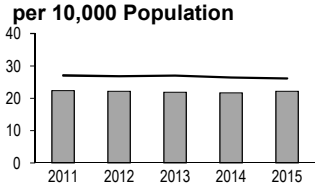
Resource Measures

Police Services Costs per Capita



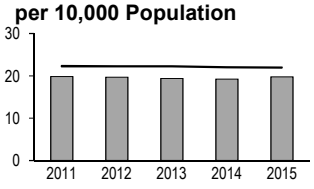
	2011	2012	2013	2014	2015
Concord	$202.84	$205	$205	$210	$229
Average	$250	$244	$243	$250	$255

Total Police Services Personnel per 10,000 Population



	2011	2012	2013	2014	2015
Concord	22.4	22.2	21.9	21.6	22.2
Average	27.0	26.8	27.0	26.4	26.1

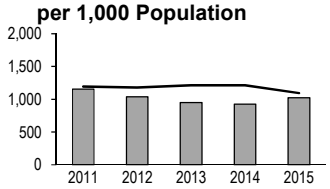
Sworn Police Officers per 10,000 Population



	2011	2012	2013	2014	2015
Concord	19.9	19.7	19.4	19.2	19.8
Average	22.3	22.3	22.3	22.0	22.0

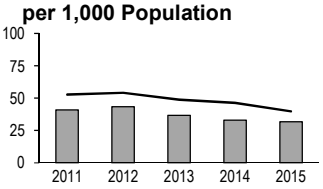
Workload Measures

Calls Dispatched per 1,000 Population



	2011	2012	2013	2014	2015
Concord	1,156	1,038	952	923	1,024
Average	1,195	1,178	1,211	1,214	1,094

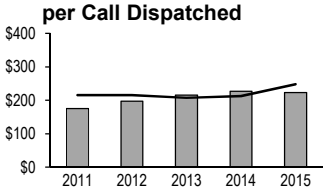
Part I Crimes per 1,000 Population



	2011	2012	2013	2014	2015
Concord	40.8	43.4	36.7	33.0	31.8
Average	52.8	54.2	48.8	46.4	39.8

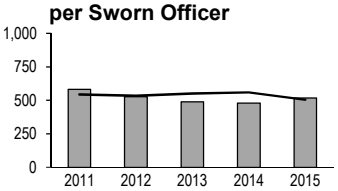
Efficiency Measures

Police Services Cost per Call Dispatched



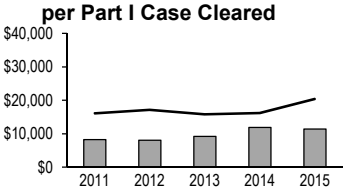
	2011	2012	2013	2014	2015
Concord	$175	$197	$216	$227	$223
Average	$215	$215	$207	$213	$248

Calls Dispatched per Sworn Officer



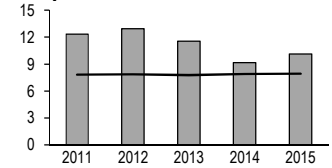
	2011	2012	2013	2014	2015
Concord	582	527	490	480	517
Average	543	535	551	559	505

Police Services Cost per Part I Case Cleared



	2011	2012	2013	2014	2015
Concord	$8,268	$8,032	$9,161	$11,882	$11,381
Average	$16,108	$17,093	$15,771	$16,220	$20,374

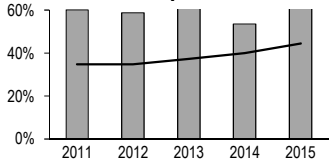
Part I Cases Cleared per Sworn Officer



	2011	2012	2013	2014	2015
Concord	12.3	12.9	11.5	9.2	10.1
Average	7.8	7.8	7.8	7.9	7.9

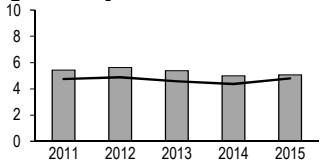
Effectiveness Measures

Percentage of Part I Cases Cleared of Those Reported



	2011	2012	2013	2014	2015
Concord	60.1%	58.7%	61.2%	53.5%	63.1%
Average	34.8%	34.7%	37.3%	39.9%	44.4%

Response Time to High Priority Calls in Minutes



	2011	2012	2013	2014	2015
Concord	5.4	5.6	5.4	5.0	5.1
Average	4.7	4.9	4.6	4.4	4.8

Fiscal Year 2014–15

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 just over 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 assignments.

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 3,677 Part I cases in FY 2014–15.

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.

Dispatched calls rose noticeably over earlier years due to significant annexations to the city.

Municipal Profile

Population (OSBM 2014)	280,803
Land Area (Square Miles)	128.11
Persons per Square Mile	2,192
Median Family Income U.S. Census 2010	$52,752

Service Profile

FTE Positions—Sworn	673.0
FTE Positions—Other	112.0
Marked and Unmarked Patrol Vehicles	240
Part I Crimes Reported	
Homicide	26
Rape	65
Robbery	496
Assault	614
Burglary	2,342
Larceny	7,134
Auto Theft	528
Arson	98
TOTAL	11,303
Part II Crimes Reported	15,737
Part I Crimes Cleared	
Persons	601
Property	3,076
TOTAL	3,677
Reporting Format	IBR
Number of Calls Dispatched	291,040
Number of Traffic Accidents	8,630
Property Damage for Accidents	$31,338,420

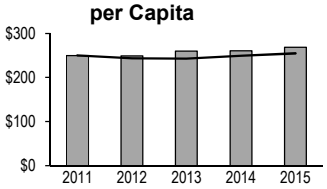
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	77.8%
Operating Costs	22.2%
Capital Costs	0.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$58,574,268
Operating Costs	$16,743,963
Capital Costs	$0
TOTAL	$75,318,231

Key: Greensboro ■ Benchmarking Average — Fiscal Years 2011 through 2015

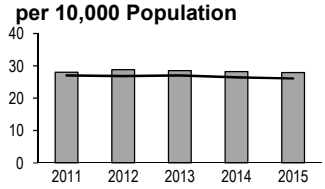
Resource Measures

Police Services Costs per Capita



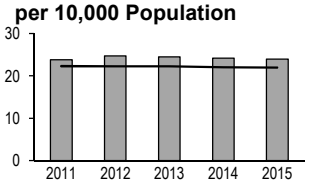
	2011	2012	2013	2014	2015
Greensboro	$249.36	$249	$260	$260	$268
Average	$250	$244	$243	$250	$255

Total Police Services Personnel per 10,000 Population



	2011	2012	2013	2014	2015
Greensboro	28.0	28.8	28.5	28.2	28.0
Average	27.0	26.8	27.0	26.4	26.1

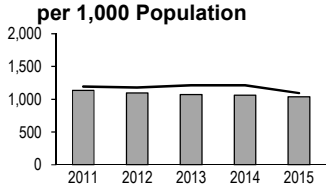
Sworn Police Officers per 10,000 Population



	2011	2012	2013	2014	2015
Greensboro	23.8	24.7	24.5	24.2	24.0
Average	22.3	22.3	22.3	22.0	22.0

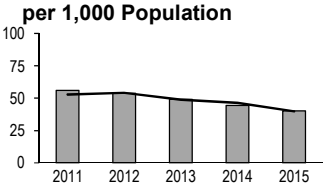
Workload Measures

Calls Dispatched per 1,000 Population



	2011	2012	2013	2014	2015
Greensboro	1,138	1,095	1,073	1,064	1,036
Average	1,195	1,178	1,211	1,214	1,094

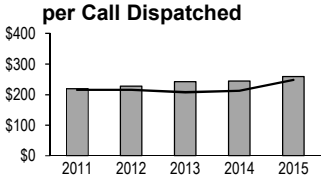
Part I Crimes per 1,000 Population



	2011	2012	2013	2014	2015
Greensboro	55.9	53.8	49.0	44.4	40.3
Average	52.8	54.2	48.8	46.4	39.8

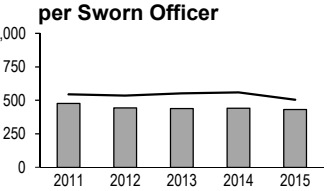
Efficiency Measures

Police Services Cost per Call Dispatched



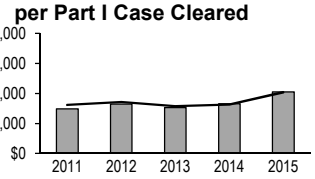
	2011	2012	2013	2014	2015
Greensboro	$219	$227	$242	$245	$259
Average	$215	$215	$207	$213	$248

Calls Dispatched per Sworn Officer



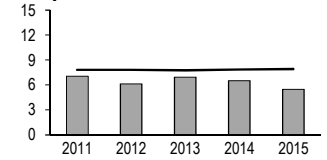
	2011	2012	2013	2014	2015
Greensboro	478	443	439	441	432
Average	543	535	551	559	505

Police Services Cost per Part I Case Cleared



	2011	2012	2013	2014	2015
Greensboro	$14,876	$16,439	$15,323	$16,548	$20,484
Average	$16,108	$17,093	$15,771	$16,220	$20,374

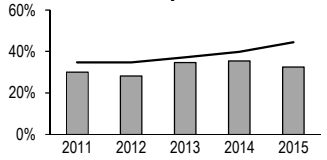
Part I Cases Cleared per Sworn Officer



	2011	2012	2013	2014	2015
Greensboro	7.0	6.1	6.9	6.5	5.5
Average	7.8	7.8	7.8	7.9	7.9

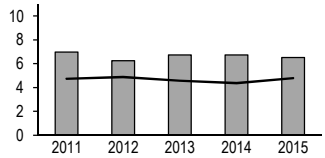
Effectiveness Measures

Percentage of Part I Cases Cleared of Those Reported



	2011	2012	2013	2014	2015
Greensboro	30.0%	28.2%	34.7%	35.4%	32.5%
Average	34.8%	34.7%	37.3%	39.9%	44.4%

Response Time to High Priority Calls in Minutes



	2011	2012	2013	2014	2015
Greensboro	7.0	6.2	6.7	6.7	6.5
Average	4.7	4.9	4.6	4.4	4.8

Fiscal Year 2014–15

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 188 sworn officer positions authorized for the fiscal year, with an average length of service of 10.5 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 or 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 administative 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 are dispatched to the first available patrol unit, which may require a citywide dispatch.

The police department was successful in clearing a total of 1,474 Part I cases in FY 2014–15.

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 times.

Municipal Profile

Population (OSBM 2014)	87,436
Land Area (Square Miles)	34.90
Persons per Square Mile	2,505
Median Family Income U.S. Census 2010	$50,395

Service Profile

FTE Positions—Sworn	188.0
FTE Positions—Other	58.0
Marked and Unmarked Patrol Vehicles	172
Part I Crimes Reported	
Homicide	4
Rape	28
Robbery	130
Assault	319
Burglary	656
Larceny	2,584
Auto Theft	85
Arson	6
TOTAL	3,812
Part II Crimes Reported	4,287
Part I Crimes Cleared	
Persons	204
Property	1,270
TOTAL	1,474
Reporting Format	UCR
Number of Calls Dispatched	84,261
Number of Traffic Accidents	4,022
Property Damage for Accidents	$9,467,996

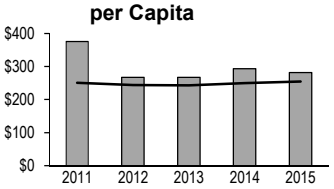
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	69.2%
Operating Costs	23.8%
Capital Costs	7.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$17,014,446
Operating Costs	$5,854,658
Capital Costs	$1,729,900
TOTAL	$24,599,004

Key: Greenville ■ Benchmarking Average — Fiscal Years 2011 through 2015

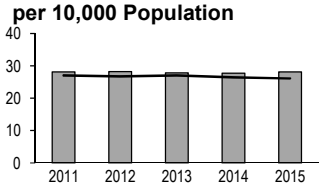
Resource Measures

Police Services Costs per Capita



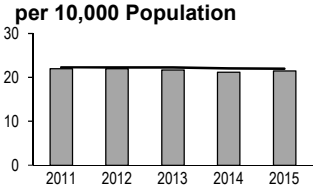
	2011	2012	2013	2014	2015
Greenville	$375.60	$267	$267	$293	$281
Average	$250	$244	$243	$250	$255

Total Police Services Personnel per 10,000 Population



	2011	2012	2013	2014	2015
Greenville	28.2	28.2	27.9	27.7	28.1
Average	27.0	26.8	27.0	26.4	26.1

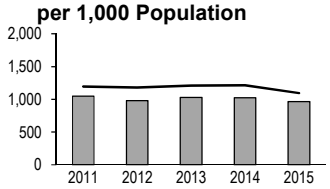
Sworn Police Officers per 10,000 Population



	2011	2012	2013	2014	2015
Greenville	22.0	22.0	21.7	21.2	21.5
Average	22.3	22.3	22.3	22.0	22.0

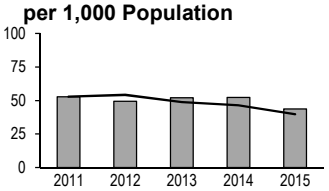
Workload Measures

Calls Dispatched per 1,000 Population



	2011	2012	2013	2014	2015
Greenville	1,051	983	1,031	1,023	964
Average	1,195	1,178	1,211	1,214	1,094

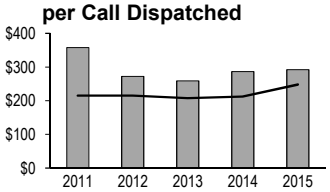
Part I Crimes per 1,000 Population



	2011	2012	2013	2014	2015
Greenville	52.9	49.5	52.2	52.3	43.6
Average	52.8	54.2	48.8	46.4	39.8

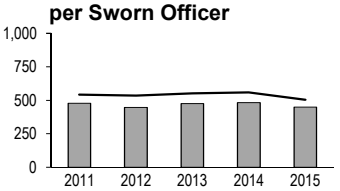
Efficiency Measures

Police Services Cost per Call Dispatched



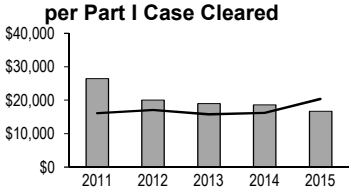
	2011	2012	2013	2014	2015
Greenville	$357	$272	$259	$287	$292
Average	$215	$215	$207	$213	$248

Calls Dispatched per Sworn Officer



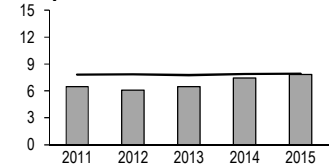
	2011	2012	2013	2014	2015
Greenville	478	447	475	482	448
Average	543	535	551	559	505

Police Services Cost per Part I Case Cleared



	2011	2012	2013	2014	2015
Greenville	$26,454	$20,020	$18,963	$18,646	$16,689
Average	$16,108	$17,093	$15,771	$16,220	$20,374

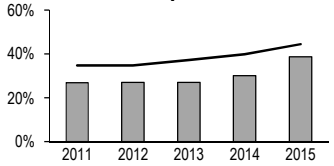
Part I Cases Cleared per Sworn Officer



	2011	2012	2013	2014	2015
Greenville	6.5	6.1	6.5	7.4	7.8
Average	7.8	7.8	7.8	7.9	7.9

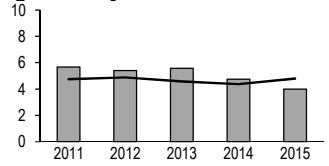
Effectiveness Measures

Percentage of Part I Cases Cleared of Those Reported



	2011	2012	2013	2014	2015
Greenville	26.8%	26.9%	27.0%	30.1%	38.7%
Average	34.8%	34.7%	37.3%	39.9%	44.4%

Response Time to High Priority Calls in Minutes



	2011	2012	2013	2014	2015
Greenville	5.7	5.4	5.6	4.8	4.0
Average	4.7	4.9	4.6	4.4	4.8

Fiscal Year 2014–15

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 117 sworn officer positions authorized for the fiscal year, with an average length of service of 8.6 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 20 miles per hour.

The police department was successful in clearing a total of 658 Part I cases in FY 2014–15.

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 2014)	40,332
Land Area (Square Miles)	29.84
Persons per Square Mile	1,352
Median Family Income	$54,093
U.S. Census 2010	

Service Profile

FTE Positions—Sworn	117.0
FTE Positions—Other	36.0
Marked and Unmarked Patrol Vehicles	138
Part I Crimes Reported	
Homicide	2
Rape	20
Robbery	34
Assault	85
Burglary	311
Larceny	1,370
Auto Theft	81
Arson	11
TOTAL	1,914
Part II Crimes Reported	3,348
Part I Crimes Cleared	
Persons	92
Property	566
TOTAL	658
Reporting Format	IBR
Number of Calls Dispatched	72,796
Number of Traffic Accidents	3,359
Property Damage for Accidents	$8,663,100

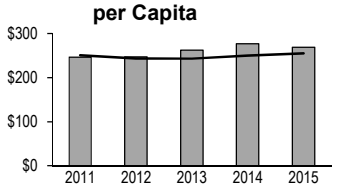
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	70.1%
Operating Costs	21.7%
Capital Costs	8.2%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$7,597,489
Operating Costs	$2,347,430
Capital Costs	$893,563
TOTAL	$10,838,482

Key: Hickory ■ Benchmarking Average — Fiscal Years 2011 through 2015

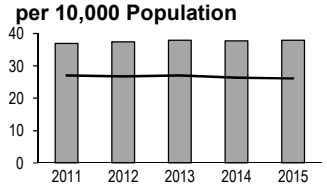
Resource Measures

Police Services Costs per Capita



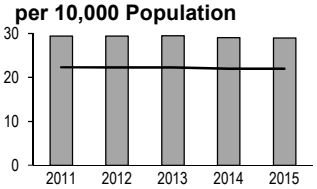
	2011	2012	2013	2014	2015
Hickory	$246.37	$247	$262	$277	$269
Average	$250	$244	$243	$250	$255

Total Police Services Personnel per 10,000 Population



	2011	2012	2013	2014	2015
Hickory	36.9	37.4	38.0	37.8	37.9
Average	27.0	26.8	27.0	26.4	26.1

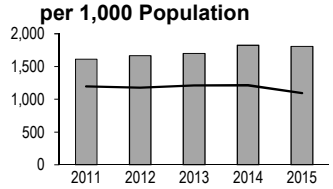
Sworn Police Officers per 10,000 Population



	2011	2012	2013	2014	2015
Hickory	29.4	29.4	29.5	29.1	29.0
Average	22.3	22.3	22.3	22.0	22.0

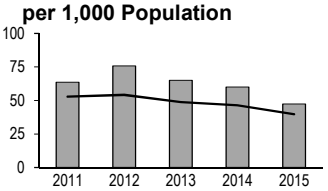
Workload Measures

Calls Dispatched per 1,000 Population



	2011	2012	2013	2014	2015
Hickory	1,613	1,664	1,697	1,825	1,805
Average	1,195	1,178	1,211	1,214	1,094

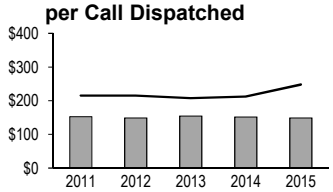
Part I Crimes per 1,000 Population



	2011	2012	2013	2014	2015
Hickory	63.5	75.8	64.9	60.0	47.5
Average	52.8	54.2	48.8	46.4	39.8

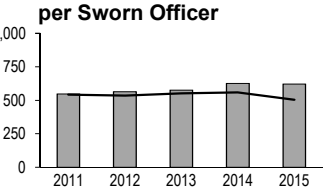
Efficiency Measures

Police Services Cost per Call Dispatched



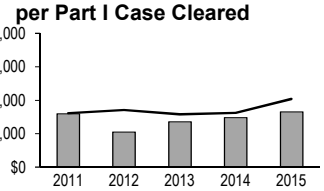
	2011	2012	2013	2014	2015
Hickory	$153	$148	$155	$152	$149
Average	$215	$215	$207	$213	$248

Calls Dispatched per Sworn Officer



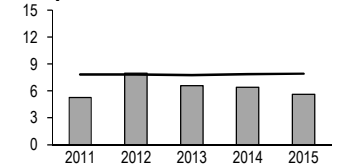
	2011	2012	2013	2014	2015
Hickory	548	565	576	627	622
Average	543	535	551	559	505

Police Services Cost per Part I Case Cleared



	2011	2012	2013	2014	2015
Hickory	$15,903	$10,524	$13,517	$14,836	$16,472
Average	$16,108	$17,093	$15,771	$16,220	$20,374

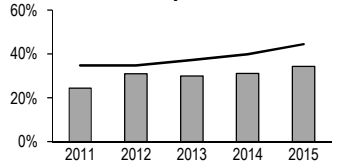
Part I Cases Cleared per Sworn Officer



	2011	2012	2013	2014	2015
Hickory	5.3	8.0	6.6	6.4	5.6
Average	7.8	7.8	7.8	7.9	7.9

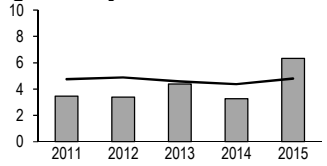
Effectiveness Measures

Percentage of Part I Cases Cleared of Those Reported



	2011	2012	2013	2014	2015
Hickory	24.4%	31.0%	29.9%	31.1%	34.4%
Average	34.8%	34.7%	37.3%	39.9%	44.4%

Response Time to High Priority Calls in Minutes



	2011	2012	2013	2014	2015
Hickory	3.5	3.4	4.4	3.3	6.3
Average	4.7	4.9	4.6	4.4	4.8

Fiscal Year 2014–15

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 239 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 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 quick response.

The police department was successful in clearing a total of 2,084 Part I cases in FY 2014–15.

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.

High Point conducted a large audit of open cases in FY 2013–14. A large number of open cases were discovered which had not been cleared going back over a decade before the implementation of the current case management software system. An effort was made to go back through these older open cases. Many were found to have been resolved but not recorded in prior years, and some others were cleared as inactive. As a result of this auditing work, the number of cleared cases for High Point jumped noticeably for the fiscal year. This is likely to be a one-time high number due to the clean-up effort.

Municipal Profile

Population (OSBM 2014)	108,556
Land Area (Square Miles)	55.05
Persons per Square Mile	1,972
Median Family Income U.S. Census 2010	$49,720

Service Profile

FTE Positions—Sworn	239.0
FTE Positions—Other	41.0
Marked and Unmarked Patrol Vehicles	239
Part I Crimes Reported	
Homicide	3
Rape	28
Robbery	176
Assault	302
Burglary	805
Larceny	2,577
Auto Theft	233
Arson	21
TOTAL	4,145
Part II Crimes Reported	4,256
Part I Crimes Cleared	
Persons	380
Property	1,704
TOTAL	2,084
Reporting Format	UCR
Number of Calls Dispatched	119,271
Number of Traffic Accidents	4,437
Property Damage for Accidents	$13,569,684

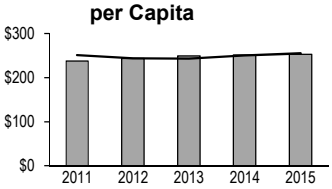
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	75.1%
Operating Costs	21.3%
Capital Costs	3.6%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$20,601,155
Operating Costs	$5,859,696
Capital Costs	$988,818
TOTAL	$27,449,669

Key: High Point ■ Benchmarking Average — Fiscal Years 2011 through 2015

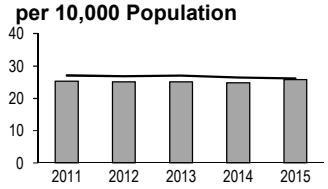
Resource Measures

Police Services Costs per Capita



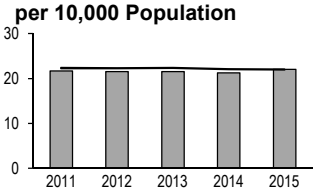
	2011	2012	2013	2014	2015
High Point	$237.55	$244	$249	$252	$253
Average	$250	$244	$243	$250	$255

Total Police Services Personnel per 10,000 Population



	2011	2012	2013	2014	2015
High Point	25.3	25.1	25.1	24.8	25.8
Average	27.0	26.8	27.0	26.4	26.1

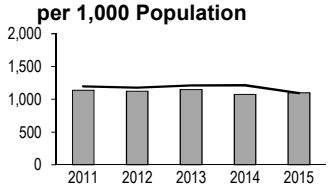
Sworn Police Officers per 10,000 Population



	2011	2012	2013	2014	2015
High Point	21.7	21.5	21.5	21.3	22.0
Average	22.3	22.3	22.3	22.0	22.0

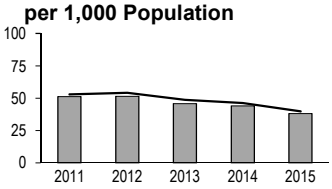
Workload Measures

Calls Dispatched per 1,000 Population



	2011	2012	2013	2014	2015
High Point	1,141	1,124	1,150	1,075	1,099
Average	1,195	1,178	1,211	1,214	1,094

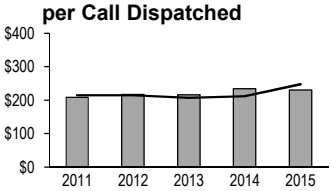
Part I Crimes per 1,000 Population



	2011	2012	2013	2014	2015
High Point	51.1	51.6	45.7	44.1	38.2
Average	52.8	54.2	48.8	46.4	39.8

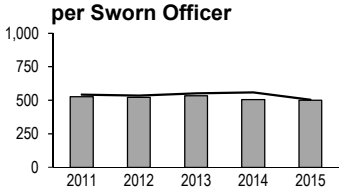
Efficiency Measures

Police Services Cost per Call Dispatched



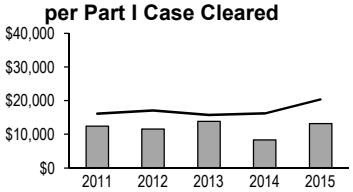
	2011	2012	2013	2014	2015
High Point	$208	$217	$217	$234	$230
Average	$215	$215	$207	$213	$248

Calls Dispatched per Sworn Officer



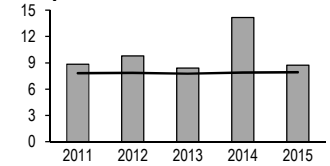
	2011	2012	2013	2014	2015
High Point	527	522	535	505	499
Average	543	535	551	559	505

Police Services Cost per Part I Case Cleared



	2011	2012	2013	2014	2015
High Point	$12,421	$11,557	$13,798	$8,357	$13,172
Average	$16,108	$17,093	$15,771	$16,220	$20,374

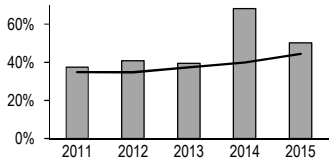
Part I Cases Cleared per Sworn Officer



	2011	2012	2013	2014	2015
High Point	8.8	9.8	8.4	14.2	8.7
Average	7.8	7.8	7.8	7.9	7.9

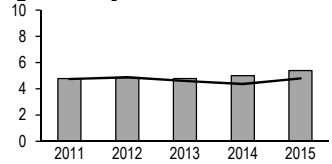
Effectiveness Measures

Percentage of Part I Cases Cleared of Those Reported



	2011	2012	2013	2014	2015
High Point	37.4%	40.9%	39.5%	68.2%	50.3%
Average	34.8%	34.7%	37.3%	39.9%	44.4%

Response Time to High Priority Calls in Minutes



	2011	2012	2013	2014	2015
High Point	4.8	4.9	4.8	5.0	5.4
Average	4.7	4.9	4.6	4.4	4.8

Fiscal Year 2014–15

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, 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 8.9 years. The police department is located in a two-story facility.

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.

Sworn officers who serve in an on-call capacity are permitted to take their assigned vehicles to their residence up to a maximum of a thirty mile radius from the Police Department. Sworn officers not serving in an on-call capacity who reside anywhere within Rowan County regardless or those who live outside of Rowan County but within fifteen miles are able to have the benefit without charge of driving their assigned vehicle to their residence.

The police department was successful in clearing a total of 517 Part I cases in FY 2014–15.

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 2014)	33,955
Land Area (Square Miles)	22.22
Persons per Square Mile	1,528
Median Family Income	$40,192
U.S. Census 2010	

Service Profile

FTE Positions—Sworn	81.0
FTE Positions—Other	8.0
Marked and Unmarked Patrol Vehicles	91
Part I Crimes Reported	
Homicide	6
Rape	15
Robbery	59
Assault	118
Burglary	344
Larceny	1,085
Auto Theft	133
Arson	2
TOTAL	1,762
Part II Crimes Reported	2,620
Part I Crimes Cleared	
Persons	87
Property	430
TOTAL	517
Reporting Format	IBR
Number of Calls Dispatched	36,456
Number of Traffic Accidents	1,827
Property Damage for Accidents	NA

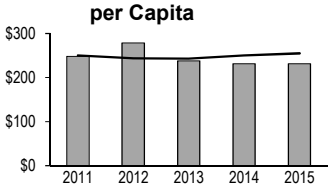
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	68.2%
Operating Costs	20.1%
Capital Costs	11.7%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$5,362,041
Operating Costs	$1,579,577
Capital Costs	$922,250
TOTAL	$7,863,868

Key: Salisbury ■ Benchmarking Average — Fiscal Years 2011 through 2015

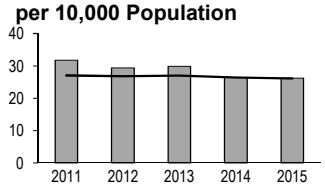
Resource Measures

Police Services Costs per Capita



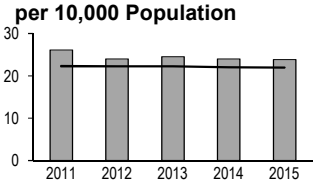
	2011	2012	2013	2014	2015
Salisbury	$248.08	$279	$238	$231	$232
Average	$250	$244	$243	$250	$255

Total Police Services Personnel per 10,000 Population



	2011	2012	2013	2014	2015
Salisbury	31.7	29.4	29.9	26.4	26.2
Average	27.0	26.8	27.0	26.4	26.1

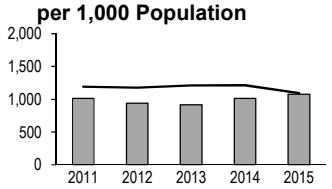
Sworn Police Officers per 10,000 Population



	2011	2012	2013	2014	2015
Salisbury	26.1	24.0	24.5	24.0	23.9
Average	22.3	22.3	22.3	22.0	22.0

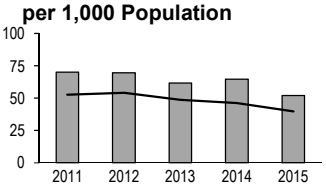
Workload Measures

Calls Dispatched per 1,000 Population



	2011	2012	2013	2014	2015
Salisbury	1,013	940	915	1,012	1,074
Average	1,195	1,178	1,211	1,214	1,094

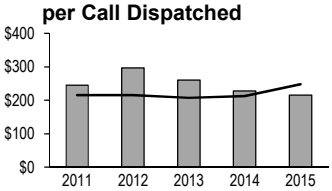
Part I Crimes per 1,000 Population



	2011	2012	2013	2014	2015
Salisbury	70.0	69.6	61.7	64.7	51.9
Average	52.8	54.2	48.8	46.4	39.8

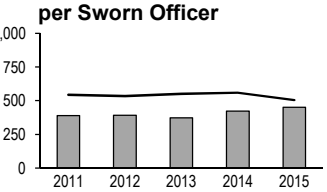
Efficiency Measures

Police Services Cost per Call Dispatched



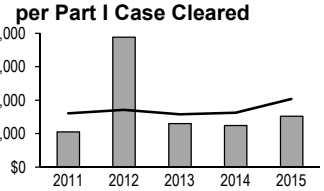
	2011	2012	2013	2014	2015
Salisbury	$245	$297	$260	$228	$216
Average	$215	$215	$207	$213	$248

Calls Dispatched per Sworn Officer



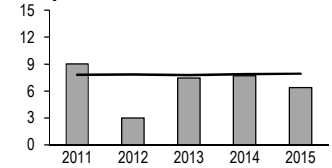
	2011	2012	2013	2014	2015
Salisbury	388	391	373	422	450
Average	543	535	551	559	505

Police Services Cost per Part I Case Cleared



	2011	2012	2013	2014	2015
Salisbury	$10,523	$38,821	$13,023	$12,483	$15,211
Average	$16,108	$17,093	$15,771	$16,220	$20,374

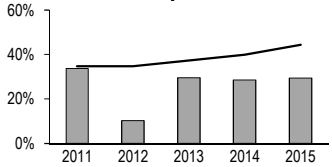
Part I Cases Cleared per Sworn Officer



	2011	2012	2013	2014	2015
Salisbury	9.0	3.0	7.5	7.7	6.4
Average	7.8	7.8	7.8	7.9	7.9

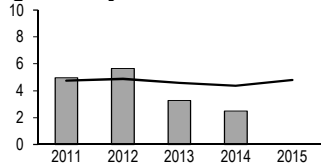
Effectiveness Measures

Percentage of Part I Cases Cleared of Those Reported



	2011	2012	2013	2014	2015
Salisbury	33.7%	10.3%	29.6%	28.6%	29.3%
Average	34.8%	34.7%	37.3%	39.9%	44.4%

Response Time to High Priority Calls in Minutes



	2011	2012	2013	2014	2015
Salisbury	5.0	5.7	3.3	2.5	
Average	4.7	4.9	4.6	4.4	4.8

Fiscal Year 2014–15

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 121 sworn officer positions authorized for the fiscal year, with an average length of service of 9.7 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 855 Part I cases in FY 2014–15.

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 2014)	49,222
Land Area (Square Miles)	30.52
Persons per Square Mile	1,613
Median Family Income	$43,442
U.S. Census 2010	

Service Profile

FTE Positions—Sworn	121.0
FTE Positions—Other	15.0
Marked and Unmarked Patrol Vehicles	128
Part I Crimes Reported	
Homicide	5
Rape	7
Robbery	81
Assault	158
Burglary	435
Larceny	1,468
Auto Theft	95
Arson	6
TOTAL	2,255
Part II Crimes Reported	3,004
Part I Crimes Cleared	
Persons	174
Property	681
TOTAL	855
Reporting Format	UCR
Number of Calls Dispatched	81,983
Number of Traffic Accidents	2,281
Property Damage for Accidents	NA

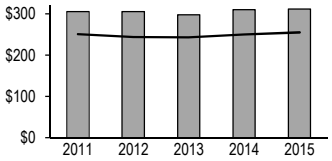
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	67.2%
Operating Costs	25.7%
Capital Costs	7.2%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$10,285,833
Operating Costs	$3,932,091
Capital Costs	$1,095,289
TOTAL	$15,313,213

Key: Wilson ■ Benchmarking Average — Fiscal Years 2011 through 2015

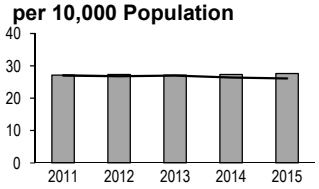
Resource Measures

Police Services Costs per Capita



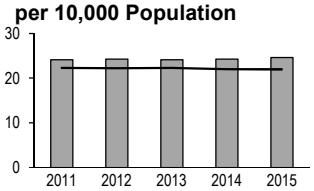
	2011	2012	2013	2014	2015
Wilson	$304.66	$305	$297	$309	$311
Average	$250	$244	$243	$250	$255

Total Police Services Personnel per 10,000 Population



	2011	2012	2013	2014	2015
Wilson	27.1	27.3	27.1	27.3	27.6
Average	27.0	26.8	27.0	26.4	26.1

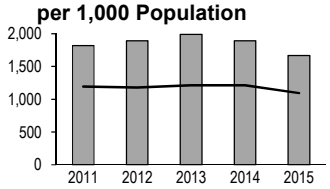
Sworn Police Officers per 10,000 Population



	2011	2012	2013	2014	2015
Wilson	24.1	24.2	24.1	24.2	24.6
Average	22.3	22.3	22.3	22.0	22.0

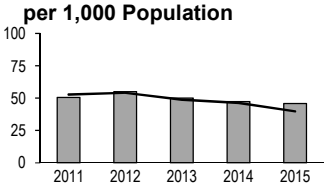
Workload Measures

Calls Dispatched per 1,000 Population



	2011	2012	2013	2014	2015
Wilson	1,820	1,892	1,988	1,891	1,666
Average	1,195	1,178	1,211	1,214	1,094

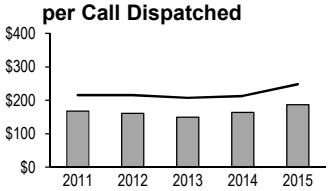
Part I Crimes per 1,000 Population



	2011	2012	2013	2014	2015
Wilson	50.6	55.0	50.0	47.4	45.8
Average	52.8	54.2	48.8	46.4	39.8

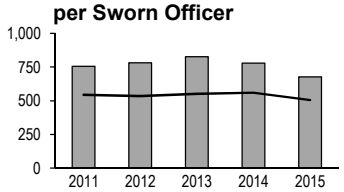
Efficiency Measures

Police Services Cost per Call Dispatched



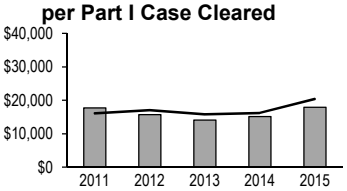
	2011	2012	2013	2014	2015
Wilson	$167	$161	$150	$164	$187
Average	$215	$215	$207	$213	$248

Calls Dispatched per Sworn Officer



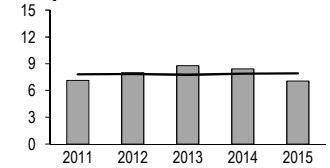
	2011	2012	2013	2014	2015
Wilson	756	781	826	780	678
Average	543	535	551	559	505

Police Services Cost per Part I Case Cleared



	2011	2012	2013	2014	2015
Wilson	$17,735	$15,751	$14,100	$15,136	$17,910
Average	$16,108	$17,093	$15,771	$16,220	$20,374

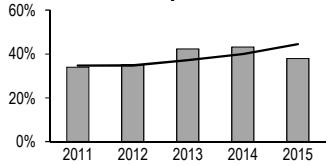
Part I Cases Cleared per Sworn Officer



	2011	2012	2013	2014	2015
Wilson	7.1	8.0	8.8	8.4	7.1
Average	7.8	7.8	7.8	7.9	7.9

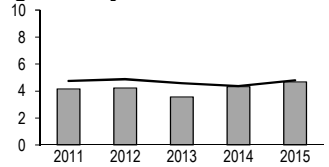
Effectiveness Measures

Percentage of Part I Cases Cleared of Those Reported



	2011	2012	2013	2014	2015
Wilson	33.9%	35.2%	42.2%	43.1%	37.9%
Average	34.8%	34.7%	37.3%	39.9%	44.4%

Response Time to High Priority Calls in Minutes



	2011	2012	2013	2014	2015
Wilson	4.2	4.2	3.6	4.3	4.7
Average	4.7	4.9	4.6	4.4	4.8

Fiscal Year 2014–15

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 560 sworn officer positions authorized for the fiscal year, with an average length of service of eleven 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 4,700 Part I crimes in FY 2014–15.

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 have 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 worth of the cost of the officers.

Municipal Profile

Population (OSBM 2014)	237,905
Land Area (Square Miles)	132.45
Persons per Square Mile	1,796
Median Family Income U.S. Census 2010	$51,491

Service Profile

FTE Positions—Sworn	560.0
FTE Positions—Other	117.0
Marked and Unmarked Patrol Vehicles	481
Part I Crimes Reported	
Homicide	14
Rape	97
Robbery	428
Assault	1,320
Burglary	3,681
Larceny	8,945
Auto Theft	729
Arson	NA
TOTAL	15,214
Part II Crimes Reported	36,918
Part I Crimes Cleared	
Persons	899
Property	3,866
TOTAL (eliminates multiple crimes)	4,700
Reporting Format	IBR
Number of Calls Dispatched	250,576
Number of Traffic Accidents	8,951
Property Damage for Accidents	$28,267,605

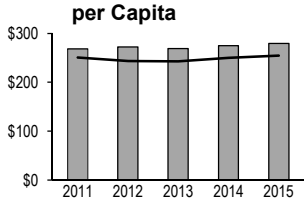
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	75.2%
Operating Costs	15.3%
Capital Costs	9.5%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$50,036,077
Operating Costs	$10,189,487
Capital Costs	$6,327,589
TOTAL	$66,553,153

Key: Winston-Salem ■ Benchmarking Average — Fiscal Years 2011 through 2015

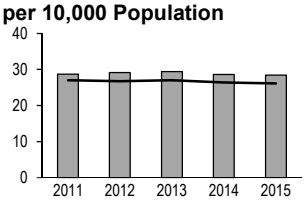
Resource Measures

Police Services Costs per Capita



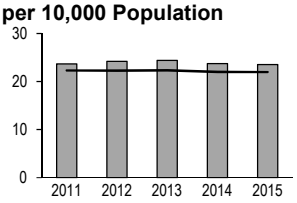
	2011	2012	2013	2014	2015
Winston-Salem	$268.19	$272	$269	$275	$280
Average	$250	$244	$243	$250	$255

Total Police Services Personnel per 10,000 Population



	2011	2012	2013	2014	2015
Winston-Salem	28.7	29.2	29.4	28.6	28.5
Average	27.0	26.8	27.0	26.4	26.1

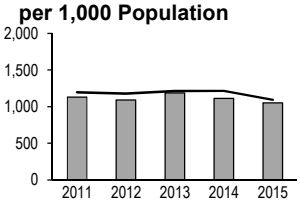
Sworn Police Officers per 10,000 Population



	2011	2012	2013	2014	2015
Winston-Salem	23.7	24.2	24.4	23.7	23.5
Average	22.3	22.3	22.3	22.0	22.0

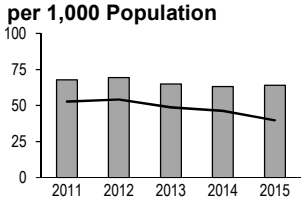
Workload Measures

Calls Dispatched per 1,000 Population



	2011	2012	2013	2014	2015
Winston-Salem	1,131	1,092	1,188	1,113	1,053
Average	1,195	1,178	1,211	1,214	1,094

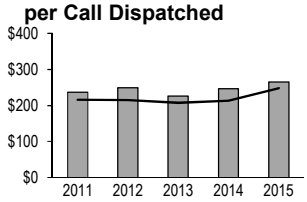
Part I Crimes per 1,000 Population



	2011	2012	2013	2014	2015
Winston-Salem	67.8	69.5	64.9	63.2	63.9
Average	52.8	54.2	48.8	46.4	39.8

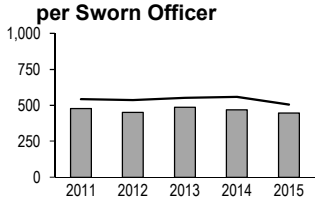
Efficiency Measures

Police Services Cost per Call Dispatched



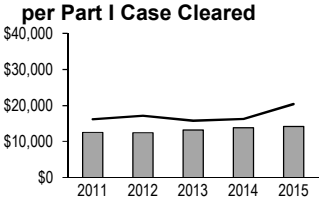
	2011	2012	2013	2014	2015
Winston-Salem	$237	$249	$226	$247	$266
Average	$215	$215	$207	$213	$248

Calls Dispatched per Sworn Officer



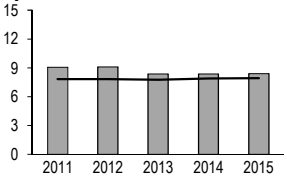
	2011	2012	2013	2014	2015
Winston-Salem	478	452	487	469	447
Average	543	535	551	559	505

Police Services Cost per Part I Case Cleared



	2011	2012	2013	2014	2015
Winston-Salem	$12,500	$12,401	$13,193	$13,868	$14,160
Average	$16,108	$17,093	$15,771	$16,220	$20,374

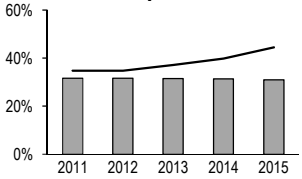
Part I Cases Cleared per Sworn Officer



	2011	2012	2013	2014	2015
Winston-Salem	9.1	9.1	8.4	8.3	8.4
Average	7.8	7.8	7.8	7.9	7.9

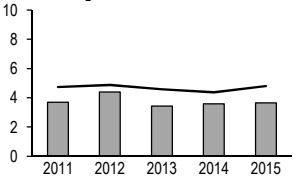
Effectiveness Measures

Percentage of Part I Cases Cleared of Those Reported



	2011	2012	2013	2014	2015
Winston-Salem	31.6%	31.6%	31.5%	31.3%	30.9%
Average	34.8%	34.7%	37.3%	39.9%	44.4%

Response Time to High Priority Calls in Minutes



	2011	2012	2013	2014	2015
Winston-Salem	3.7	4.4	3.4	3.6	3.6
Average	4.7	4.9	4.6	4.4	4.8

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 in 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 the 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	42,689	10.3	15.1	45,812	5,969	35,591	13,886
Asheville	89,248	22.0	8.3	173,555	28,730	114,078	31,815
Burlington	51,923	14.0	6.5	105,334	20,978	88,073	104,975
Cary	148,333	23.0	7.5	165,984	67,395	149,052	42,135
Concord	85,428	22.5	8.2	100,855	26,454	106,812	33,108
Greensboro	512,273	104.0	9.5	608,022	329,138	438,599	168,476
Greenville	87,436	17.0	12.0	104,164	27,061	84,261	21,270
Hickory	40,332	14.0	9.0	NA	9,246	47,279	NA
High Point	108,556	33.0	9.5	273,750	85,445	132,850	NA
Winston-Salem	237,905	49.0	9.1	486,572	228,192	270,841	76,181

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

Apex Emergency Communications

Fiscal Year 2014–15

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 (CAD) 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 45,812 incoming calls in the fiscal year and dispatched 35,591 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.

CAD entry for Apex does not begin immediately but is activated by operators.

Municipal Profile

Population (OSBM 2014)	42,689
Land Area (Square Miles)	17.25
Persons per Square Mile	2,475
Median Family Income U.S. Census 2010	$97,201
County	Wake

Service Profile

Primary or Secondary Answering Point	Secondary
Calls Dispatched	
Police	Yes
Fire	No
Other	Yes
FTE Positions	
Telecommunicators/Call-Takers	9.40
Other	0.85
Total Positions	10.25
Average Length of Service for Call-Takers	15.1 years
Total Incoming Calls	45,812
Total 911 Calls	5,969
Total Calls Dispatched	35,591
Outgoing Calls Other than Dispatch	13,886
Revenue from E-911 Fees	None

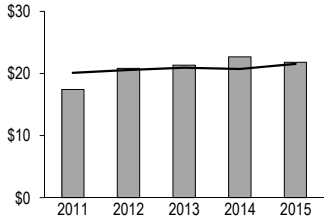
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	82.1%
Operating Costs	14.6%
Capital Costs	3.3%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$763,407
Operating Costs	$135,504
Capital Costs	$30,486
TOTAL	$929,397

Key: Apex ■ Benchmarking Average — Fiscal Years 2011 through 2015

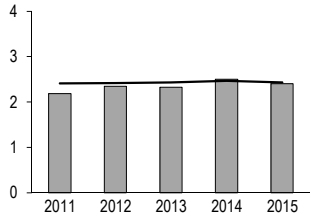
Resource Measures

Emergency Communications Services Costs per Capita



	2011	2012	2013	2014	2015
Apex	$17.41	$20.82	$21.32	$22.69	$21.77
Average	$20.09	$20.55	$20.90	$20.70	$21.52

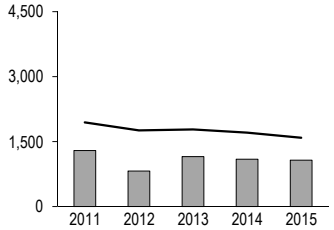
Emergency Communications FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Apex	2.19	2.35	2.33	2.50	2.40
Average	2.41	2.42	2.43	2.46	2.43

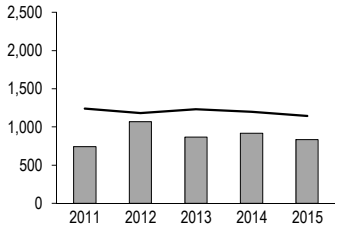
Workload Measures

Total Calls Answered per 1,000 Population



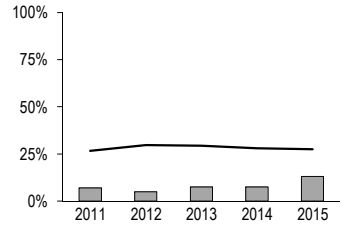
	2011	2012	2013	2014	2015
Apex	1,293	822	1,156	1,097	1,073
Average	1,941	1,757	1,784	1,709	1,588

Calls Dispatched per 1,000 Population



	2011	2012	2013	2014	2015
Apex	743	1,070	868	917	834
Average	1,242	1,183	1,233	1,200	1,142

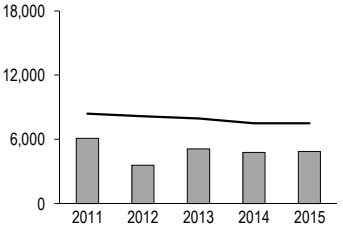
E-911 Calls as a Percentage of All Incoming Calls



	2011	2012	2013	2014	2015
Apex	6.9%	5.0%	7.5%	7.5%	13.0%
Average	26.7%	29.7%	29.4%	28.1%	27.5%

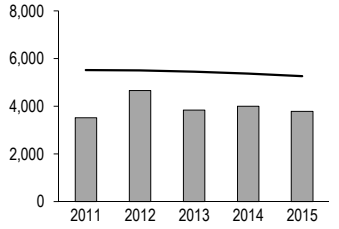
Efficiency Measures

Calls Answered per Telecommunicator



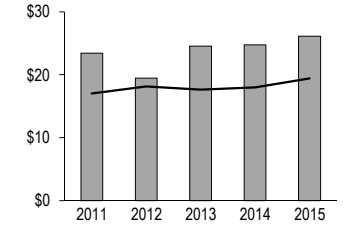
	2011	2012	2013	2014	2015
Apex	6,099	3,576	5,107	4,776	4,874
Average	8,402	8,157	7,950	7,508	7,500

Calls Dispatched per Telecommunicator



	2011	2012	2013	2014	2015
Apex	3,505	4,657	3,837	3,992	3,786
Average	5,509	5,502	5,445	5,358	5,258

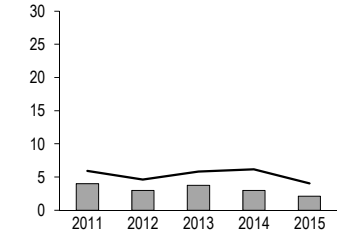
Emergency Communications Cost per Call Dispatched



	2011	2012	2013	2014	2015
Apex	$23.44	$19.47	$24.55	$24.75	$26.11
Average	$17.02	$18.15	$17.63	$17.96	$19.40

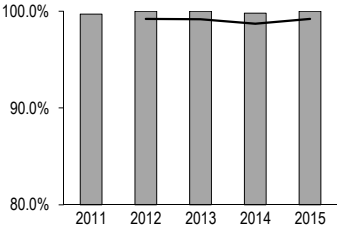
Effectiveness Measures

Number of Seconds from Initial Ring to Answer



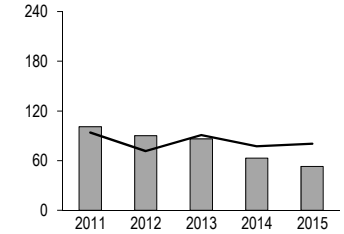
	2011	2012	2013	2014	2015
Apex	4	3	4	3	2
Average	6	5	6	6	4

Percent of E-911 Calls Answered within Twenty Seconds



	2011	2012	2013	2014	2015
Apex	99.7%	100.0%	100.0%	99.8%	100.0%
Average		99.2%	99.2%	98.7%	99.2%

Average Time in Seconds from CAD Entry to Dispatch for Priority One Calls



	2011	2012	2013	2014	2015
Apex	101	90	86	63	53
Average	94	71	91	77	80

Asheville Emergency Communications

Fiscal Year 2014–15

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 communications 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 uses the Motorola Simulcast system.

Asheville's emergency communications center handled a total of 173,555 incoming calls in the fiscal year and dispatched 114,078 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

Computer-aided dispatch (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 and dispatch.

Municipal Profile

Population (OSBM 2014)	89,248
Land Area (Square Miles)	45.52
Persons per Square Mile	1,961
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	1.0
Total Positions	22.0
Average Length of Service for Call-Takers	8.3 years
Total Incoming Calls	173,555
Total 911 Calls	28,730
Total Calls Dispatched	114,078
Outgoing Calls Other than Dispatch	31,815
Revenue from E-911 Fees	None

Full Cost Profile

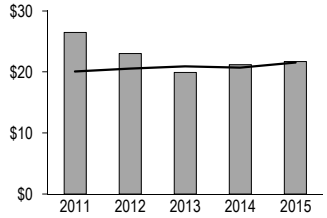
Cost Breakdown by Percentage	
Personal Services	57.8%
Operating Costs	40.5%
Capital Costs	1.7%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,117,987
Operating Costs	$782,915
Capital Costs	$33,823
TOTAL	$1,934,725

Asheville Emergency Communications

Key: Asheville ■ Benchmarking Average — Fiscal Years 2011 through 2015

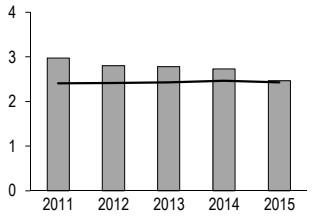
Resource Measures

Emergency Communications Services Costs per Capita



	2011	2012	2013	2014	2015
Asheville	$26.45	$23.01	$19.94	$21.16	$21.68
Average	$20.09	$20.55	$20.90	$20.70	$21.52

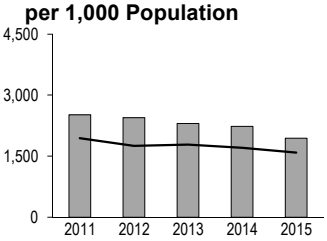
Emergency Communications FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Asheville	2.98	2.80	2.78	2.73	2.47
Average	2.41	2.42	2.43	2.46	2.43

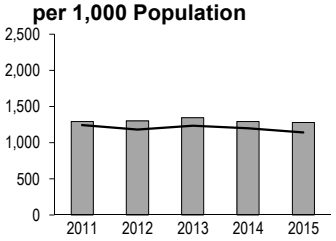
Workload Measures

Total Calls Answered per 1,000 Population



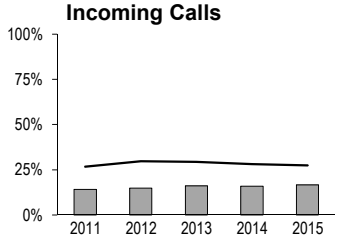
	2011	2012	2013	2014	2015
Asheville	2,519	2,448	2,301	2,236	1,945
Average	1,941	1,757	1,784	1,709	1,588

Calls Dispatched per 1,000 Population



	2011	2012	2013	2014	2015
Asheville	1,289	1,299	1,344	1,289	1,278
Average	1,242	1,183	1,233	1,200	1,142

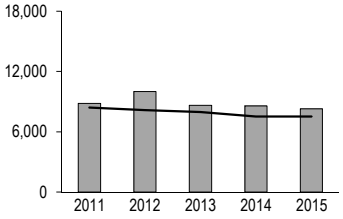
E-911 Calls as a Percentage of All Incoming Calls



	2011	2012	2013	2014	2015
Asheville	14.2%	14.9%	16.1%	16.0%	16.6%
Average	26.7%	29.7%	29.4%	28.1%	27.5%

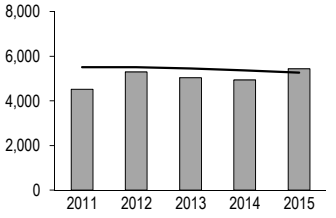
Efficiency Measures

Calls Answered per Telecommunicator



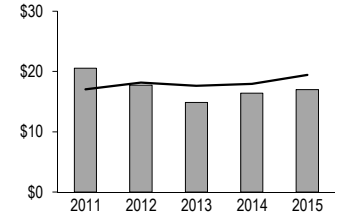
	2011	2012	2013	2014	2015
Asheville	8,814	9,983	8,623	8,555	8,265
Average	8,402	8,157	7,950	7,508	7,500

Calls Dispatched per Telecommunicator



	2011	2012	2013	2014	2015
Asheville	4,511	5,297	5,036	4,933	5,432
Average	5,509	5,502	5,445	5,358	5,258

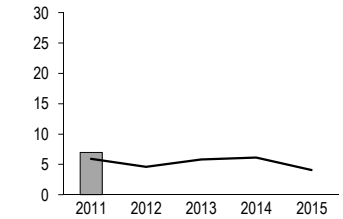
Emergency Communications Cost per Call Dispatched



	2011	2012	2013	2014	2015
Asheville	$20.52	$17.72	$14.84	$16.42	$16.96
Average	$17.02	$18.15	$17.63	$17.96	$19.40

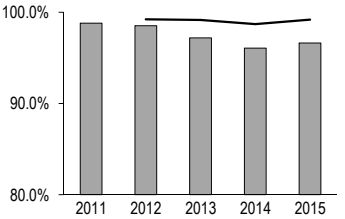
Effectiveness Measures

Number of Seconds from Initial Ring to Answer



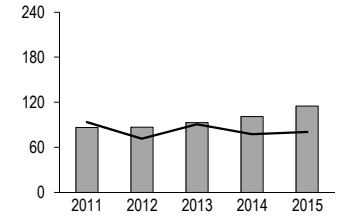
	2011	2012	2013	2014	2015
Asheville	7				
Average	6	5	6	6	4

Percent of E-911 Calls Answered within Twenty Seconds



	2011	2012	2013	2014	2015
Asheville	98.8%	98.5%	97.2%	96.1%	96.6%
Average		99.2%	99.2%	98.7%	99.2%

Average Time in Seconds from CAD Entry to Dispatch for Priority One Calls



	2011	2012	2013	2014	2015
Asheville	86	87	93	101	115
Average	94	71	91	77	80

Burlington Emergency Communications

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery

The emergency 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 communications center answered 105,334 incoming calls and dispatched 88,073 calls during the year. 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

Computer-aided dispatch (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 earlier years, some calls which did not require an emergency response were being included. The lastest data is a more accurate reflection, as it only includes calls for service requiring an emergency response.

Burlington was not able to provide the number of incoming or E-911 calls for FY 2012–13.

Municipal Profile

Population (OSBM 2014)	51,923
Land Area (Square Miles)	30.52
Persons per Square Mile	1,701
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	6.5 years
Total Incoming Calls	105,334
Total 911 Calls	20,978
Total Calls Dispatched	88,073
Outgoing Calls Other than Dispatch	104,975
Revenue from E-911 Fees	None

Full Cost Profile

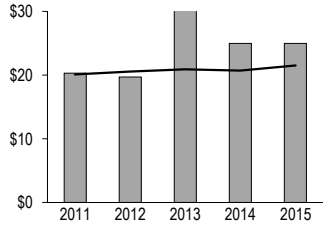
Cost Breakdown by Percentage	
Personal Services	61.7%
Operating Costs	32.7%
Capital Costs	5.6%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$798,688
Operating Costs	$424,012
Capital Costs	$72,580
TOTAL	$1,295,280

Burlington Emergency Communications

Key: Burlington ■ Benchmarking Average — Fiscal Years 2011 through 2015

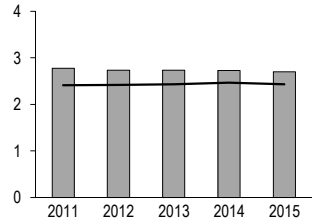
Resource Measures

Emergency Communications Services Costs per Capita



	2011	2012	2013	2014	2015
Burlington	$20.29	$19.68	$30.23	$24.94	$24.95
Average	$20.09	$20.55	$20.90	$20.70	$21.52

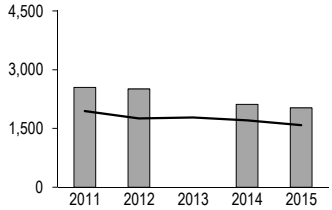
Emergency Communications FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Burlington	2.77	2.73	2.73	2.72	2.70
Average	2.41	2.42	2.43	2.46	2.43

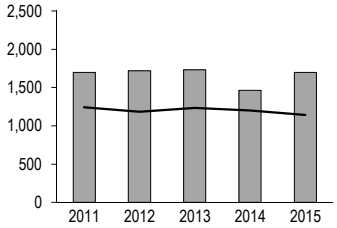
Workload Measures

Total Calls Answered per 1,000 Population



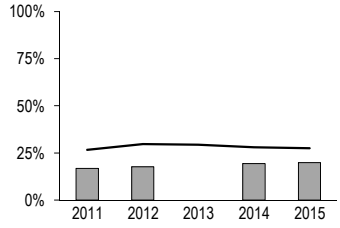
	2011	2012	2013	2014	2015
Burlington	2,544	2,504		2,113	2,029
Average	1,941	1,757	1,784	1,709	1,588

Calls Dispatched per 1,000 Population



	2011	2012	2013	2014	2015
Burlington	1,698	1,717	1,732	1,462	1,696
Average	1,242	1,183	1,233	1,200	1,142

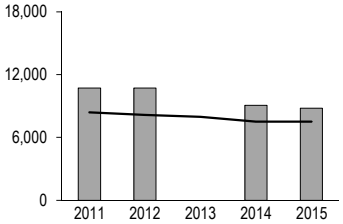
E-911 Calls as a Percentage of All Incoming Calls



	2011	2012	2013	2014	2015
Burlington	16.8%	17.7%		19.4%	19.9%
Average	26.7%	29.7%	29.4%	28.1%	27.5%

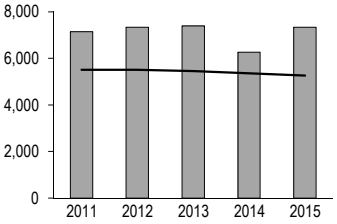
Efficiency Measures

Calls Answered per Telecommunicator



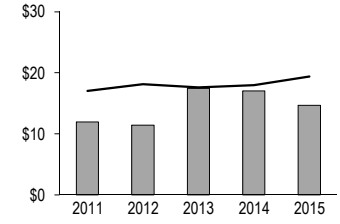
	2011	2012	2013	2014	2015
Burlington	10,699	10,699		9,049	8,778
Average	8,402	8,157	7,950	7,508	7,500

Calls Dispatched per Telecommunicator



	2011	2012	2013	2014	2015
Burlington	7,144	7,335	7,390	6,262	7,339
Average	5,509	5,502	5,445	5,358	5,258

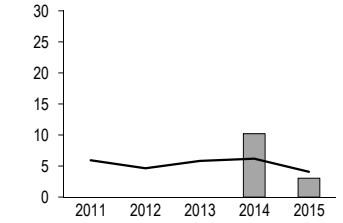
Emergency Communications Cost per Call Dispatched



	2011	2012	2013	2014	2015
Burlington	$11.95	$11.46	$17.45	$17.06	$14.71
Average	$17.02	$18.15	$17.63	$17.96	$19.40

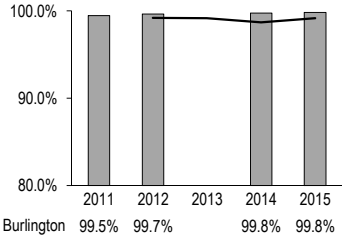
Effectiveness Measures

Number of Seconds from Initial Ring to Answer



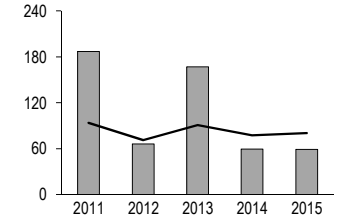
	2011	2012	2013	2014	2015
Burlington				10	3
Average	6	5	6	6	4

Percent of E-911 Calls Answered within Twenty Seconds



	2011	2012	2013	2014	2015
Burlington	99.5%	99.7%		99.8%	99.8%
Average		99.2%	99.2%	98.7%	99.2%

Average Time in Seconds from CAD Entry to Dispatch for Priority One



	2011	2012	2013	2014	2015
Burlington	187	66	167	59	59
Average	94	71	91	77	80

Fiscal Year 2014–15

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 149,052 incoming calls in the fiscal year, dispatching 149,052 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 $530,038 in E-911 revenues to support system operations.

Conditions Affecting Service, Performance, and Costs
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 2014)	148,333
Land Area (Square Miles)	56.47
Persons per Square Mile	2,627
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	20.0
Other	3.0
Total Positions	23.0
Average Length of Service for Call-Takers	7.5 years
Total Incoming Calls	165,984
Total 911 Calls	67,395
Total Calls Dispatched	149,052
Outgoing Calls Other than Dispatch	42,135
Revenue from E-911 Fees	$530,038

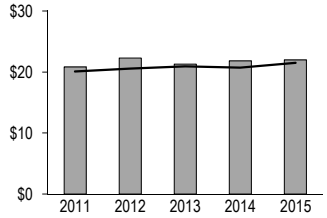
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	70.5%
Operating Costs	24.3%
Capital Costs	5.2%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$2,296,947
Operating Costs	$793,633
Capital Costs	$168,868
TOTAL	$3,259,448

Key: Cary ■ Benchmarking Average — Fiscal Years 2011 through 2015

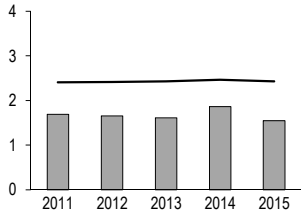
Resource Measures

Emergency Communications Services Costs per Capita



	2011	2012	2013	2014	2015
Cary	$20.81	$22.29	$21.29	$21.80	$21.97
Average	$20.09	$20.55	$20.90	$20.70	$21.52

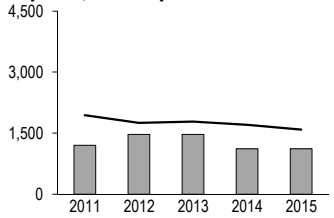
Emergency Communications FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Cary	1.69	1.65	1.62	1.87	1.55
Average	2.41	2.42	2.43	2.46	2.43

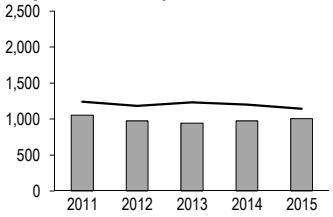
Workload Measures

Total Calls Answered per 1,000 Population



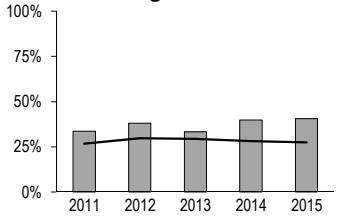
	2011	2012	2013	2014	2015
Cary	1,208	1,472	1,474	1,118	1,119
Average	1,941	1,757	1,784	1,709	1,588

Calls Dispatched per 1,000 Population



	2011	2012	2013	2014	2015
Cary	1,056	972	942	975	1,005
Average	1,242	1,183	1,233	1,200	1,142

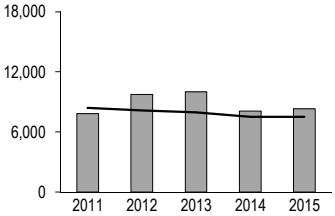
E-911 Calls as a Percentage of All Incoming Calls



	2011	2012	2013	2014	2015
Cary	33.6%	38.1%	33.4%	39.9%	40.6%
Average	26.7%	29.7%	29.4%	28.1%	27.5%

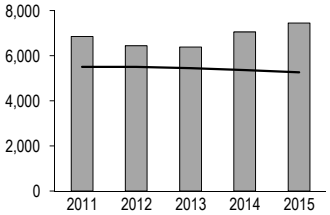
Efficiency Measures

Calls Answered per Telecommunicator



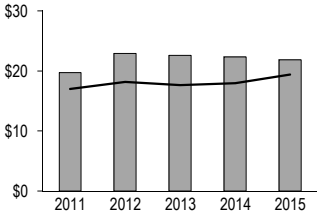
	2011	2012	2013	2014	2015
Cary	7,833	9,752	9,994	8,085	8,299
Average	8,402	8,157	7,950	7,508	7,500

Calls Dispatched per Telecommunicator



	2011	2012	2013	2014	2015
Cary	6,848	6,443	6,390	7,055	7,453
Average	5,509	5,502	5,445	5,358	5,258

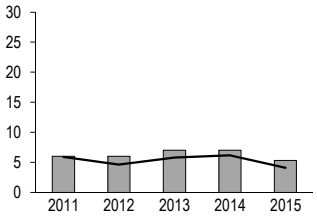
Emergency Communications Cost per Call Dispatched



	2011	2012	2013	2014	2015
Cary	$19.71	$22.93	$22.59	$22.35	$21.87
Average	$17.02	$18.15	$17.63	$17.96	$19.40

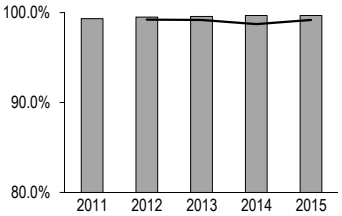
Effectiveness Measures

Number of Seconds from Initial Ring to Answer



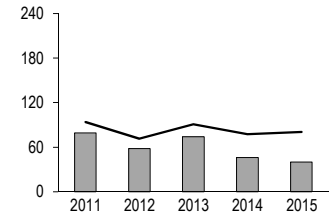
	2011	2012	2013	2014	2015
Cary	6	6	7	7	5
Average	6	5	6	6	4

Percent of E-911 Calls Answered within Twenty Seconds



	2011	2012	2013	2014	2015
Cary	99.3%	99.5%	99.6%	99.7%	99.7%
Average		99.2%	99.2%	98.7%	99.2%

Average Time in Seconds from CAD Entry to Dispatch for Priority One Calls



	2011	2012	2013	2014	2015
Cary	79	58	74	46	40
Average	94	71	91	77	80

Fiscal Year 2014–15

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 100,855 calls in the fiscal year, dispatching 106,812 calls.

Conditions Affecting Service, Performance, and Costs

Municipal Profile

Population (OSBM 2014)	85,428
Land Area (Square Miles)	61.09
Persons per Square Mile	1,398
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	21.5
Other	1.0
Total Positions	22.5
Average Length of Service for Call-Takers	8.2 years
Total Incoming Calls	100,855
Total 911 Calls	26,454
Total Calls Dispatched	106,812
Outgoing Calls Other than Dispatch	33,108
Revenue from E-911 Fees	None

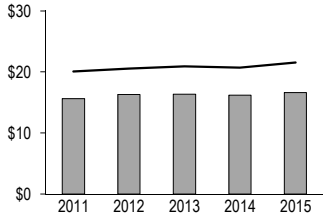
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	83.6%
Operating Costs	14.9%
Capital Costs	1.5%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,187,108
Operating Costs	$212,054
Capital Costs	$20,964
TOTAL	$1,420,126

Key: Concord ■ Benchmarking Average — Fiscal Years 2011 through 2015

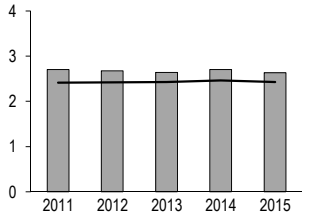
Resource Measures

Emergency Communications Services Costs per Capita



	2011	2012	2013	2014	2015
Concord	$15.60	$16.30	$16.37	$16.20	$16.62
Average	$20.09	$20.55	$20.90	$20.70	$21.52

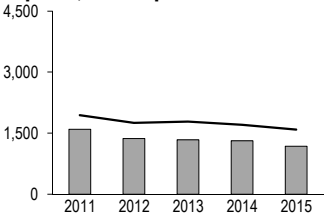
Emergency Communications FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Concord	2.70	2.67	2.64	2.70	2.63
Average	2.41	2.42	2.43	2.46	2.43

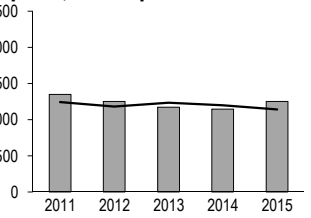
Workload Measures

Total Calls Answered per 1,000 Population



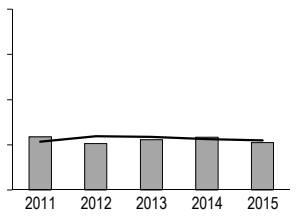
	2011	2012	2013	2014	2015
Concord	1,600	1,367	1,336	1,313	1,181
Average	1,941	1,757	1,784	1,709	1,588

Calls Dispatched per 1,000 Population



	2011	2012	2013	2014	2015
Concord	1,350	1,249	1,171	1,144	1,250
Average	1,242	1,183	1,233	1,200	1,142

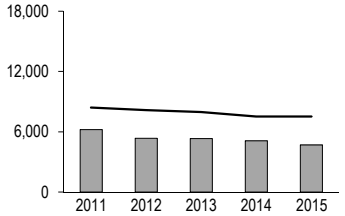
E-911 Calls as a Percentage of All Incoming Calls



	2011	2012	2013	2014	2015
Concord	29.4%	25.7%	27.8%	29.2%	26.2%
Average	26.7%	29.7%	29.4%	28.1%	27.5%

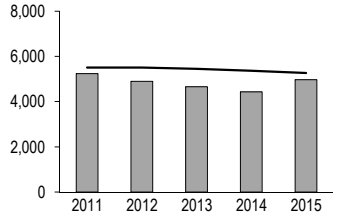
Efficiency Measures

Calls Answered per Telecommunicator



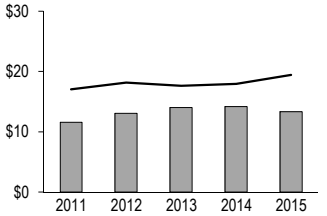
	2011	2012	2013	2014	2015
Concord	6,205	5,359	5,309	5,088	4,691
Average	8,402	8,157	7,950	7,508	7,500

Calls Dispatched per Telecommunicator



	2011	2012	2013	2014	2015
Concord	5,236	4,900	4,652	4,430	4,968
Average	5,509	5,502	5,445	5,358	5,258

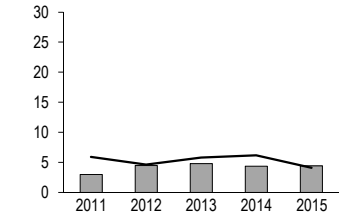
Emergency Communications Cost per Call Dispatched



	2011	2012	2013	2014	2015
Concord	$11.56	$13.05	$13.98	$14.17	$13.30
Average	$17.02	$18.15	$17.63	$17.96	$19.40

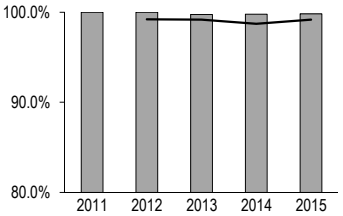
Effectiveness Measures

Number of Seconds from Initial Ring to Answer



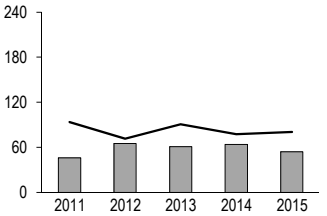
	2011	2012	2013	2014	2015
Concord	3	4	5	4	4
Average	6	5	6	6	4

Percent of E-911 Calls Answered within Twenty Seconds



	2011	2012	2013	2014	2015
Concord	100.0%	100.0%	99.7%	99.8%	99.8%
Average		99.2%	99.2%	98.7%	99.2%

Average Time in Seconds from CAD Entry to Dispatch for Priority One Calls



	2011	2012	2013	2014	2015
Concord	46	65	61	64	54
Average	94	71	91	77	80

Greensboro Emergency Communications

Fiscal Year 2014–15

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 departments). 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 communications center handled a total of 608,022 incoming calls in the fiscal year, dispatching 438,599 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 $2,760,822 in E-911 revenues to support system operations.

Conditions Affecting Service, Performance, and Costs

Municipal Profile

Population (OSBM 2014)–Guilford County	512,273
Land Area (Square Miles)	649.42
Persons per Square Mile	789
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	12.0
Total Positions	104.0
Average Length of Service for Call-Takers	9.5 years
Total Incoming Calls	608,022
Total 911 Calls	329,138
Total Calls Dispatched	438,599
Outgoing Calls Other than Dispatch	168,476
Revenue from E-911 Fees	$2,760,822

Full Cost Profile

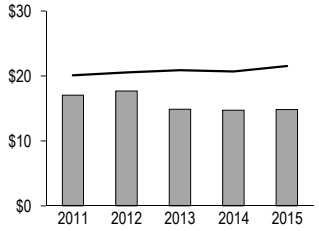
Cost Breakdown by Percentage	
Personal Services	80.8%
Operating Costs	19.2%
Capital Costs	0.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$6,133,697
Operating Costs	$1,457,196
Capital Costs	$0
TOTAL	$7,590,893

Greensboro Emergency Communications

Key: Greensboro ■ Benchmarking Average — Fiscal Years 2011 through 2015

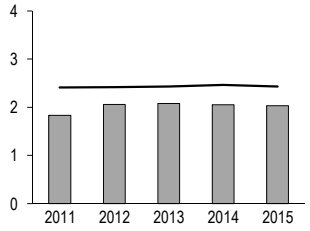
Resource Measures

Emergency Communications Services Costs per Capita



	2011	2012	2013	2014	2015
Greensboro	$17.04	$17.69	$14.89	$14.71	$14.82
Average	$20.09	$20.55	$20.90	$20.70	$21.52

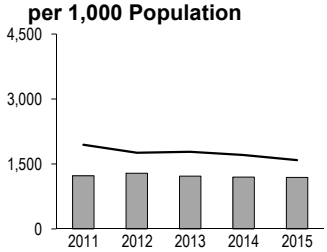
Emergency Communications FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Greensboro	1.84	2.06	2.08	2.05	2.03
Average	2.41	2.42	2.43	2.46	2.43

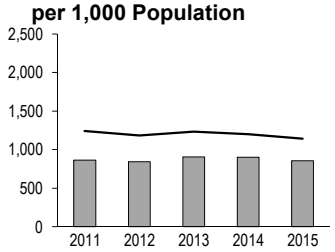
Workload Measures

Total Calls Answered per 1,000 Population



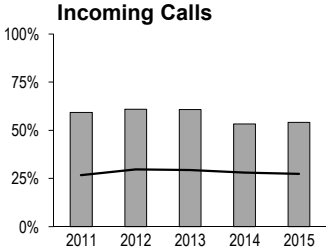
	2011	2012	2013	2014	2015
Greensboro	1,224	1,287	1,217	1,199	1,187
Average	1,941	1,757	1,784	1,709	1,588

Calls Dispatched per 1,000 Population



	2011	2012	2013	2014	2015
Greensboro	862	842	906	900	856
Average	1,242	1,183	1,233	1,200	1,142

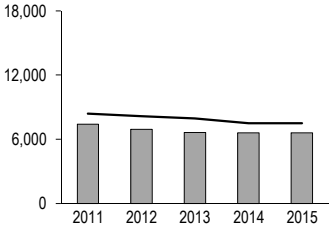
E-911 Calls as a Percentage of All Incoming Calls



	2011	2012	2013	2014	2015
Greensboro	59.3%	60.9%	60.8%	53.3%	54.1%
Average	26.7%	29.7%	29.4%	28.1%	27.5%

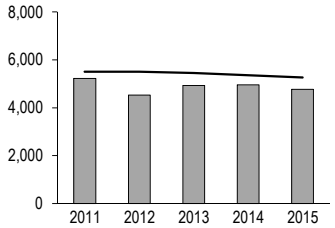
Efficiency Measures

Calls Answered per Telecommunicator



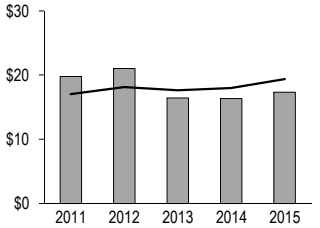
	2011	2012	2013	2014	2015
Greensboro	7,412	6,926	6,630	6,613	6,609
Average	8,402	8,157	7,950	7,508	7,500

Calls Dispatched per Telecommunicator



	2011	2012	2013	2014	2015
Greensboro	5,217	4,534	4,935	4,962	4,767
Average	5,509	5,502	5,445	5,358	5,258

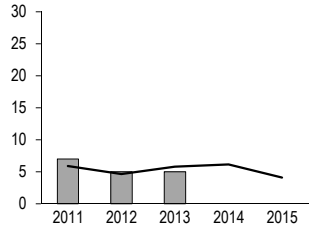
Emergency Communications Cost per Call Dispatched



	2011	2012	2013	2014	2015
Greensboro	$19.77	$21.00	$16.43	$16.36	$17.31
Average	$17.02	$18.15	$17.63	$17.96	$19.40

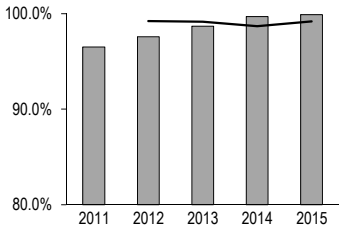
Effectiveness Measures

Number of Seconds from Initial Ring to Answer



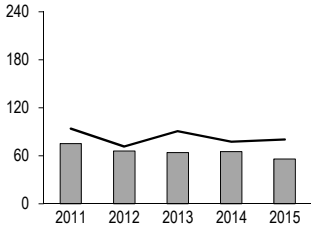
	2011	2012	2013	2014	2015
Greensboro	7	5	5		
Average	6	5	6	6	4

Percent of E-911 Calls Answered within Twenty Seconds



	2011	2012	2013	2014	2015
Greensboro	96.5%	97.6%	98.7%	99.7%	99.9%
Average		99.2%	99.2%	98.7%	99.2%

Average Time in Seconds from CAD Entry to Dispatch for Priority One Calls



	2011	2012	2013	2014	2015
Greensboro	75	66	64	65	56
Average	94	71	91	77	80

Greenville Emergency Communications

Fiscal Year 2014–15

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 is 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 104,164 incoming calls in the fiscal year and dispatched 84,261 calls.

Conditions Affecting Service, Performance, and Costs

The emegency phone systems in Greenville and Pitt County were both changed during FY 2013–14. The city's tracking system lost two months of data on incoming calls which could not be retrieved. The drop in calls answered is a data issue rather than a change in service over the prior year. The problem did not affect calls dispatched. The new system will be able to more accurately track calls, particularly 911 calls.

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. This video monitoring results in higher staffing needs in the emergency communications center.

Municipal Profile

Population (OSBM 2014)	87,436
Land Area (Square Miles)	34.90
Persons per Square Mile	2,505
Median Family Income U.S. Census 2010	$50,395
County	Pitt

Service Profile

Primary or Secondary Answering Point	Secondary
Calls Dispatched	
Police	Yes
Fire	No
Other	Yes
FTE Positions	
Telecommunicators/Call-Takers	16.0
Other	1.0
Total Positions	17.0
Average Length of Service for Call-Takers	12.0 years
Total Incoming Calls	104,164
Total 911 Calls	27,061
Total Calls Dispatched	84,261
Outgoing Calls Other than Dispatch	21,270
Revenue from E-911 Fees	None

Full Cost Profile

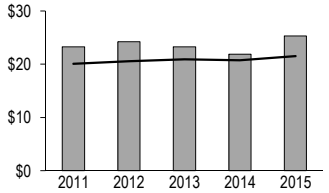
Cost Breakdown by Percentage	
Personal Services	48.5%
Operating Costs	45.6%
Capital Costs	5.9%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,072,177
Operating Costs	$1,009,838
Capital Costs	$130,207
TOTAL	$2,212,222

Greenville Emergency Communications

Key: Greenville ■ Benchmarking Average — Fiscal Years 2011 through 2015

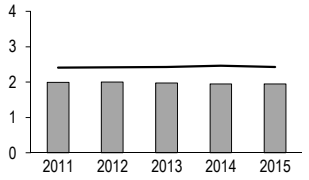
Resource Measures

Emergency Communications Services Costs per Capita



	2011	2012	2013	2014	2015
Greenville	$23.27	$24.20	$23.23	$21.86	$25.30
Average	$20.09	$20.55	$20.90	$20.70	$21.52

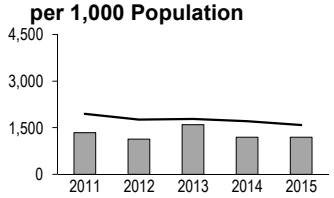
Emergency Communications FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Greenville	2.00	2.00	1.97	1.95	1.94
Average	2.41	2.42	2.43	2.46	2.43

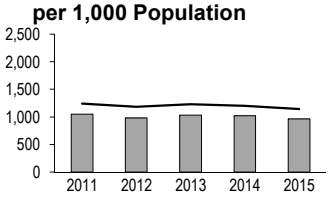
Workload Measures

Total Calls Answered per 1,000 Population



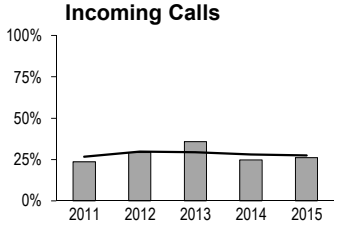
	2011	2012	2013	2014	2015
Greenville	1,336	1,133	1,589	1,196	1,191
Average	1,941	1,757	1,784	1,709	1,588

Calls Dispatched per 1,000 Population



	2011	2012	2013	2014	2015
Greenville	1,051	983	1,031	1,023	964
Average	1,242	1,183	1,233	1,200	1,142

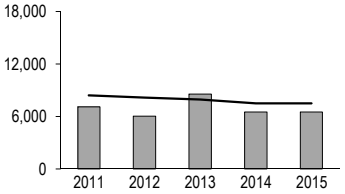
E-911 Calls as a Percentage of All Incoming Calls



	2011	2012	2013	2014	2015
Greenville	23.5%	29.1%	35.8%	24.8%	26.0%
Average	26.7%	29.7%	29.4%	28.1%	27.5%

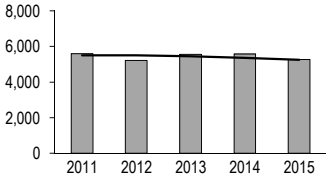
Efficiency Measures

Calls Answered per Telecommunicator



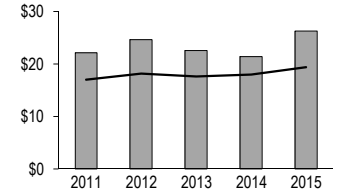
	2011	2012	2013	2014	2015
Greenville	7,108	6,021	8,555	6,522	6,510
Average	8,402	8,157	7,950	7,508	7,500

Calls Dispatched per Telecommunicator



	2011	2012	2013	2014	2015
Greenville	5,592	5,223	5,552	5,577	5,266
Average	5,509	5,502	5,445	5,358	5,258

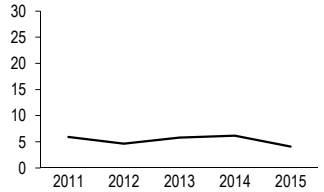
Emergency Communications Cost per Call Dispatched



	2011	2012	2013	2014	2015
Greenville	$22.14	$24.63	$22.53	$21.37	$26.25
Average	$17.02	$18.15	$17.63	$17.96	$19.40

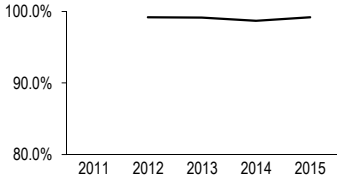
Effectiveness Measures

Number of Seconds from Initial Ring to Answer



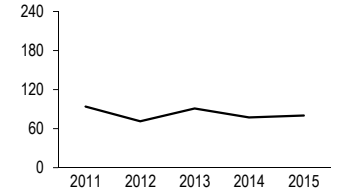
	2011	2012	2013	2014	2015
Greenville					
Average	6	5	6	6	4

Percent of E-911 Calls Answered within Twenty Seconds



	2011	2012	2013	2014	2015
Greenville					
Average		99.2%	99.2%	98.7%	99.2%

Average Time in Seconds from CAD Entry to Dispatch for Priority One Calls



	2011	2012	2013	2014	2015
Greenville					
Average	94	71	91	77	80

Fiscal Year 2014–15

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.

Hickory's communications center dispathed 47,279 calls during the year. The number of incoming calls was not available..

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 entire year.

Incoming calls in Hickory are down over time 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 2014)	40,332
Land Area (Square Miles)	29.84
Persons per Square Mile	1,352
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	14.0
Other	0.0
Total Positions	14.0
Average Length of Service for Call-Takers	9.0 years
Total Incoming Calls	NA
Total 911 Calls	9,246
Total Calls Dispatched	47,279
Outgoing Calls Other than Dispatch	NA
Revenue from E-911 Fees	$58,710

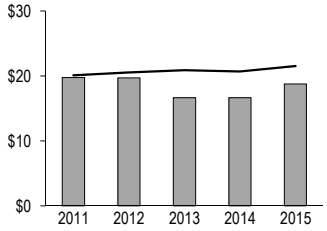
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	80.8%
Operating Costs	17.3%
Capital Costs	2.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$611,451
Operating Costs	$130,651
Capital Costs	$15,019
TOTAL	$757,121

Key: Hickory ■ Benchmarking Average — Fiscal Years 2011 through 2015

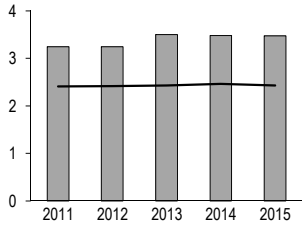
Resource Measures

Emergency Communications Services Costs per Capita



	2011	2012	2013	2014	2015
Hickory	$19.77	$19.71	$16.67	$16.67	$18.77
Average	$20.09	$20.55	$20.90	$20.70	$21.52

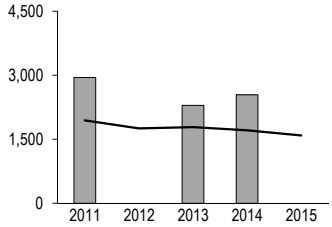
Emergency Communications FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Hickory	3.24	3.24	3.50	3.48	3.47
Average	2.41	2.42	2.43	2.46	2.43

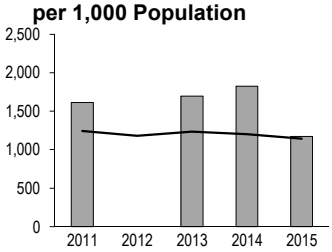
Workload Measures

Total Calls Answered per 1,000 Population



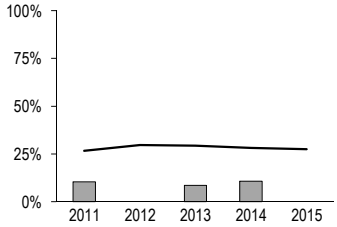
	2011	2012	2013	2014	2015
Hickory	2,947		2,291	2,543	
Average	1,941	1,757	1,784	1,709	1,588

Calls Dispatched per 1,000 Population



	2011	2012	2013	2014	2015
Hickory	1,613		1,697	1,825	1,172
Average	1,242	1,183	1,233	1,200	1,142

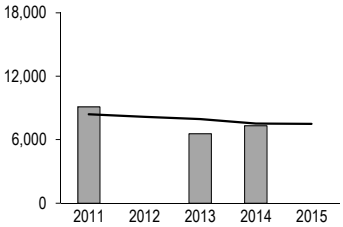
E-911 Calls as a Percentage of All Incoming Calls



	2011	2012	2013	2014	2015
Hickory	10.4%		8.5%	10.7%	0.0%
Average	26.7%	29.7%	29.4%	28.1%	27.5%

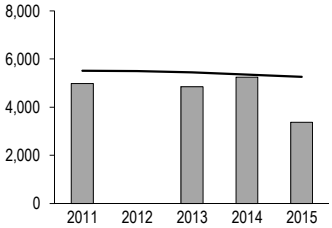
Efficiency Measures

Calls Answered per Telecommunicator



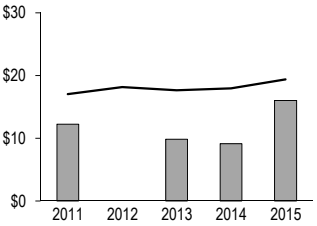
	2011	2012	2013	2014	2015
Hickory	9,086		6,553	7,306	
Average	8,402	8,157	7,950	7,508	7,500

Calls Dispatched per Telecommunicator



	2011	2012	2013	2014	2015
Hickory	4,974		4,852	5,243	3,377
Average	5,509	5,502	5,445	5,358	5,258

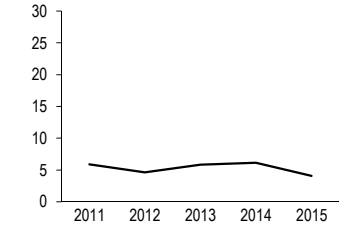
Emergency Communications Cost per Call Dispatched



	2011	2012	2013	2014	2015
Hickory	$12.25		$9.82	$9.13	$16.01
Average	$17.02	$18.15	$17.63	$17.96	$19.40

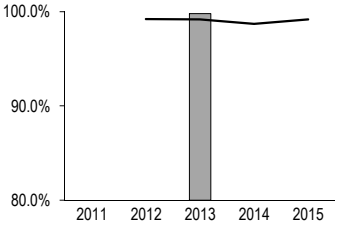
Effectiveness Measures

Number of Seconds from Initial Ring to Answer



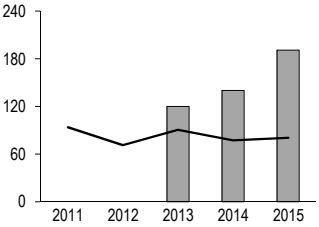
	2011	2012	2013	2014	2015
Hickory					
Average	6	5	6	6	4

Percent of E-911 Calls Answered within Twenty Seconds



	2011	2012	2013	2014	2015
Hickory			99.8%		
Average		99.2%	99.2%	98.7%	99.2%

Average Time in Seconds from CAD Entry to Dispatch for Priority One Calls



	2011	2012	2013	2014	2015
Hickory			120	140	191
Average	94	71	91	77	80

High Point Emergency Communications

Fiscal Year 2014–15

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 273,750 calls in the fiscal year, dispatching 132,850 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 $544,049 in E-911 revenues to support system operations.

Conditions Affecting Service, Performance, and Costs

High Point was unable to provide data on certain measures, given a change in technology.

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 dispatched calls, resulting in a higher dispatched response time.

Municipal Profile

Population (OSBM 2014)	108,556
Land Area (Square Miles)	55.05
Persons per Square Mile	1,972
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	30.0
Other	3.0
Total Positions	33.0
Average Length of Service for Call-Takers	9.5 years
Total Incoming Calls	273,750
Total 911 Calls	85,445
Total Calls Dispatched	132,850
Outgoing Calls Other than Dispatch	NA
Revenue from E-911 Fees	$544,049

Full Cost Profile

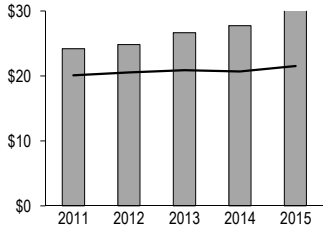
Cost Breakdown by Percentage	
Personal Services	66.1%
Operating Costs	23.7%
Capital Costs	10.1%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$2,169,875
Operating Costs	$778,689
Capital Costs	$332,382
TOTAL	$3,280,946

High Point — Emergency Communications

Key: High Point ■ Benchmarking Average — Fiscal Years 2011 through 2015

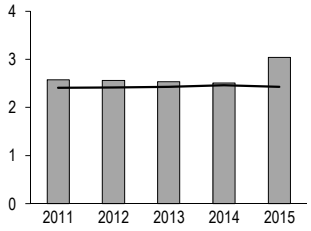
Resource Measures

Emergency Communications Services Costs per Capita



	2011	2012	2013	2014	2015
High Point	$24.18	$24.81	$26.62	$27.71	$30.22
Average	$20.09	$20.55	$20.90	$20.70	$21.52

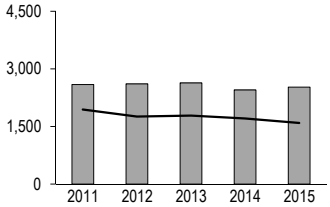
Emergency Communications FTEs per 10,000 Population



	2011	2012	2013	2014	2015
High Point	2.58	2.56	2.54	2.51	3.04
Average	2.41	2.42	2.43	2.46	2.43

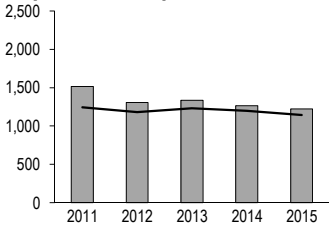
Workload Measures

Total Calls Answered per 1,000 Population



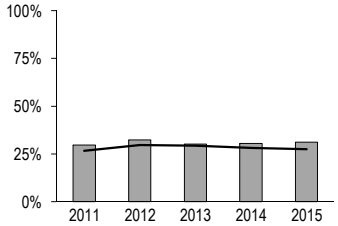
	2011	2012	2013	2014	2015
High Point	2,589	2,603	2,630	2,449	2,522
Average	1,941	1,757	1,784	1,709	1,588

Calls Dispatched per 1,000 Population



	2011	2012	2013	2014	2015
High Point	1,517	1,305	1,334	1,264	1,224
Average	1,242	1,183	1,233	1,200	1,142

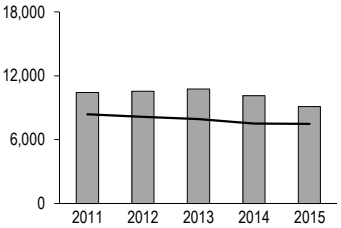
E-911 Calls as a Percentage of All Incoming Calls



	2011	2012	2013	2014	2015
High Point	29.7%	32.3%	30.2%	30.5%	31.2%
Average	26.7%	29.7%	29.4%	28.1%	27.5%

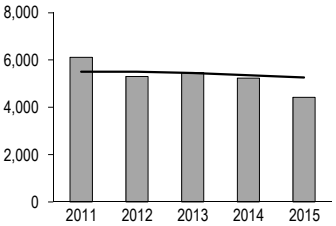
Efficiency Measures

Calls Answered per Telecommunicator



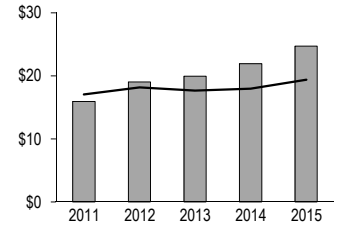
	2011	2012	2013	2014	2015
High Point	10,434	10,563	10,763	10,140	9,125
Average	8,402	8,157	7,950	7,508	7,500

Calls Dispatched per Telecommunicator



	2011	2012	2013	2014	2015
High Point	6,114	5,296	5,460	5,232	4,428
Average	5,509	5,502	5,445	5,358	5,258

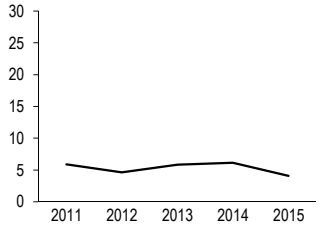
Emergency Communications Cost per Call Dispatched



	2011	2012	2013	2014	2015
High Point	$15.94	$19.01	$19.95	$21.93	$24.70
Average	$17.02	$18.15	$17.63	$17.96	$19.40

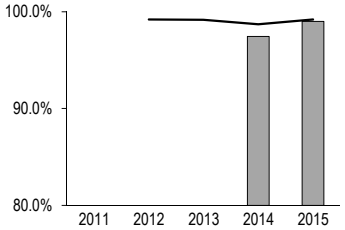
Effectiveness Measures

Number of Seconds from Initial Ring to Answer



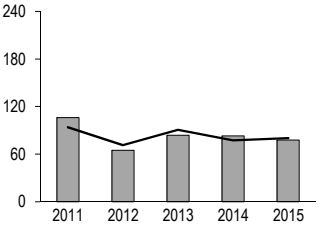
	2011	2012	2013	2014	2015
High Point					
Average	6	5	6	6	4

Percent of E-911 Calls Answered within Twenty Seconds



	2011	2012	2013	2014	2015
High Point				97.5%	99.0%
Average		99.2%	99.2%	98.7%	99.2%

Average Time in Seconds from CAD Entry to Dispatch for Priority One Calls



	2011	2012	2013	2014	2015
High Point	106	65	84	83	78
Average	94	71	91	77	80

Winston-Salem Emergency Communications

Fiscal Year 2014–15

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 Motorola 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 486,572 calls in the fiscal year, dispatching 270,841 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 have just occurred and the suspect is still there.

Conditions Affecting Service, Performance, and Costs

Municipal Profile

Population (OSBM 2014)	237,905
Land Area (Square Miles)	132.45
Persons per Square Mile	1,796
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	47.0
Other	2.0
Total Positions	49.0
Average Length of Service for Call-Takers	9.1 years
Total Incoming Calls	486,572
Total 911 Calls	228,192
Total Calls Dispatched	270,841
Outgoing Calls Other than Dispatch	76,181
Revenue from E-911 Fees	$489,713

Full Cost Profile

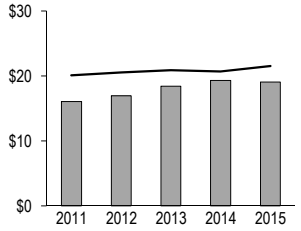
Cost Breakdown by Percentage	
Personal Services	70.5%
Operating Costs	25.4%
Capital Costs	4.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$3,200,918
Operating Costs	$1,154,133
Capital Costs	$182,842
TOTAL	$4,537,893

Winston-Salem Emergency Communications

Key: Winston-Salem ■ Benchmarking Average — Fiscal Years 2011 through 2015

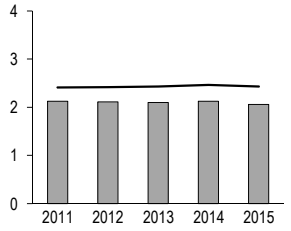
Resource Measures

Emergency Communications Services Costs per Capita



	2011	2012	2013	2014	2015
Winston-Salem	$16.07	$16.96	$18.44	$19.30	$19.07
Average	$20.09	$20.55	$20.90	$20.70	$21.52

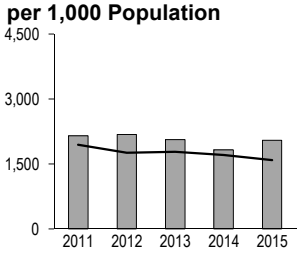
Emergency Communications FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Winston-Salem	2.13	2.11	2.10	2.12	2.06
Average	2.41	2.42	2.43	2.46	2.43

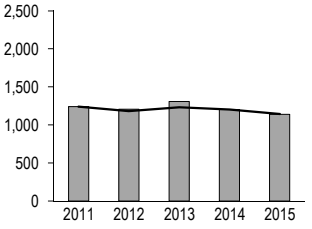
Workload Measures

Total Calls Answered per 1,000 Population



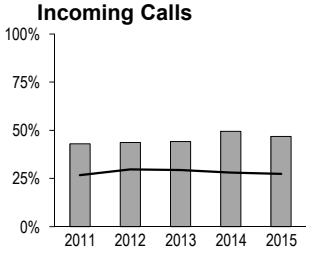
	2011	2012	2013	2014	2015
Winston-Salem	2,152	2,179	2,061	1,824	2,045
Average	1,941	1,757	1,784	1,709	1,588

Calls Dispatched per 1,000 Population



	2011	2012	2013	2014	2015
Winston-Salem	1,240	1,207	1,307	1,201	1,138
Average	1,242	1,183	1,233	1,200	1,142

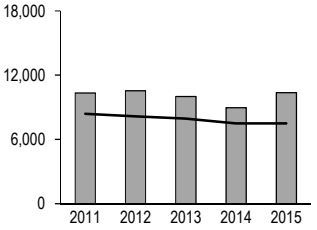
E-911 Calls as a Percentage of All Incoming Calls



	2011	2012	2013	2014	2015
Winston-Salem	43.0%	43.6%	44.2%	49.5%	46.9%
Average	26.7%	29.7%	29.4%	28.1%	27.5%

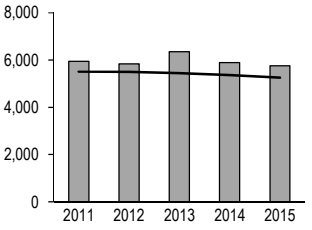
Efficiency Measures

Calls Answered per Telecommunicator



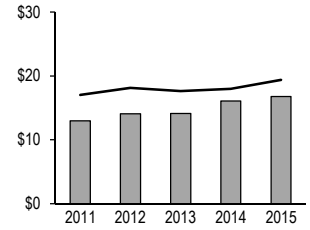
	2011	2012	2013	2014	2015
Winston-Salem	10,327	10,536	10,014	8,948	10,353
Average	8,402	8,157	7,950	7,508	7,500

Calls Dispatched per Telecommunicator



	2011	2012	2013	2014	2015
Winston-Salem	5,951	5,836	6,350	5,893	5,763
Average	5,509	5,502	5,445	5,358	5,258

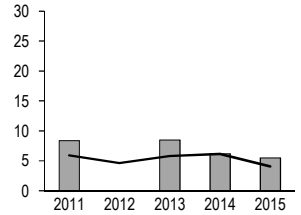
Emergency Communications Cost per Call Dispatched



	2011	2012	2013	2014	2015
Winston-Salem	$12.96	$14.06	$14.11	$16.07	$16.75
Average	$17.02	$18.15	$17.63	$17.96	$19.40

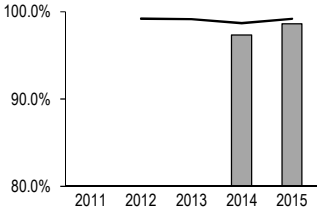
Effectiveness Measures

Number of Seconds from Initial Ring to Answer



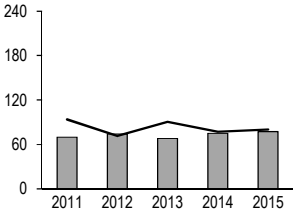
	2011	2012	2013	2014	2015
Winston-Salem	8		9	6	5
Average	6	5	6	6	4

Percent of E-911 Calls Answered within Twenty Seconds



	2011	2012	2013	2014	2015
Winston-Salem				97.3%	98.6%
Average		99.2%	99.2%	98.7%	99.2%

Average Time in Seconds from CAD Entry to Dispatch for Priority One Calls



	2011	2012	2013	2014	2015
Winston-Salem	70	74	68	75	77
Average	94	71	91	77	80

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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	Preservation	Resurfacing	Rehabilitation	Preservation	Resurfacing	Rehabilitation	FTE Positions for City Staff
Apex	280.52	0.0	0.0	10.0	0.0%	0.0%	3.6%	9.0
Asheville	713.33	0.0	2.8	2.5	0.0%	0.4%	0.3%	17.1
Burlington	531.58	7.9	9.4	2.6	1.5%	1.8%	0.5%	4.0
Cary	953.44	0.0	20.2	0.0	0.0%	2.1%	0.0%	14.5
Chapel Hill	339.40	0.0	6.9	4.9	0.0%	2.0%	1.4%	5.8
Concord	698.70	0.0	0.0	18.5	0.0%	0.0%	2.6%	10.0
Greensboro	3,633.00	20.7	32.0	0.0	0.6%	0.9%	0.0%	51.0
Greenville	674.70	0.0	0.0	17.2	0.0%	0.0%	2.6%	9.0
Hickory	719.20	0.0	13.4	0.0	0.0%	1.9%	0.0%	7.0
High Point	1,318.10	0.0	3.4	4.4	0.0%	0.3%	0.3%	15.3
Salisbury	344.66	0.0	0.0	5.6	0.0%	0.0%	1.6%	4.3
Wilson	695.37	5.8	0.0	0.6	0.8%	0.0%	0.1%	5.5
Winston-Salem	2,208.57	16.8	1.1	26.0	0.8%	0.0%	1.2%	43.5

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 2014–15

Explanatory Information

Service Level and Delivery
The Town of Apex's Streets Department was responsible for maintaining approximately 281 lane miles during FY 2014–15. The Streets Department is part of the Public Works and Utilities Division for the town.

The town rehabilitated ten lane miles during the year which involves milling and resurfacing. This represented treatment of about 3.6 percent of total lane miles maintained.

The city reported that 57 percent of its lane miles were rated 85 or better on the pavement condition rating. The rating was performed by US Infrastructure of Carolina, Inc. using surveying in 2014.

The number of potholes reported for FY 2014–15 was sixty-five. The percentage of potholes repaired within twenty-four hours was approximately 40 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 Streets Department also repaired fifty-five utility cuts and made a large number of maintenance patches requiring forty-eight 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 2014)	42,689
Land Area (Square Miles)	17.25
Persons per Square Mile	2,475
Topography	Flat; gently rolling
Climate	Temperate; little ice and snow

Service Profile

FTE Positions—Crews	7.00
FTE Positions—Other	2.00
Lane Miles Maintained	280.5
Lane Miles Treated	
Preservation	0.0
Resurfacing	0.0
Rehabilitation	10.0
TOTAL	10.0
Total Costs for All Treatment Types	$1,414,209
Potholes Repaired	65
Number of Utility Cuts	55
Number of Maintenance Patches (exclusive of potholes and utility cuts)	4
Average Cost per Ton of Hot Asphalt during Year	$127.02

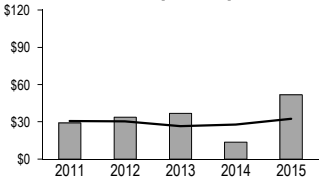
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	12.9%
Operating Costs	83.9%
Capital Costs	3.1%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$285,620
Operating Costs	$1,852,174
Capital Costs	$69,390
TOTAL	$2,207,184

Key: Apex ■ Benchmarking Average — Fiscal Years 2011 through 2015

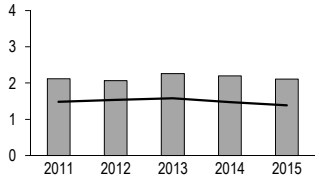
Resource Measures

Asphalt Maintenance and Repair Services Costs per Capita



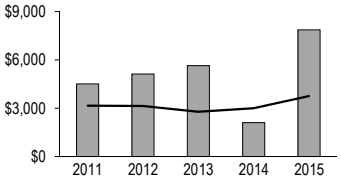
	2011	2012	2013	2014	2015
Apex	$29.02	$33.70	$36.72	$13.65	$51.70
Average	$30.54	$30.42	$26.40	$27.85	$32.29

Asphalt Maintenance and Repair FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Apex	2.12	2.07	2.26	2.20	2.11
Average	1.48	1.53	1.58	1.48	1.39

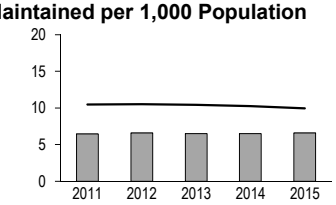
Service Costs per Lane Mile of Road Maintained



	2011	2012	2013	2014	2015
Apex	$4,509	$5,130	$5,643	$2,107	$7,868
Average	$3,154	$3,137	$2,793	$3,004	$3,765

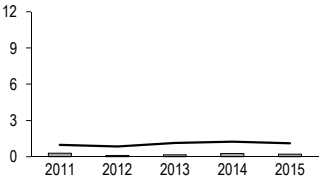
Workload Measures

Number of Lane Miles Maintained per 1,000 Population



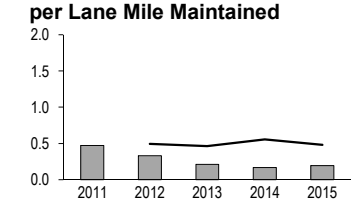
	2011	2012	2013	2014	2015
Apex	6.4	6.6	6.5	6.5	6.6
Average	10.5	10.5	10.4	10.3	9.9

Reported Potholes per Lane Mile Maintained



	2011	2012	2013	2014	2015
Apex	0.31	0.12	0.16	0.26	0.23
Average	1.00	0.86	1.16	1.25	1.12

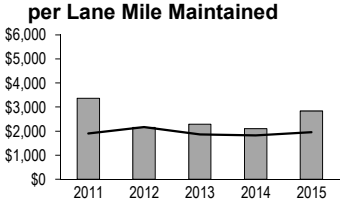
Repaired Utility Cuts per Lane Mile Maintained



	2011	2012	2013	2014	2015
Apex	0.47	0.33	0.21	0.17	0.20
Average		0.50	0.47	0.56	0.48

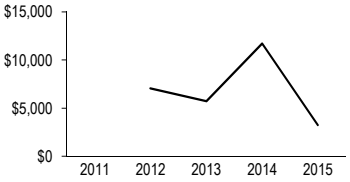
Efficiency Measures

Cost of Maintenance per Lane Mile Maintained



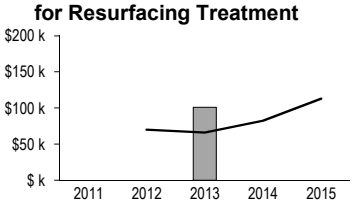
	2011	2012	2013	2014	2015
Apex	$3,358	$2,150	$2,287	$2,107	$2,827
Average	$1,897	$2,173	$1,858	$1,825	$1,956

Cost per Lane Mile for Preservation Treatment



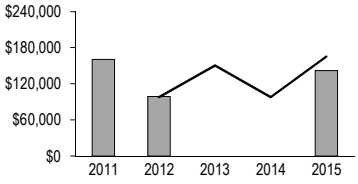
	2011	2012	2013	2014	2015
Apex					
Average		$7,050	$5,735	$11,702	$3,223

Cost per Lane Mile for Resurfacing Treatment



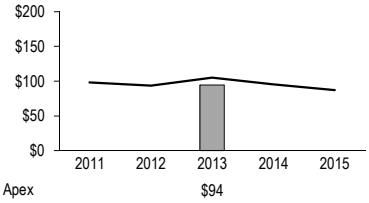
	2011	2012	2013	2014	2015
Apex			$101 k		
Average		$70 k	$66 k	$83 k	$113 k

Cost per Lane Mile for Rehabilitation Treatment



	2011	2012	2013	2014	2015
Apex	$161 k	$99 k			$142 k
Average		$98 k	$150 k	$98 k	$165 k

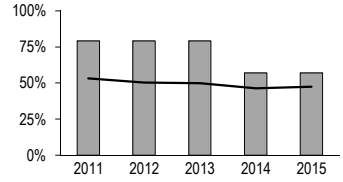
Cost per Ton for Contract Resurfacing



	2011	2012	2013	2014	2015
Apex			$94		
Average	$98	$94	$105	$95	$87

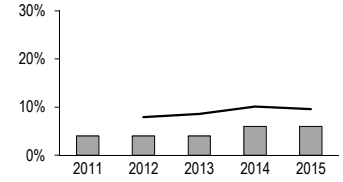
Effectiveness Measures

Percent of Lane Miles Rated 85 or Better



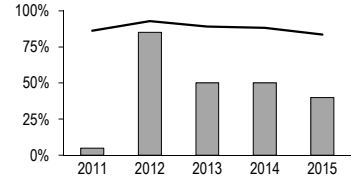
	2011	2012	2013	2014	2015
Apex	79%	79%	79%	57%	57%
Average	53%	50%	50%	46%	47%

Percent of Lane Miles Rated Below 45



	2011	2012	2013	2014	2015
Apex	0.04	4.0%	4.0%	6.0%	6.0%
Average		7.9%	8.6%	10.1%	9.6%

Percentage of Potholes Repaired within 24 hours



	2011	2012	2013	2014	2015
Apex	5%	85%	50%	50%	40%
Average	86%	93%	89%	88%	84%

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery

The City of Asheville was responsible for maintaining approximately 713 lane miles during FY 2014–15. The city treated 5.3 lane miles during the year, equating to approximately 0.7 percent of total lane miles.

The work done was resurfacing and rehabilitation which includes milling and resurfacing. All of the work completed was done by contractors. A total of 12,243 tons of asphalt was used, with an average depth laid of 1.5 inches by contractor crews.

The city reported that none 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 the Institute for Transportation Research and Education (ITRE) system.

The number of potholes reported for FY 2014–15 was 3,480. 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 1,835 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.

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 2014)	89,248
Land Area (Square Miles)	45.52
Persons per Square Mile	1,961
Topography	Hill, mountains
Climate	Moderate; ice and snow

Service Profile

FTE Positions—Crews	15.00
FTE Positions—Other	2.09
Lane Miles Maintained	713.3
Lane Miles Treated	
Preservation	0.0
Resurfacing	2.8
Rehabilitation	2.5
TOTAL	5.3
Total Costs for All Treatment Types	$1,358,523
Potholes Repaired	3,480
Number of Utility Cuts	1,835
Number of Maintenance Patches (exclusive of potholes and utility cuts)	23
Average Cost per Ton of Hot Asphalt during Year	$88.00

Full Cost Profile

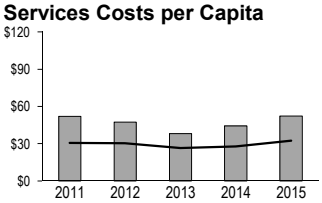
Cost Breakdown by Percentage	
Personal Services	25.7%
Operating Costs	66.0%
Capital Costs	8.3%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,200,536
Operating Costs	$3,078,153
Capital Costs	$386,287
TOTAL	$4,664,976

Asheville — Asphalt Maintenance and Repair

Key: Asheville ■ Benchmarking Average — Fiscal Years 2011 through 2015

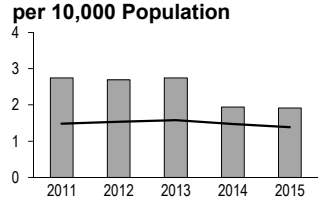
Resource Measures

Asphalt Maintenance and Repair Services Costs per Capita



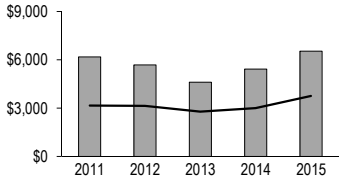
	2011	2012	2013	2014	2015
Asheville	$51.90	$47.23	$38.09	$44.15	$52.27
Average	$30.54	$30.42	$26.40	$27.85	$32.29

Asphalt Maintenance and Repair FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Asheville	2.75	2.70	2.74	1.94	1.91
Average	1.48	1.53	1.58	1.48	1.39

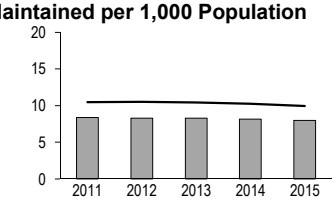
Service Costs per Lane Mile of Road Maintained



	2011	2012	2013	2014	2015
Asheville	$6,183	$5,684	$4,605	$5,426	$6,540
Average	$3,154	$3,137	$2,793	$3,004	$3,765

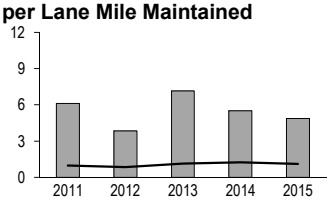
Workload Measures

Number of Lane Miles Maintained per 1,000 Population



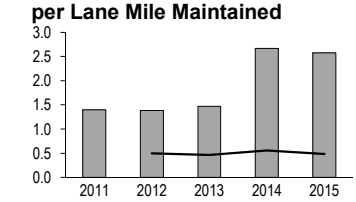
	2011	2012	2013	2014	2015
Asheville	8.4	8.3	8.3	8.1	8.0
Average	10.5	10.5	10.4	10.3	9.9

Reported Potholes per Lane Mile Maintained



	2011	2012	2013	2014	2015
Asheville	6.13	3.84	7.14	5.52	4.88
Average	1.00	0.86	1.16	1.25	1.12

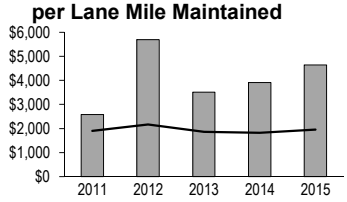
Repaired Utility Cuts per Lane Mile Maintained



	2011	2012	2013	2014	2015
Asheville	1.40	1.39	1.47	2.67	2.57
Average		0.50	0.47	0.56	0.48

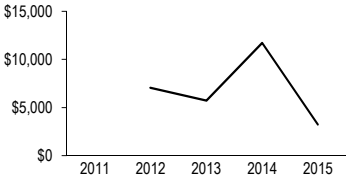
Efficiency Measures

Cost of Maintenance per Lane Mile Maintained



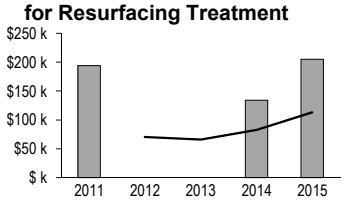
	2011	2012	2013	2014	2015
Asheville	$2,582	$5,684	$3,506	$3,911	$4,635
Average	$1,897	$2,173	$1,858	$1,825	$1,956

Cost per Lane Mile for Preservation Treatment



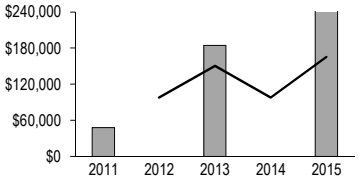
	2011	2012	2013	2014	2015
Asheville					
Average		$7,050	$5,735	$11,702	$3,223

Cost per Lane Mile for Resurfacing Treatment



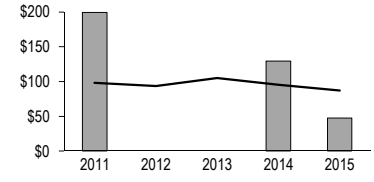
	2011	2012	2013	2014	2015
Asheville	$194 k			$134 k	$205 k
Average		$70 k	$66 k	$83 k	$113 k

Cost per Lane Mile for Rehabilitation Treatment



	2011	2012	2013	2014	2015
Asheville	$48 k		$184 k		$313 k
Average		$98 k	$150 k	$98 k	$165 k

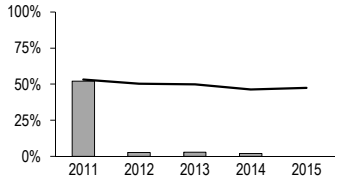
Cost per Ton for Contract Resurfacing



	2011	2012	2013	2014	2015
Asheville	$199			$130	$48
Average	$98	$94	$105	$95	$87

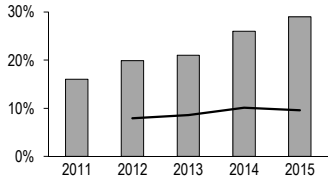
Effectiveness Measures

Percent of Lane Miles Rated 85 or Better



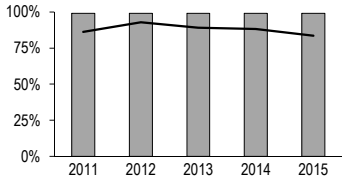
	2011	2012	2013	2014	2015
Asheville	52%	3%	3%	2%	0%
Average	53%	50%	50%	46%	47%

Percent of Lane Miles Rated Below 45



	2011	2012	2013	2014	2015
Asheville	0.16	19.9%	21.0%	26.0%	29.0%
Average		7.9%	8.6%	10.1%	9.6%

Percentage of Potholes Repaired within 24 hours



	2011	2012	2013	2014	2015
Asheville	99%	99%	99%	99%	99%
Average	86%	93%	89%	88%	84%

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery
The City of Burlington was responsible for maintaining 532 lane miles during FY 2014–15. The city treated a total of 19.9 lane miles, equating to approximately 3.7 percent of total lane miles.

Of the street work done, 7.9 miles were given preservation treatment such as crack sealing or thin overlays. The preservation work was done by contractors and city crews. Resurfacing work was done on 9.4 miles. All of the work involving resurfacing was done by contractors. Rehabilitation work was done by contractors on 4.3 lane miles, with milling followed by resurfacing. The contractor used a total of 12,878 tons of asphalt.

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 US Infrastructure of Carolina, Inc. and the Institute for Transportation Research and Education (ITRE) system and was conducted in 2015.

The city reported a total of 108 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 144 utility cuts in roads repaired during the year, with the repairs being done by the city after private utilities got permits.

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 2014)	51,923
Land Area (Square Miles)	30.52
Persons per Square Mile	1,701
Topography	Flat; gently rolling
Climate	Temperate; little ice and snow

Service Profile

FTE Positions—Crews	4.00
FTE Positions—Other	0.00
Lane Miles Maintained	531.6
Lane Miles Treated	
Preservation	7.9
Resurfacing	9.4
Rehabilitation	2.6
TOTAL	19.9
Total Costs for All Treatment Types	$1,275,743
Potholes Repaired	108
Number of Utility Cuts	144
Number of Maintenance Patches (exclusive of potholes and utility cuts)	NA
Average Cost per Ton of Hot Asphalt during Year	$69.50

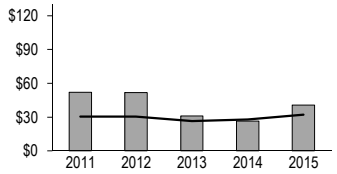
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	9.7%
Operating Costs	65.8%
Capital Costs	24.5%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$204,292
Operating Costs	$1,390,368
Capital Costs	$517,839
TOTAL	$2,112,499

Key: Burlington ■ Benchmarking Average — Fiscal Years 2011 through 2015

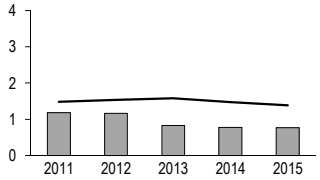
Resource Measures

Asphalt Maintenance and Repair Services Costs per Capita



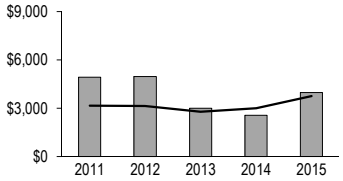
	2011	2012	2013	2014	2015
Burlington	$52.07	$51.74	$31.14	$26.64	$40.69
Average	$30.54	$30.42	$26.40	$27.85	$32.29

Asphalt Maintenance and Repair FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Burlington	1.19	1.17	0.83	0.78	0.77
Average	1.48	1.53	1.58	1.48	1.39

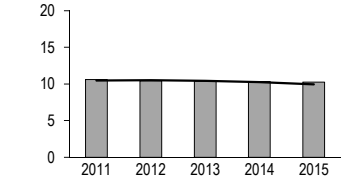
Service Costs per Lane Mile of Road Maintained



	2011	2012	2013	2014	2015
Burlington	$4,922	$4,973	$2,999	$2,576	$3,974
Average	$3,154	$3,137	$2,793	$3,004	$3,765

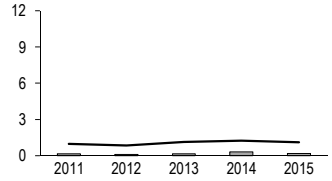
Workload Measures

Number of Lane Miles Maintained per 1,000 Population



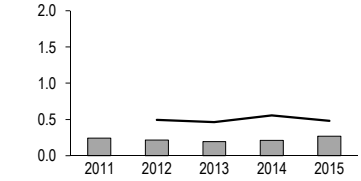
	2011	2012	2013	2014	2015
Burlington	10.6	10.4	10.4	10.3	10.2
Average	10.5	10.5	10.4	10.3	9.9

Reported Potholes per Lane Mile Maintained



	2011	2012	2013	2014	2015
Burlington	0.18	0.12	0.17	0.32	0.20
Average	1.00	0.86	1.16	1.25	1.12

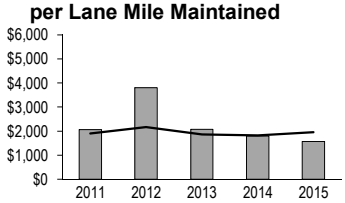
Repaired Utility Cuts per Lane Mile Maintained



	2011	2012	2013	2014	2015
Burlington	0.24	0.22	0.20	0.21	0.27
Average		0.50	0.47	0.56	0.48

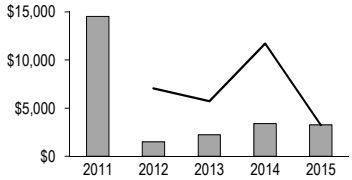
Efficiency Measures

Cost of Maintenance per Lane Mile Maintained



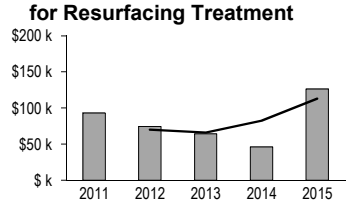
	2011	2012	2013	2014	2015
Burlington	$2,060	$3,796	$2,080	$1,795	$1,574
Average	$1,897	$2,173	$1,858	$1,825	$1,956

Cost per Lane Mile for Preservation Treatment



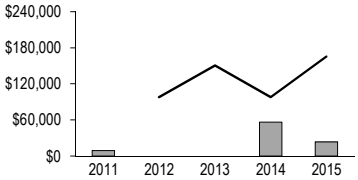
	2011	2012	2013	2014	2015
Burlington	$14,531	$1,515	$2,229	$3,399	$3,250
Average		$7,050	$5,735	$11,702	$3,223

Cost per Lane Mile for Resurfacing Treatment



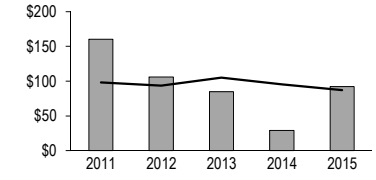
	2011	2012	2013	2014	2015
Burlington	$93 k	$74 k	$64 k	$46 k	$126 k
Average		$70 k	$66 k	$83 k	$113 k

Cost per Lane Mile for Rehabilitation Treatment



	2011	2012	2013	2014	2015
Burlington	$9 k			$56 k	$23 k
Average		$98 k	$150 k	$98 k	$165 k

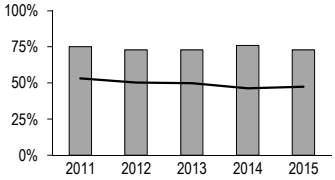
Cost per Ton for Contract Resurfacing



	2011	2012	2013	2014	2015
Burlington	$160	$106	$85	$29	$92
Average	$98	$94	$105	$95	$87

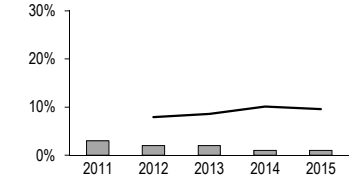
Effectiveness Measures

Percent of Lane Miles Rated 85 or Better



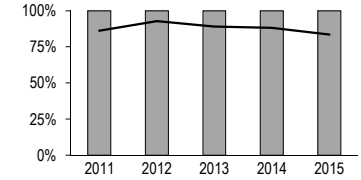
	2011	2012	2013	2014	2015
Burlington	75%	73%	73%	76%	73%
Average	53%	50%	50%	46%	47%

Percent of Lane Miles Rated Below 45



	2011	2012	2013	2014	2015
Burlington	0.03	2.0%	2.0%	1.0%	1.0%
Average		7.9%	8.6%	10.1%	9.6%

Percentage of Potholes Repaired within 24 hours



	2011	2012	2013	2014	2015
Burlington	100%	100%	100%	100%	100%
Average	86%	93%	89%	88%	84%

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery

The Town of Cary was responsible for maintaining approximately 953 lane miles during FY 2014–15. A total of 20.2 lane miles received some form of repair work, equating to approximately 2.1 percent of total lane miles. For repair work done, all 20.2 lane miles were resurfaced by contract crews.

The town reported that 50.8 percent of its street segments rated 85 or above on its most recent pavement condition rating. The most recent study relied on US Infrastructure using the Institute for Transportation Research and Education (ITRE) system and was conducted in 2015.

The number of potholes reported for FY 2014–15 was 100. The percentage of potholes repaired within twenty-four hours was 75 percent.

A total of 99 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 forty 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.

The number of potholes was up in FY 2013–14. The year had harsher winter weather with below freezing temperatures. The town made greater use of salt and brine to treat streets, which aggravated conditions leading to more potholes.

Municipal Profile

Population (OSBM 2014)	148,333
Land Area (Square Miles)	56.47
Persons per Square Mile	2,627
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	953.4
Lane Miles Treated	
Preservation	0.0
Resurfacing	20.2
Rehabilitation	0.0
TOTAL	20.2
Total Costs for All Treatment Types	$3,346,232
Potholes Repaired	108
Number of Utility Cuts	99
Number of Maintenance Patches (exclusive of potholes and utility cuts)	40
Average Cost per Ton of Hot Asphalt during Year	$60.00

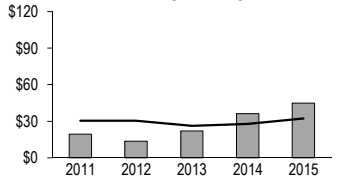
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	14.4%
Operating Costs	84.0%
Capital Costs	1.6%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$962,816
Operating Costs	$5,598,437
Capital Costs	$105,983
TOTAL	$6,667,236

Key: Cary ■ Benchmarking Average — Fiscal Years 2011 through 2015

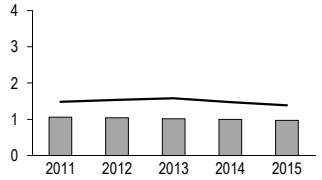
Resource Measures

Asphalt Maintenance and Repair Services Costs per Capita



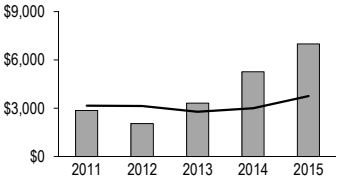
	2011	2012	2013	2014	2015
Cary	$19.46	$13.84	$22.16	$36.36	$44.95
Average	$30.54	$30.42	$26.40	$27.85	$32.29

Asphalt Maintenance and Repair FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Cary	1.06	1.04	1.02	1.00	0.98
Average	1.48	1.53	1.58	1.48	1.39

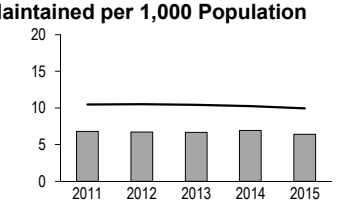
Service Costs per Lane Mile of Road Maintained



	2011	2012	2013	2014	2015
Cary	$2,860	$2,058	$3,326	$5,256	$6,993
Average	$3,154	$3,137	$2,793	$3,004	$3,765

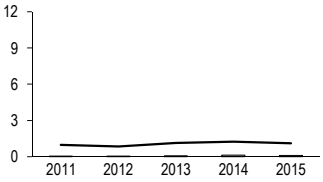
Workload Measures

Number of Lane Miles Maintained per 1,000 Population



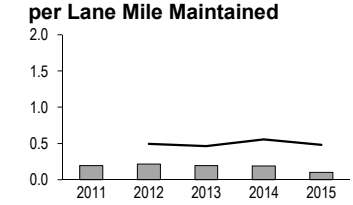
	2011	2012	2013	2014	2015
Cary	6.8	6.7	6.7	6.9	6.4
Average	10.5	10.5	10.4	10.3	9.9

Reported Potholes per Lane Mile Maintained



	2011	2012	2013	2014	2015
Cary	0.07	0.07	0.09	0.13	0.11
Average	1.00	0.86	1.16	1.25	1.12

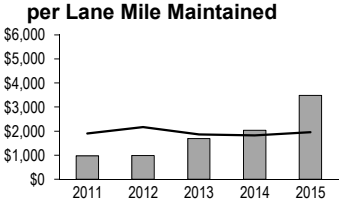
Repaired Utility Cuts per Lane Mile Maintained



	2011	2012	2013	2014	2015
Cary	0.20	0.22	0.20	0.19	0.10
Average		0.50	0.47	0.56	0.48

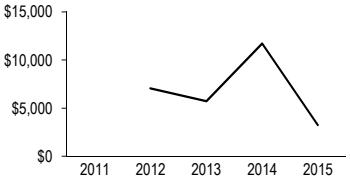
Efficiency Measures

Cost of Maintenance per Lane Mile Maintained



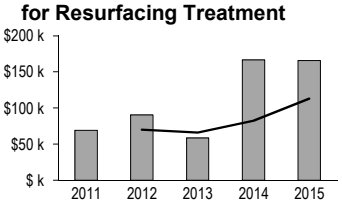
	2011	2012	2013	2014	2015
Cary	$967	$987	$1,685	$2,030	$3,483
Average	$1,897	$2,173	$1,858	$1,825	$1,956

Cost per Lane Mile for Preservation Treatment



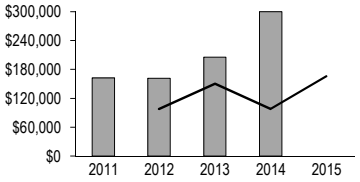
	2011	2012	2013	2014	2015
Cary					
Average		$7,050	$5,735	$11,702	$3,223

Cost per Lane Mile for Resurfacing Treatment



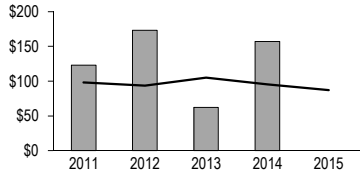
	2011	2012	2013	2014	2015
Cary	$69 k	$90 k	$59 k	$166 k	$166 k
Average		$70 k	$66 k	$83 k	$113 k

Cost per Lane Mile for Rehabilitation Treatment



	2011	2012	2013	2014	2015
Cary	$162 k	$162 k	$205 k	$300 k	
Average		$98 k	$150 k	$98 k	$165 k

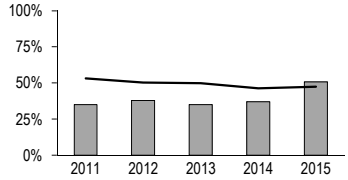
Cost per Ton for Contract Resurfacing



	2011	2012	2013	2014	2015
Cary	$123	$173	$62	$157	
Average	$98	$94	$105	$95	$87

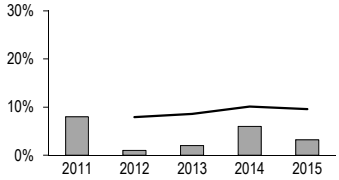
Effectiveness Measures

Percent of Lane Miles Rated 85 or Better



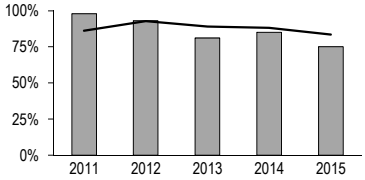
	2011	2012	2013	2014	2015
Cary	35%	38%	35%	37%	51%
Average	53%	50%	50%	46%	47%

Percent of Lane Miles Rated Below 45



	2011	2012	2013	2014	2015
Cary	0.08	1.0%	2.0%	6.0%	3.2%
Average		7.9%	8.6%	10.1%	9.6%

Percentage of Potholes Repaired within 24 hours



	2011	2012	2013	2014	2015
Cary	98%	93%	81%	85%	75%
Average	86%	93%	89%	88%	84%

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery

Asphalt maintenance is performed by the Town of Chapel Hill Streets and Construction Services Division of the Public Works Department. The Town provides services in asphalt maintenance, sidewalk maintenance, storm debris cleanup, gravel road maintenance, snow and ice removal, and cleanup following special events. During FY 2014–15, the town was responsible for maintaining approximately 339 lane miles and treated 11.8 lane miles, equating to approximately 3.5 percent of total lane miles.

Of the treatment work done during the year, 6.9 lane miles were resurfaced by contractor crews. An additional 4.9 lane miles were rehabilitated, which involves milling followed by resurfacing of street surfaces. The contract crews used 5,575 tons of apshalt for this work and resurfaced with an average depth of one inch.

The town reported that 50 percent of its lane miles rated 85 or above on its most recent pavement condition rating conducted in 2014. The roads were rated by US Infrastructure of Carolina using the system relying on the Institute for Transportation Research and Education (ITRE) degradation curves.

The number of potholes reported for FY 2014–15 was not available. A permit is required for any non-town entity cutting inside the right-of-way. The permit holder is responsible for all repairs. Permit holders repaired twenty-nine utility cuts during the year. Because one permit can involve multiple cuts, the actual number of cuts is higher than the twenty-nine listed. The Streets Inspector monitors the work and bills the responsible party. Public Works Engineering Division inspects larger projects involving a water or sewer line replacement.

Conditions Affecting Service, Performance, and Costs

The Town of Chapel Hill began participation in the benchmarking project in July 2015, with FY 2014–15 being the first reporting year.

Municipal Profile

Population (OSBM 2014)	59,758
Land Area (Square Miles)	21.17
Persons per Square Mile	2,823
Topography	Flat; gently rolling
Climate	Temperate; little ice and snow

Service Profile

FTE Positions—Crews	4.20
FTE Positions—Other	1.55
Lane Miles Maintained	339.4
Lane Miles Treated	
Preservation	0.0
Resurfacing	6.9
Rehabilitation	4.9
TOTAL	11.8
Total Costs for All Treatment Types	$586,854
Potholes Repaired	NA
Number of Utility Cuts	29
Number of Maintenance Patches (exclusive of potholes and utility cuts)	NA
Registered Vehicles	
Registered Vehicles/Square Mile	
Average Cost per Ton of Hot Asphalt during Year	$67 for city $78 for contractor (including labor)

Full Cost Profile

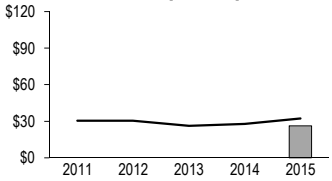
Cost Breakdown by Percentage	
Personal Services	21.3%
Operating Costs	66.7%
Capital Costs	12.1%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$333,408
Operating Costs	$1,043,962
Capital Costs	$188,945
TOTAL	$1,566,315

Chapel Hill — Asphalt Maintenance and Repair

Key: Chapel Hill ■ Benchmarking Average — Fiscal Years 2011 through 2015

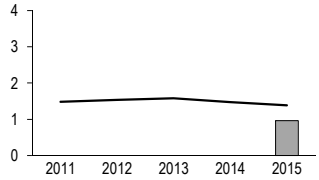
Resource Measures

Asphalt Maintenance and Repair Services Costs per Capita



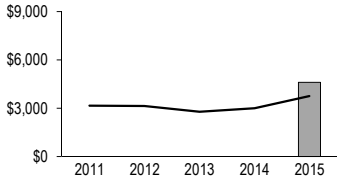
	2011	2012	2013	2014	2015
Chapel Hill					$26.21
Average	$30.54	$30.42	$26.40	$27.85	$32.29

Asphalt Maintenance and Repair FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Chapel Hill					0.96
Average	1.48	1.53	1.58	1.48	1.39

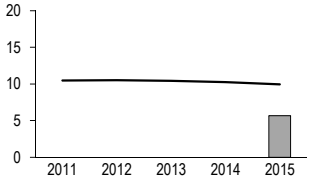
Service Costs per Lane Mile of Road Maintained



	2011	2012	2013	2014	2015
Chapel Hill					$4,615
Average	$3,154	$3,137	$2,793	$3,004	$3,765

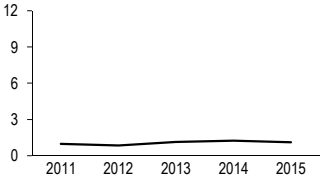
Workload Measures

Number of Lane Miles Maintained per 1,000 Population



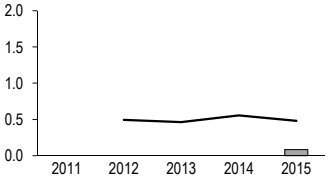
	2011	2012	2013	2014	2015
Chapel Hill					5.7
Average	10.5	10.5	10.4	10.3	9.9

Reported Potholes per Lane Mile Maintained



	2011	2012	2013	2014	2015
Chapel Hill					
Average	1.00	0.86	1.16	1.25	1.12

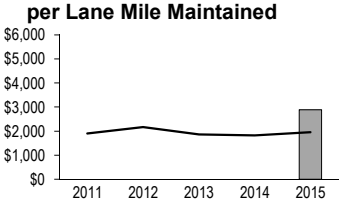
Repaired Utility Cuts per Lane Mile Maintained



	2011	2012	2013	2014	2015
Chapel Hill					0.09
Average		0.50	0.47	0.56	0.48

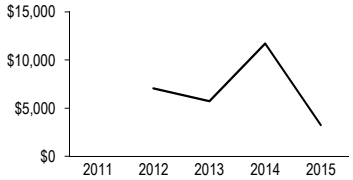
Efficiency Measures

Cost of Maintenance per Lane Mile Maintained



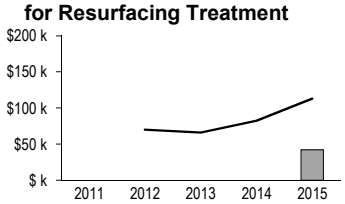
	2011	2012	2013	2014	2015
Chapel Hill					$2,886
Average	$1,897	$2,173	$1,858	$1,825	$1,956

Cost per Lane Mile for Preservation Treatment



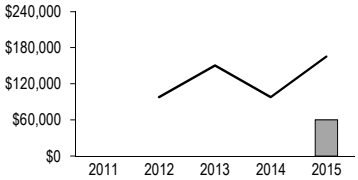
	2011	2012	2013	2014	2015
Chapel Hill					
Average		$7,050	$5,735	$11,702	$3,223

Cost per Lane Mile for Resurfacing Treatment



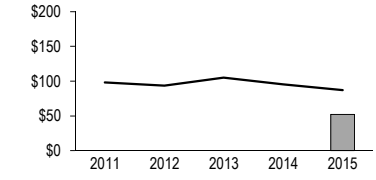
	2011	2012	2013	2014	2015
Chapel Hill					$42 k
Average		$70 k	$66 k	$83 k	$113 k

Cost per Lane Mile for Rehabilitation Treatment



	2011	2012	2013	2014	2015
Chapel Hill					$60 k
Average		$98 k	$150 k	$98 k	$165 k

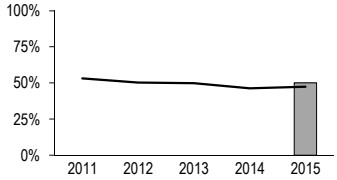
Cost per Ton for Contract Resurfacing



	2011	2012	2013	2014	2015
Chapel Hill					$52
Average	$98	$94	$105	$95	$87

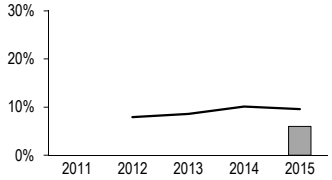
Effectiveness Measures

Percent of Lane Miles Rated 85 or Better



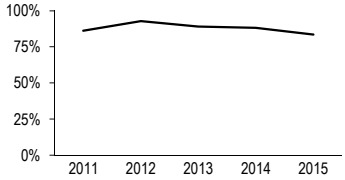
	2011	2012	2013	2014	2015
Chapel Hill					50%
Average	53%	50%	50%	46%	47%

Percent of Lane Miles Rated Below 45



	2011	2012	2013	2014	2015
Chapel Hill					6.0%
Average		7.9%	8.6%	10.1%	9.6%

Percentage of Potholes Repaired within 24 hours



	2011	2012	2013	2014	2015
Chapel Hill					
Average	86%	93%	89%	88%	84%

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery
The City of Concord was responsible for maintaining approximately 699 lane miles during FY 2014–15. A total of 18.5 lane miles were treated during the fiscal year, equal to 2.6 percent of lane miles.

Contractors did the work on all of the lane miles receiving treatment. All of the work done was rehabilitation work which includes milling work and then resurfacing. The contractor used 13,893 tons of asphalt to complete the work.

The city reported that 46 percent of its lane miles rated 85 or above on its most recent pavement condition rating, conducted in 2014 using a city system based on North Carolina Department of Transportation ratings.

The number of potholes reported for FY 2014–15 was fifty, including those reported by citizens and the city. The percentage of potholes repaired within twenty-four hours was 95 percent. Concord also reported 220 utility cuts that were repaired and 34 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.

The increase in roads rated below 45 percent increased in FY 2013–14 as a result of significant adverse winter weather taking a toll on streets around the city.

The drop in utility cuts with the rise in potholes in FY 2013–14 is due in part to better tracking and classification of repair work. Some repairs had previously been reported as utility cut repairs but were actually pothole repairs.

Municipal Profile

Population (OSBM 2014)	85,428
Land Area (Square Miles)	61.09
Persons per Square Mile	1,398
Topography	Flat; gently rolling
Climate	Temperate; little ice and snow

Service Profile

FTE Positions—Crews	8.00
FTE Positions—Other	2.00
Lane Miles Maintained	698.7
Lane Miles Treated	
Preservation	0.0
Resurfacing	0.0
Rehabilitation	18.5
TOTAL	18.5
Total Costs for All Treatment Types	$1,195,495
Potholes Repaired	50
Number of Utility Cuts	220
Number of Maintenance Patches (exclusive of potholes and utility cuts)	34
Registered Vehicles	
Registered Vehicles/Square Mile	
Average Cost per Ton of Hot Asphalt during Year	$80.00

Full Cost Profile

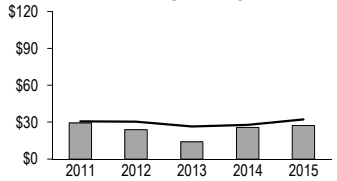
Cost Breakdown by Percentage	
Personal Services	24.9%
Operating Costs	68.3%
Capital Costs	6.8%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$578,499
Operating Costs	$1,589,377
Capital Costs	$159,236
TOTAL	$2,327,112

Concord — Asphalt Maintenance and Repair

Key: Concord ■ Benchmarking Average — Fiscal Years 2011 through 2015

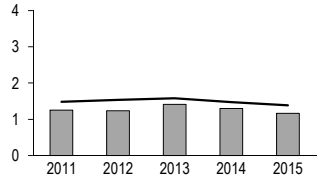
Resource Measures

Asphalt Maintenance and Repair Services Costs per Capita



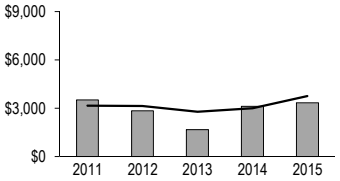
	2011	2012	2013	2014	2015
Concord	$29.26	$23.73	$13.86	$25.64	$27.24
Average	$30.54	$30.42	$26.40	$27.85	$32.29

Asphalt Maintenance and Repair FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Concord	1.25	1.24	1.42	1.30	1.17
Average	1.48	1.53	1.58	1.48	1.39

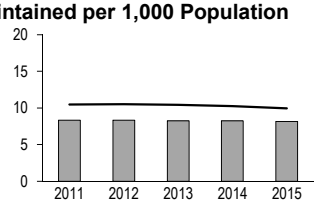
Service Costs per Lane Mile of Road Maintained



	2011	2012	2013	2014	2015
Concord	$3,511	$2,846	$1,677	$3,113	$3,331
Average	$3,154	$3,137	$2,793	$3,004	$3,765

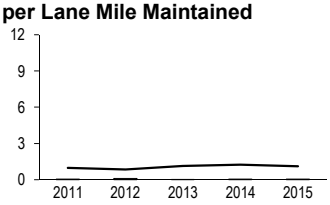
Workload Measures

Number of Lane Miles Maintained per 1,000 Population



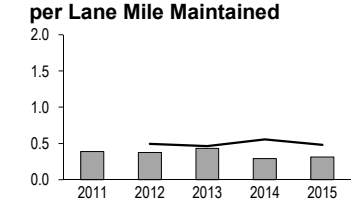
	2011	2012	2013	2014	2015
Concord	8.3	8.3	8.3	8.2	8.2
Average	10.5	10.5	10.4	10.3	9.9

Reported Potholes per Lane Mile Maintained



	2011	2012	2013	2014	2015
Concord	0.06	0.11	0.04	0.06	0.07
Average	1.00	0.86	1.16	1.25	1.12

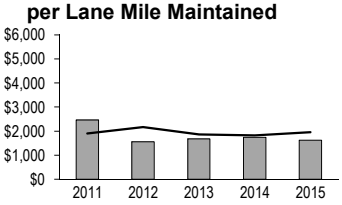
Repaired Utility Cuts per Lane Mile Maintained



	2011	2012	2013	2014	2015
Concord	0.39	0.38	0.43	0.29	0.31
Average		0.50	0.47	0.56	0.48

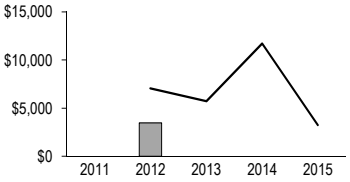
Efficiency Measures

Cost of Maintenance per Lane Mile Maintained



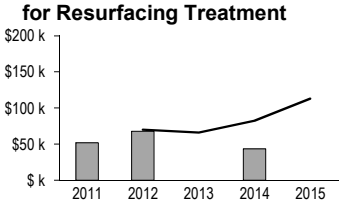
	2011	2012	2013	2014	2015
Concord	$2,462	$1,562	$1,677	$1,747	$1,620
Average	$1,897	$2,173	$1,858	$1,825	$1,956

Cost per Lane Mile for Preservation Treatment



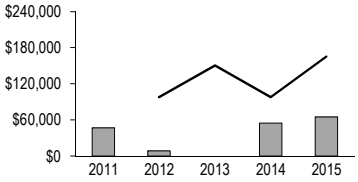
	2011	2012	2013	2014	2015
Concord		$3,469			
Average		$7,050	$5,735	$11,702	$3,223

Cost per Lane Mile for Resurfacing Treatment



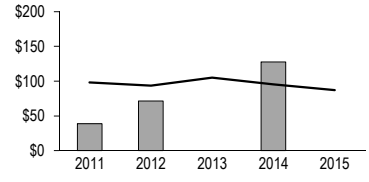
	2011	2012	2013	2014	2015
Concord	$52 k	$68 k		$44 k	
Average		$70 k	$66 k	$83 k	$113 k

Cost per Lane Mile for Rehabilitation Treatment



	2011	2012	2013	2014	2015
Concord	$47 k	$9 k		$55 k	$65 k
Average		$98 k	$150 k	$98 k	$165 k

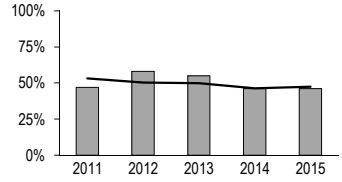
Cost per Ton for Contract Resurfacing



	2011	2012	2013	2014	2015
Concord	$39	$72		$127	
Average	$98	$94	$105	$95	$87

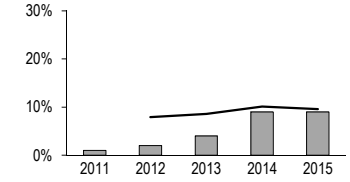
Effectiveness Measures

Percent of Lane Miles Rated 85 or Better



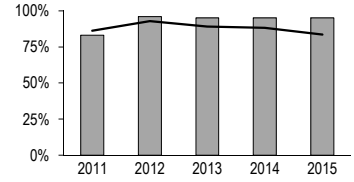
	2011	2012	2013	2014	2015
Concord	47%	58%	55%	46%	46%
Average	53%	50%	50%	46%	47%

Percent of Lane Miles Rated Below 45



	2011	2012	2013	2014	2015
Concord	0.01	2.0%	4.0%	9.0%	9.0%
Average		7.9%	8.6%	10.1%	9.6%

Percentage of Potholes Repaired within 24 hours



	2011	2012	2013	2014	2015
Concord	83%	96%	95%	95%	95%
Average	86%	93%	89%	88%	84%

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery

The City of Greensboro was responsible for maintaining 3,633 lane miles during FY 2014–15. This includes 925 lane miles of state roads. Greensboro treated a total of 52.7 lane miles during the year, equating to about 1.5 percent of total lane miles.

Of the treatment work done on Greensboro's streets, 20.7 of the lane miles had preservation work such as crack sealing or thin overlays performed. All of this preservation work was done by city crews. Resurfacing work was done on 32 lane miles by contract crews. This resurfacing work required a total of 16,600 tons of asphalt and used an average resurfacing depth of 1.25 inches.

The city reported that 34 percent of its lane miles rated 85 or above on its most recent pavement condition rating, conducted in 2012 by a consultant using the Institute for Transportation Research and Education (ITRE) system.

The number of potholes reported for FY 2014–15 was 4,721. The percentage of potholes repaired within twenty-four hours was 56 percent. A total of 473 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 ninety-four 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 2014)	280,803
Land Area (Square Miles)	128.11
Persons per Square Mile	2,192
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	3,633.0
Lane Miles Treated	
Preservation	20.7
Resurfacing	32.0
Rehabilitation	0.0
TOTAL	52.7
Total Costs for All Treatment Types	$2,803,000
Potholes Repaired	4,721
Number of Utility Cuts	473
Number of Maintenance Patches (exclusive of potholes and utility cuts)	94
Registered Vehicles	
Registered Vehicles/Square Mile	
Average Cost per Ton of Hot Asphalt during Year	$62.09

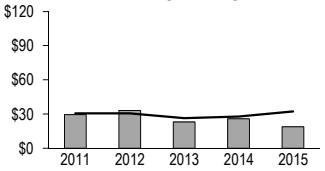
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	42.5%
Operating Costs	57.5%
Capital Costs	0.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$2,233,763
Operating Costs	$3,024,349
Capital Costs	$0
TOTAL	$5,258,112

Key: Greensboro ■ Benchmarking Average — Fiscal Years 2011 through 2015

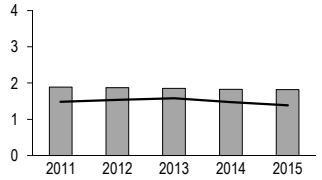
Resource Measures

Asphalt Maintenance and Repair Services Costs per Capita



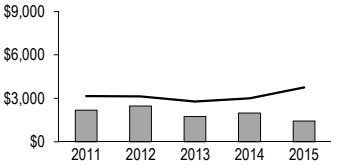
	2011	2012	2013	2014	2015
Greensboro	$29.43	$33.09	$22.98	$25.82	$18.73
Average	$30.54	$30.42	$26.40	$27.85	$32.29

Asphalt Maintenance and Repair FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Greensboro	1.89	1.87	1.85	1.83	1.82
Average	1.48	1.53	1.58	1.48	1.39

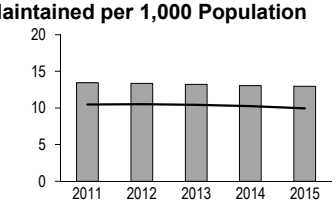
Service Costs per Lane Mile of Road Maintained



	2011	2012	2013	2014	2015
Greensboro	$2,193	$2,482	$1,740	$1,981	$1,447
Average	$3,154	$3,137	$2,793	$3,004	$3,765

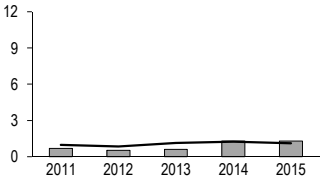
Workload Measures

Number of Lane Miles Maintained per 1,000 Population



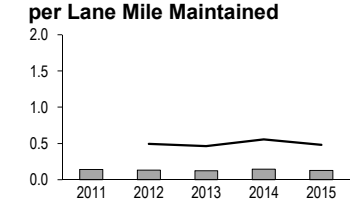
	2011	2012	2013	2014	2015
Greensboro	13.4	13.3	13.2	13.0	12.9
Average	10.5	10.5	10.4	10.3	9.9

Reported Potholes per Lane Mile Maintained



	2011	2012	2013	2014	2015
Greensboro	0.69	0.53	0.61	1.32	1.30
Average	1.00	0.86	1.16	1.25	1.12

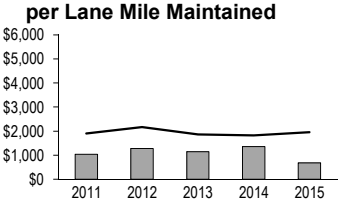
Repaired Utility Cuts per Lane Mile Maintained



	2011	2012	2013	2014	2015
Greensboro	0.14	0.14	0.12	0.15	0.13
Average		0.50	0.47	0.56	0.48

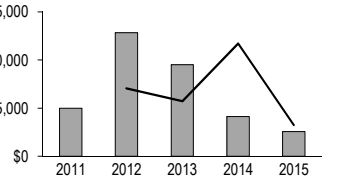
Efficiency Measures

Cost of Maintenance per Lane Mile Maintained



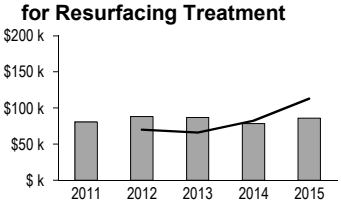
	2011	2012	2013	2014	2015
Greensboro	$1,044	$1,280	$1,142	$1,359	$676
Average	$1,897	$2,173	$1,858	$1,825	$1,956

Cost per Lane Mile for Preservation Treatment



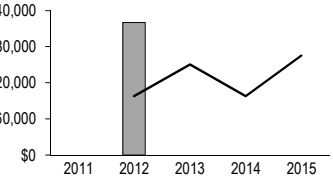
	2011	2012	2013	2014	2015
Greensboro	$5,000	$12,843	$9,519	$4,123	$2,560
Average		$7,050	$5,735	$11,702	$3,223

Cost per Lane Mile for Resurfacing Treatment



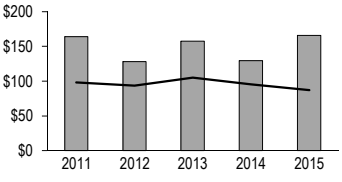
	2011	2012	2013	2014	2015
Greensboro	$81 k	$88 k	$87 k	$79 k	$86 k
Average		$70 k	$66 k	$83 k	$113 k

Cost per Lane Mile for Rehabilitation Treatment



	2011	2012	2013	2014	2015
Greensboro		$220 k			
Average		$98 k	$150 k	$98 k	$165 k

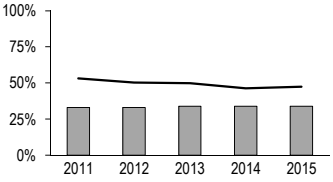
Cost per Ton for Contract Resurfacing



	2011	2012	2013	2014	2015
Greensboro	$164	$128	$157	$129	$166
Average	$98	$94	$105	$95	$87

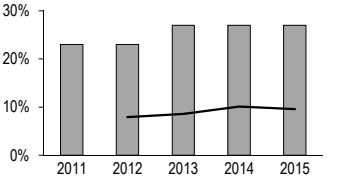
Effectiveness Measures

Percent of Lane Miles Rated 85 or Better



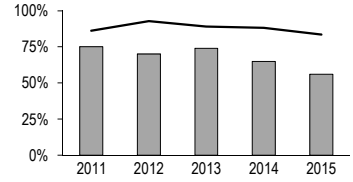
	2011	2012	2013	2014	2015
Greensboro	33%	33%	34%	34%	34%
Average	53%	50%	50%	46%	47%

Percent of Lane Miles Rated Below 45



	2011	2012	2013	2014	2015
Greensboro	0.23	23.0%	27.0%	27.0%	27.0%
Average		7.9%	8.6%	10.1%	9.6%

Percentage of Potholes Repaired within 24 hours



	2011	2012	2013	2014	2015
Greensboro	75%	70%	74%	65%	56%
Average	86%	93%	89%	88%	84%

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery
The City of Greenville was responsible for maintaining approximately 675 lane miles during FY 2014–15, all city streets. During the year, Greenville reported that 17.2 lane miles were given some form of treatment, equating to 2.5 percent of total lane miles. Contract crews treated 17.2 lane miles with rehabilitation which includes milling along with resurfacing. .

Greenville reported that 53.9 percent of lane miles were rated 85 or better on its most recent pavement condition rating, conducted in 2014 by a consultant.

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 due to actual drops in maintenance.

Greenville did a special pilot project using a proprietary material for lane preservation work during FY 2013–14. This material is applied at a high rate over the asphalt service to be treated resulting in higher costs per lane mile for preservation work. The project will be evaluated over time to determine if the higher cost produces improved performance.

The number of potholes, utility cuts, and maintenance patching was not available for FY 2014–15.

Municipal Profile

Population (OSBM 2014)	87,436
Land Area (Square Miles)	34.90
Persons per Square Mile	2,505
Topography	Flat
Climate	Temperate; little ice and snow

Service Profile

FTE Positions—Crews	8.00
FTE Positions—Other	1.00
Lane Miles Maintained	674.7
Lane Miles Treated	
Preservation	0.0
Resurfacing	0.0
Rehabilitation	17.2
TOTAL	17.2
Total Costs for All Treatment Types	$1,167,906
Potholes Repaired	NA
Number of Utility Cuts	NA
Number of Maintenance Patches (exclusive of potholes and utility cuts)	NA
Average Cost per Ton of Hot Asphalt during Year	NA

Full Cost Profile

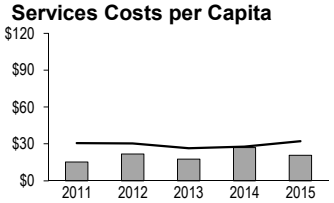
Cost Breakdown by Percentage	
Personal Services	27.3%
Operating Costs	41.7%
Capital Costs	31.1%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$494,965
Operating Costs	$756,572
Capital Costs	$564,189
TOTAL	$1,815,726

Greenville — Asphalt Maintenance and Repair

Key: Greenville ■ Benchmarking Average — Fiscal Years 2011 through 2015

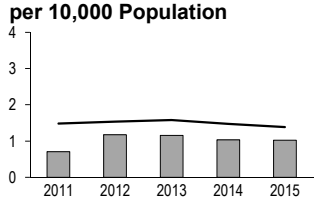
Resource Measures

Asphalt Maintenance and Repair Services Costs per Capita



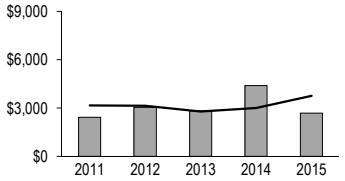
	2011	2012	2013	2014	2015
Greenville	$15.30	$21.85	$17.64	$27.08	$20.77
Average	$30.54	$30.42	$26.40	$27.85	$32.29

Asphalt Maintenance and Repair FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Greenville	0.70	1.18	1.16	1.03	1.03
Average	1.48	1.53	1.58	1.48	1.39

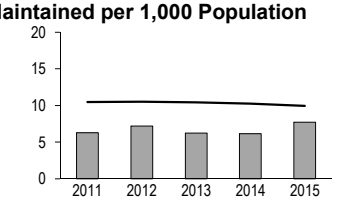
Service Costs per Lane Mile of Road Maintained



	2011	2012	2013	2014	2015
Greenville	$2,431	$3,042	$2,828	$4,397	$2,691
Average	$3,154	$3,137	$2,793	$3,004	$3,765

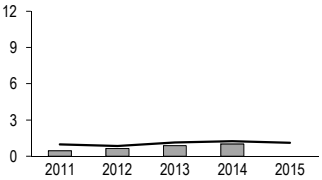
Workload Measures

Number of Lane Miles Maintained per 1,000 Population



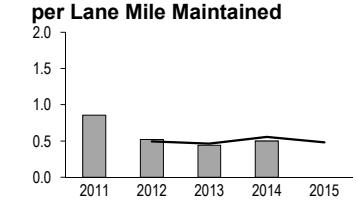
	2011	2012	2013	2014	2015
Greenville	6.3	7.2	6.2	6.2	7.7
Average	10.5	10.5	10.4	10.3	9.9

Reported Potholes per Lane Mile Maintained



	2011	2012	2013	2014	2015
Greenville	0.47	0.64	0.90	1.02	
Average	1.00	0.86	1.16	1.25	1.12

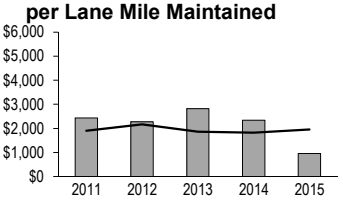
Repaired Utility Cuts per Lane Mile Maintained



	2011	2012	2013	2014	2015
Greenville	0.86	0.52	0.44	0.50	
Average		0.50	0.47	0.56	0.48

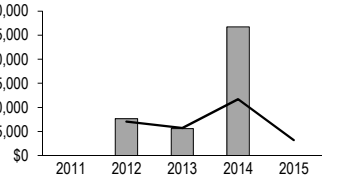
Efficiency Measures

Cost of Maintenance per Lane Mile Maintained



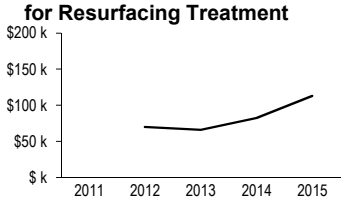
	2011	2012	2013	2014	2015
Greenville	$2,431	$2,276	$2,821	$2,338	$960
Average	$1,897	$2,173	$1,858	$1,825	$1,956

Cost per Lane Mile for Preservation Treatment



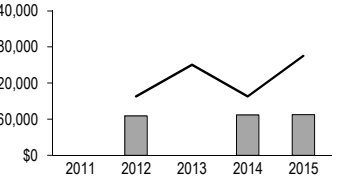
	2011	2012	2013	2014	2015
Greenville		$7,627	$5,597	$26,693	
Average		$7,050	$5,735	$11,702	$3,223

Cost per Lane Mile for Resurfacing Treatment



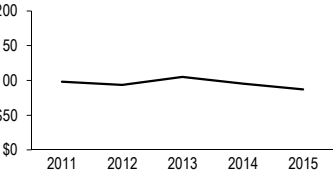
	2011	2012	2013	2014	2015
Greenville					
Average		$70 k	$66 k	$83 k	$113 k

Cost per Lane Mile for Rehabilitation Treatment



	2011	2012	2013	2014	2015
Greenville		$66 k		$67 k	$68 k
Average		$98 k	$150 k	$98 k	$165 k

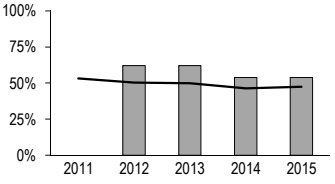
Cost per Ton for Contract Resurfacing



	2011	2012	2013	2014	2015
Greenville					
Average	$98	$94	$105	$95	$87

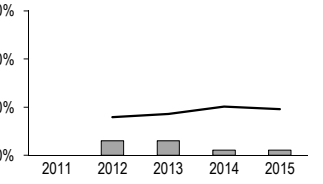
Effectiveness Measures

Percent of Lane Miles Rated 85 or Better



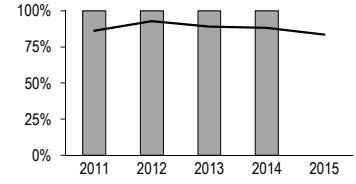
	2011	2012	2013	2014	2015
Greenville		62%	62%	54%	54%
Average	53%	50%	50%	46%	47%

Percent of Lane Miles Rated Below 45



	2011	2012	2013	2014	2015
Greenville		3.0%	3.0%	1.1%	1.1%
Average		7.9%	8.6%	10.1%	9.6%

Percentage of Potholes Repaired within 24 hours



	2011	2012	2013	2014	2015
Greenville	100%	100%	100%	100%	
Average	86%	93%	89%	88%	84%

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery

The City of Hickory was responsible for maintaining approximately 719 lane miles during FY 2014–15, including 238.8 lane miles of state roads. The city treated a total of 13.4 lane miles with resurfacing, equating to 1.9 percent of total lane miles.

The city resurfaced 13.4 lane miles using contractors. A total of 7,750 tons of asphalt was used by the contractors. The average resurfacing depth used by the city was 1.5 inches.

The city reported that 38 percent of its lane miles rated 85 or above on its most recent pavement condition rating, conducted in 2007. The city used the Institute for Transportation Research and Education (ITRE) to conduct its rating system.

The number of potholes reported for FY 2014–15 was 293, including self-reported and citizen-reported potholes. The percentage of potholes repaired within twenty-four hours was not avilable for FY2014–15.

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 2014)	40,332
Land Area (Square Miles)	29.84
Persons per Square Mile	1,352
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	13.4
Rehabilitation	0.0
TOTAL	13.4
Total Costs for All Treatment Types	$592,880
Potholes Repaired	293
Number of Utility Cuts	70
Number of Maintenance Patches (exclusive of potholes and utility cuts)	70
Registered Vehicles	
Registered Vehicles/Square Mile	
Average Cost per Ton of Hot Asphalt during Year	$76.50

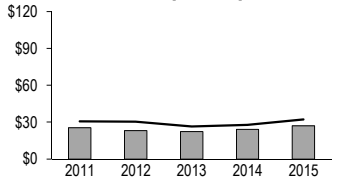
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	24.8%
Operating Costs	72.7%
Capital Costs	2.5%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$269,723
Operating Costs	$792,076
Capital Costs	$27,643
TOTAL	$1,089,442

Key: Hickory ■ Benchmarking Average — Fiscal Years 2011 through 2015

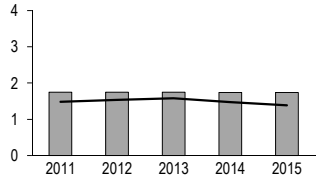
Resource Measures

Asphalt Maintenance and Repair Services Costs per Capita



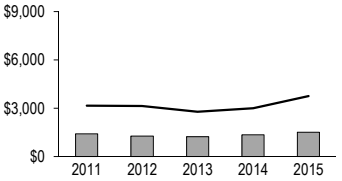
	2011	2012	2013	2014	2015
Hickory	$25.44	$22.94	$22.16	$24.18	$27.01
Average	$30.54	$30.42	$26.40	$27.85	$32.29

Asphalt Maintenance and Repair FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Hickory	1.75	1.75	1.75	1.74	1.74
Average	1.48	1.53	1.58	1.48	1.39

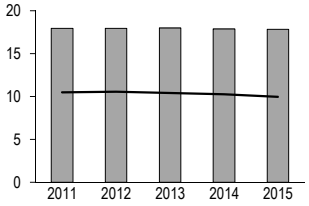
Service Costs per Lane Mile of Road Maintained



	2011	2012	2013	2014	2015
Hickory	$1,418	$1,279	$1,234	$1,353	$1,515
Average	$3,154	$3,137	$2,793	$3,004	$3,765

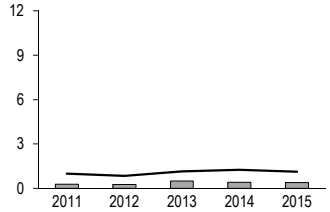
Workload Measures

Number of Lane Miles Maintained per 1,000 Population



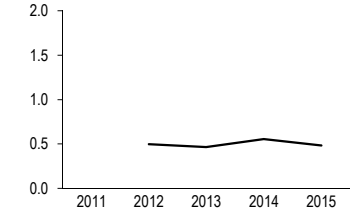
	2011	2012	2013	2014	2015
Hickory	17.9	17.9	18.0	17.9	17.8
Average	10.5	10.5	10.4	10.3	9.9

Reported Potholes per Lane Mile Maintained



	2011	2012	2013	2014	2015
Hickory	0.29	0.27	0.51	0.41	0.41
Average	1.00	0.86	1.16	1.25	1.12

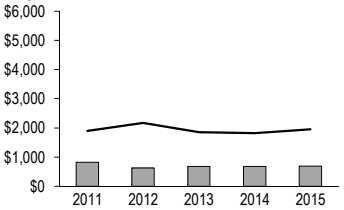
Repaired Utility Cuts per Lane Mile Maintained



	2011	2012	2013	2014	2015
Hickory					
Average		0.50	0.47	0.56	0.48

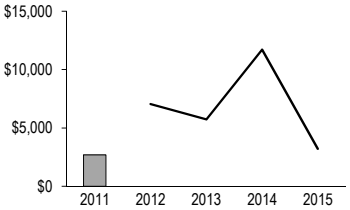
Efficiency Measures

Cost of Maintenance per Lane Mile Maintained



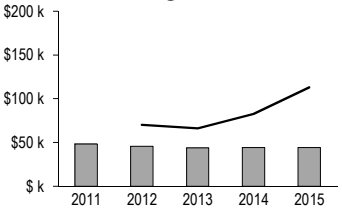
	2011	2012	2013	2014	2015
Hickory	$824	$629	$678	$685	$690
Average	$1,897	$2,173	$1,858	$1,825	$1,956

Cost per Lane Mile for Preservation Treatment



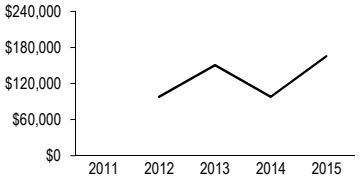
	2011	2012	2013	2014	2015
Hickory	$2,685				
Average		$7,050	$5,735	$11,702	$3,223

Cost per Lane Mile for Resurfacing Treatment



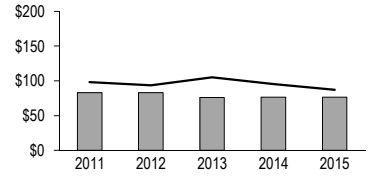
	2011	2012	2013	2014	2015
Hickory	$48 k	$46 k	$44 k	$44 k	$44 k
Average		$70 k	$66 k	$83 k	$113 k

Cost per Lane Mile for Rehabilitation Treatment



	2011	2012	2013	2014	2015
Hickory					
Average		$98 k	$150 k	$98 k	$165 k

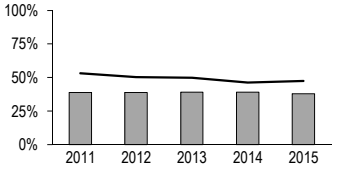
Cost per Ton for Contract Resurfacing



	2011	2012	2013	2014	2015
Hickory	$83	$83	$76	$77	$77
Average	$98	$94	$105	$95	$87

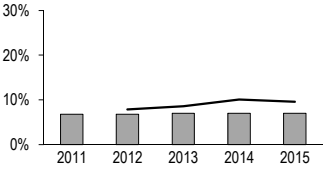
Effectiveness Measures

Percent of Lane Miles Rated 85 or Better



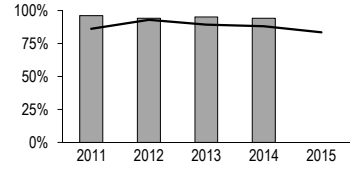
	2011	2012	2013	2014	2015
Hickory	39%	39%	39%	39%	38%
Average	53%	50%	50%	46%	47%

Percent of Lane Miles Rated Below 45



	2011	2012	2013	2014	2015
Hickory	0.068	6.8%	7.0%	7.0%	7.0%
Average		7.9%	8.6%	10.1%	9.6%

Percentage of Potholes Repaired within 24 hours



	2011	2012	2013	2014	2015
Hickory	96%	94%	95%	94%	
Average	86%	93%	89%	88%	84%

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery

The City of High Point was responsible for maintaining 1,318 lane miles during FY 2014–15, which includes 340 lane miles of state roads. The city treated 7.8 lane miles by various methods, equating to 0.6 percent of total lane miles.

City crews resurfaced 3.4 lane miles using 2,449 tons of asphalt. Contract crews rehabilitated 3.4 lane miles which includes resurfacing preceded by milling work. A total of 4,900 tons of asphalt was used by the contracting crews. The average resurfacing depth was two inches for the city and contract crew work.

The city reported that 43 percent of its street segments rated 85 or above on its most recent pavement condition rating, conducted in 2014. The rating was done by a consultant using the Institute for Transportation Research and Education (ITRE) rating system.

The number of potholes reported for FY 2014–15 was 968, including self-reported and citizen-reported potholes. The percentage of potholes repaired within twenty-four hours was 96 percent.

A total of 265 utility cuts were made in the streets during the year. The Streets Division places asphalt in water-sewer utility cuts after the utility forces backfill and compacts. Material, equipment, and personnel costs are tracked for this repair. Funds are transferred from the Water-Sewer Mains Division to recover applicable expenses associated with patching.

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.

Improvements in FY 2013–14 in the measurement and tracking of road segments in High Point has produced an estimate of fewer lane miles than in prior years. Rather than an actual drop in lane miles, the lower reported mileage reflects a more accurate tracking. The relative decrease in reported lane miles means that some of the performance measures saw an increase, which was due to this improvement in measurement rather than actual changes.

Municipal Profile

Population (OSBM 2014)	108,556
Land Area (Square Miles)	55.05
Persons per Square Mile	1,972
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	1,318.1
Lane Miles Treated	
Preservation	0.0
Resurfacing	3.4
Rehabilitation	4.4
TOTAL	7.8
Total Costs for All Treatment Types	$1,357,724
Potholes Repaired	968
Number of Utility Cuts	265
Number of Maintenance Patches (exclusive of potholes and utility cuts)	93
Average Cost per Ton of Hot Asphalt during Year	$66.00

Full Cost Profile

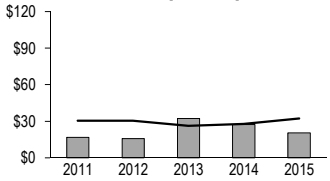
Cost Breakdown by Percentage	
Personal Services	29.9%
Operating Costs	61.5%
Capital Costs	8.7%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$667,972
Operating Costs	$1,375,334
Capital Costs	$193,760
TOTAL	$2,237,066

High Point — Asphalt Maintenance and Repair

Key: High Point ■ Benchmarking Average — Fiscal Years 2011 through 2015

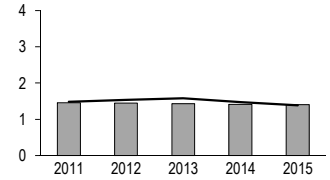
Resource Measures

Asphalt Maintenance and Repair Services Costs per Capita



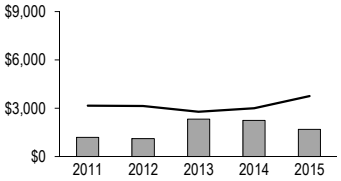
	2011	2012	2013	2014	2015
High Point	$16.80	$15.75	$32.28	$27.31	$20.61
Average	$30.54	$30.42	$26.40	$27.85	$32.29

Asphalt Maintenance and Repair FTEs per 10,000 Population



	2011	2012	2013	2014	2015
High Point	1.46	1.45	1.43	1.42	1.40
Average	1.48	1.53	1.58	1.48	1.39

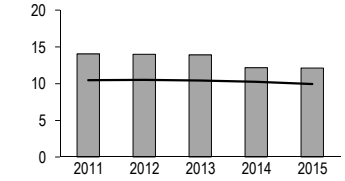
Service Costs per Lane Mile of Road Maintained



	2011	2012	2013	2014	2015
High Point	$1,197	$1,125	$2,323	$2,244	$1,697
Average	$3,154	$3,137	$2,793	$3,004	$3,765

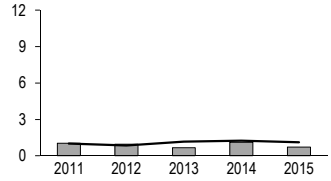
Workload Measures

Number of Lane Miles Maintained per 1,000 Population



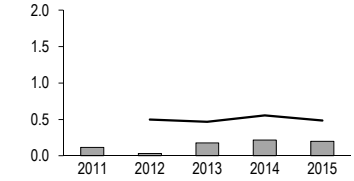
	2011	2012	2013	2014	2015
High Point	14.0	14.0	13.9	12.2	12.1
Average	10.5	10.5	10.4	10.3	9.9

Reported Potholes per Lane Mile Maintained



	2011	2012	2013	2014	2015
High Point	1.04	0.96	0.66	1.13	0.73
Average	1.00	0.86	1.16	1.25	1.12

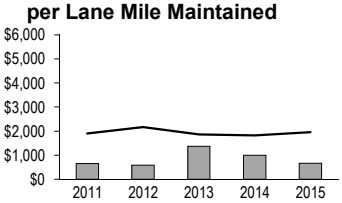
Repaired Utility Cuts per Lane Mile Maintained



	2011	2012	2013	2014	2015
High Point	0.12	0.03	0.18	0.22	0.20
Average		0.50	0.47	0.56	0.48

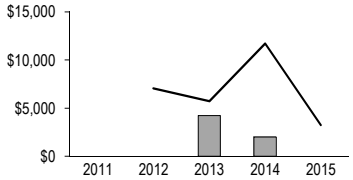
Efficiency Measures

Cost of Maintenance per Lane Mile Maintained



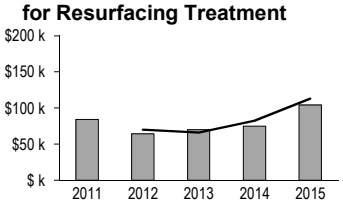
	2011	2012	2013	2014	2015
High Point	$650	$589	$1,375	$1,004	$667
Average	$1,897	$2,173	$1,858	$1,825	$1,956

Cost per Lane Mile for Preservation Treatment



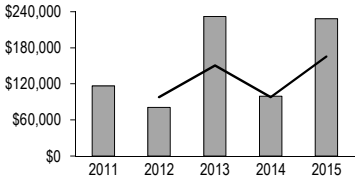
	2011	2012	2013	2014	2015
High Point			$4,243	$2,016	
Average		$7,050	$5,735	$11,702	$3,223

Cost per Lane Mile for Resurfacing Treatment



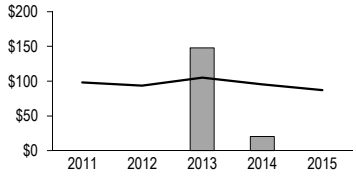
	2011	2012	2013	2014	2015
High Point	$84 k	$64 k	$70 k	$75 k	$104 k
Average		$70 k	$66 k	$83 k	$113 k

Cost per Lane Mile for Rehabilitation Treatment



	2011	2012	2013	2014	2015
High Point	$117 k	$81 k	$232 k	$100 k	$228 k
Average		$98 k	$150 k	$98 k	$165 k

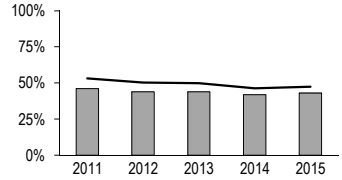
Cost per Ton for Contract Resurfacing



	2011	2012	2013	2014	2015
High Point			$148	$20	
Average	$98	$94	$105	$95	$87

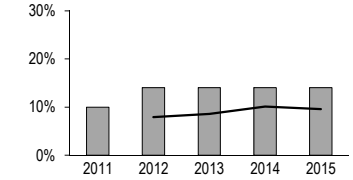
Effectiveness Measures

Percent of Lane Miles Rated 85 or Better



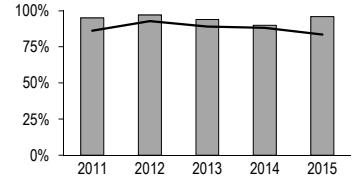
	2011	2012	2013	2014	2015
High Point	46%	44%	44%	42%	43%
Average	53%	50%	50%	46%	47%

Percent of Lane Miles Rated Below 45



	2011	2012	2013	2014	2015
High Point	0.1	14.0%	14.0%	14.0%	14.0%
Average		7.9%	8.6%	10.1%	9.6%

Percentage of Potholes Repaired within 24 hours



	2011	2012	2013	2014	2015
High Point	95%	97%	94%	90%	96%
Average	86%	93%	89%	88%	84%

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery

The City of Salisbury was responsible for maintaining approximately 345 lane miles during FY 2014–15. The city treated a total of 5.6 lane miles, or 1.6 percent of total lane miles.

The city lane miles that were treated used rehabilitation, which includes resurfacing following milling. This work was done by contractors. The contractors used a total of 4,072 tons of asphalt, and the average resurfacing depth used by the contractors 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 2010. The city used a consultant for the rating, who relied on the Institute for Transportation Research and Education (ITRE) rating system.

The number of potholes reported for FY 2014–15 was 547. 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. Additionally, 276 maintenance patches were done, which are not included in the pothole or utility cut numbers.

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 2014)	33,955
Land Area (Square Miles)	22.22
Persons per Square Mile	1,528
Topography	Flat; gently rolling
Climate	Temperate; little ice and snow

Service Profile

FTE Positions—Crews	4.00
FTE Positions—Other	0.25
Lane Miles Maintained	344.7
Lane Miles Treated	
Preservation	0.0
Resurfacing	0.0
Rehabilitation	5.6
TOTAL	5.6
Total Costs for All Treatment Types	$389,429
Potholes Repaired	547
Number of Utility Cuts	133
Number of Maintenance Patches (exclusive of potholes and utility cuts)	276
Average Cost per Ton of Hot Asphalt during Year	$81.80

Full Cost Profile

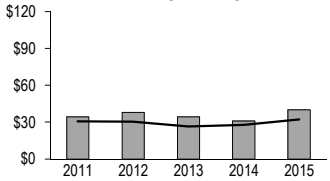
Cost Breakdown by Percentage	
Personal Services	9.7%
Operating Costs	61.5%
Capital Costs	28.8%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$131,214
Operating Costs	$835,621
Capital Costs	$391,556
TOTAL	$1,358,391

Salisbury — Asphalt Maintenance and Repair

Key: Salisbury ■ Benchmarking Average — Fiscal Years 2011 through 2015

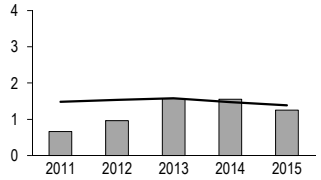
Resource Measures

Asphalt Maintenance and Repair Services Costs per Capita



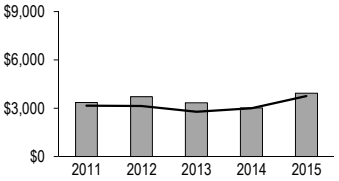
	2011	2012	2013	2014	2015
Salisbury	$34.31	$37.92	$34.15	$30.98	$40.01
Average	$30.54	$30.42	$26.40	$27.85	$32.29

Asphalt Maintenance and Repair FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Salisbury	0.67	0.96	1.57	1.56	1.25
Average	1.48	1.53	1.58	1.48	1.39

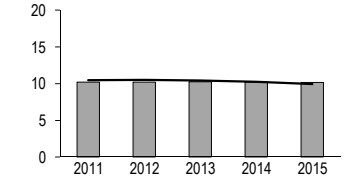
Service Costs per Lane Mile of Road Maintained



	2011	2012	2013	2014	2015
Salisbury	$3,365	$3,717	$3,336	$3,031	$3,941
Average	$3,154	$3,137	$2,793	$3,004	$3,765

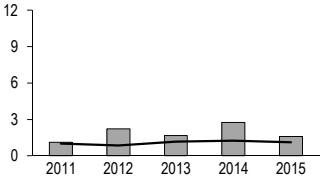
Workload Measures

Number of Lane Miles Maintained per 1,000 Population



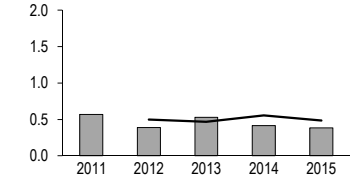
	2011	2012	2013	2014	2015
Salisbury	10.2	10.2	10.2	10.2	10.2
Average	10.5	10.5	10.4	10.3	9.9

Reported Potholes per Lane Mile Maintained



	2011	2012	2013	2014	2015
Salisbury	1.12	2.23	1.66	2.75	1.59
Average	1.00	0.86	1.16	1.25	1.12

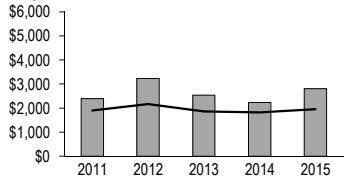
Repaired Utility Cuts per Lane Mile Maintained



	2011	2012	2013	2014	2015
Salisbury	0.57	0.39	0.53	0.41	0.39
Average		0.50	0.47	0.56	0.48

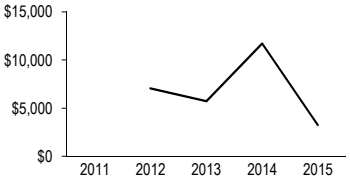
Efficiency Measures

Cost of Maintenance per Lane Mile Maintained



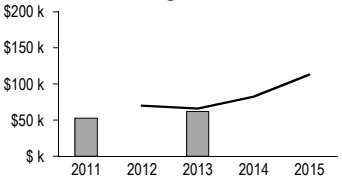
	2011	2012	2013	2014	2015
Salisbury	$2,389	$3,227	$2,537	$2,242	$2,811
Average	$1,897	$2,173	$1,858	$1,825	$1,956

Cost per Lane Mile for Preservation Treatment



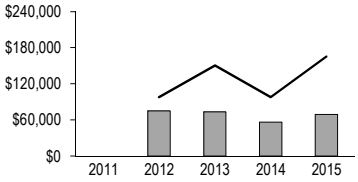
	2011	2012	2013	2014	2015
Salisbury					
Average		$7,050	$5,735	$11,702	$3,223

Cost per Lane Mile for Resurfacing Treatment



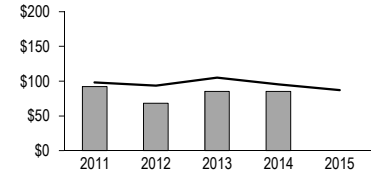
	2011	2012	2013	2014	2015
Salisbury	$53 k		$62 k		
Average		$70 k	$66 k	$83 k	$113 k

Cost per Lane Mile for Rehabilitation Treatment



	2011	2012	2013	2014	2015
Salisbury		$75 k	$73 k	$56 k	$69 k
Average		$98 k	$150 k	$98 k	$165 k

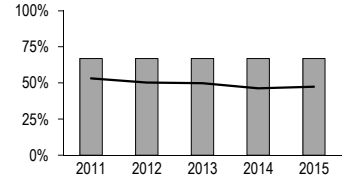
Cost per Ton for Contract Resurfacing



	2011	2012	2013	2014	2015
Salisbury	$92	$68	$85	$85	
Average	$98	$94	$105	$95	$87

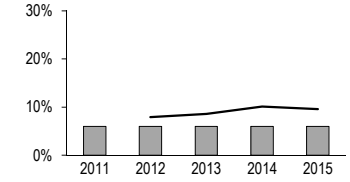
Effectiveness Measures

Percent of Lane Miles Rated 85 or Better



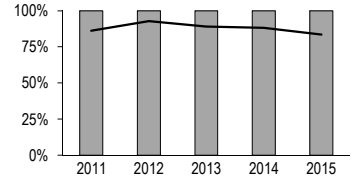
	2011	2012	2013	2014	2015
Salisbury	67%	67%	67%	67%	67%
Average	53%	50%	50%	46%	47%

Percent of Lane Miles Rated Below 45



	2011	2012	2013	2014	2015
Salisbury	0.06	6.0%	6.0%	6.0%	6.0%
Average		7.9%	8.6%	10.1%	9.6%

Percentage of Potholes Repaired within 24 hours



	2011	2012	2013	2014	2015
Salisbury	100%	100%	100%	100%	100%
Average	86%	93%	89%	88%	84%

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery

The City of Wilson was responsible for maintaining approximately 695 lane miles of city streets during FY 2014–15. The city treated a total of 6.4 lane miles during the year, or 0.9 percent of the total lane miles maintained.

Contract crews treated 0.6 lane miles with rehabilitation work which involves milling and then resurfacing. The contractor used 846 tons of asphalt. City crews performed preservation work on 5.8 lane miles. Preservation techniques include methods such as crack sealing or thin overlays.

The city reported that 54 percent of its lane miles rated 85 or above on its most recent pavement condition rating, conducted in 2014. The city relied on a consultant for the rating, who used a customized rating based on the Institute for Transportation Research and Education (ITRE) system.

The number of potholes reported for FY 2014–15 was 561. The percentage of potholes repaired within twenty-four hours was 99 percent. Repairs to 561 utility cuts were also made during the year.

Conditions Affecting Service, Performance, and Costs

The cost of asphalt and maintenance materials is directly related to fluctuations in the price of petroleum.

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 2014)	49,222
Land Area (Square Miles)	30.52
Persons per Square Mile	1,613
Topography	Flat
Climate	Temperate; little ice and snow

Service Profile

FTE Positions—Crews	5.00
FTE Positions—Other	0.50
Lane Miles Maintained	695.4
Lane Miles Treated	
Preservation	5.8
Resurfacing	0.0
Rehabilitation	0.6
TOTAL	6.4
Total Costs for All Treatment Types	$366,074
Potholes Repaired	1,468
Number of Utility Cuts	561
Number of Maintenance Patches (exclusive of potholes and utility cuts)	NA
Average Cost per Ton of Hot Asphalt during Year	$78.25

Full Cost Profile

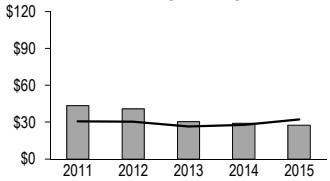
Cost Breakdown by Percentage	
Personal Services	27.1%
Operating Costs	66.4%
Capital Costs	6.5%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$366,315
Operating Costs	$897,916
Capital Costs	$88,147
TOTAL	$1,352,378

Wilson — Asphalt Maintenance and Repair

Key: Wilson ■ Benchmarking Average — Fiscal Years 2011 through 2015

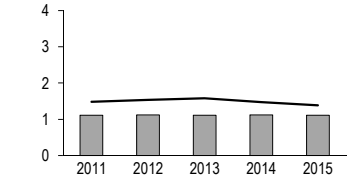
Resource Measures

Asphalt Maintenance and Repair Services Costs per Capita



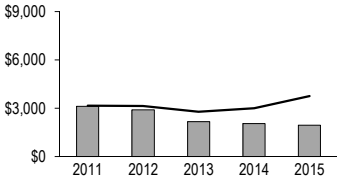
	2011	2012	2013	2014	2015
Wilson	$43.36	$40.78	$30.25	$28.98	$27.48
Average	$30.54	$30.42	$26.40	$27.85	$32.29

Asphalt Maintenance and Repair FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Wilson	1.11	1.12	1.11	1.12	1.12
Average	1.48	1.53	1.58	1.48	1.39

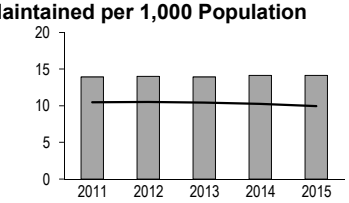
Service Costs per Lane Mile of Road Maintained



	2011	2012	2013	2014	2015
Wilson	$3,116	$2,913	$2,171	$2,049	$1,945
Average	$3,154	$3,137	$2,793	$3,004	$3,765

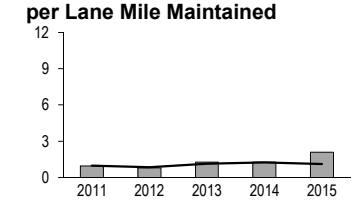
Workload Measures

Number of Lane Miles Maintained per 1,000 Population



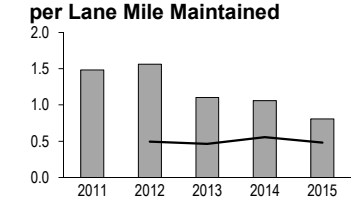
	2011	2012	2013	2014	2015
Wilson	13.9	14.0	13.9	14.1	14.1
Average	10.5	10.5	10.4	10.3	9.9

Reported Potholes per Lane Mile Maintained



	2011	2012	2013	2014	2015
Wilson	0.98	0.82	1.29	1.28	2.11
Average	1.00	0.86	1.16	1.25	1.12

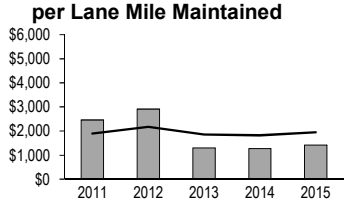
Repaired Utility Cuts per Lane Mile Maintained



	2011	2012	2013	2014	2015
Wilson	1.48	1.56	1.10	1.06	0.81
Average		0.50	0.47	0.56	0.48

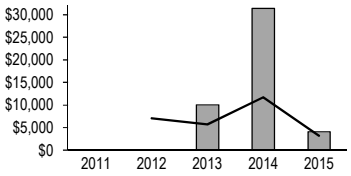
Efficiency Measures

Cost of Maintenance per Lane Mile Maintained



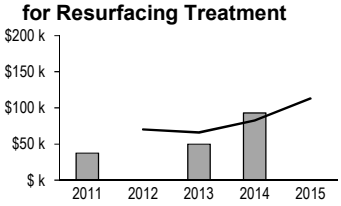
	2011	2012	2013	2014	2015
Wilson	$2,450	$2,913	$1,296	$1,278	$1,418
Average	$1,897	$2,173	$1,858	$1,825	$1,956

Cost per Lane Mile for Preservation Treatment



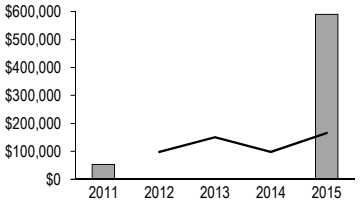
	2011	2012	2013	2014	2015
Wilson			$10,065	$31,387	$4,077
Average		$7,050	$5,735	$11,702	$3,223

Cost per Lane Mile for Resurfacing Treatment



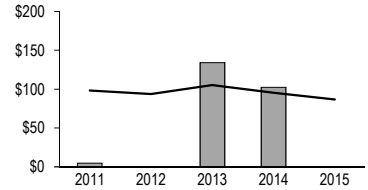
	2011	2012	2013	2014	2015
Wilson	$38 k		$50 k	$93 k	
Average		$70 k	$66 k	$83 k	$113 k

Cost per Lane Mile for Rehabilitation Treatment



	2011	2012	2013	2014	2015
Wilson	$53 k				$590 k
Average		$98 k	$150 k	$98 k	$165 k

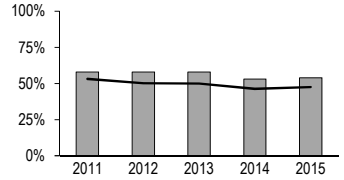
Cost per Ton for Contract Resurfacing



	2011	2012	2013	2014	2015
Wilson	$5		$134	$103	
Average	$98	$94	$105	$95	$87

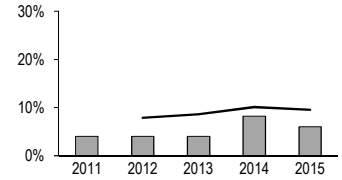
Effectiveness Measures

Percent of Lane Miles Rated 85 or Better



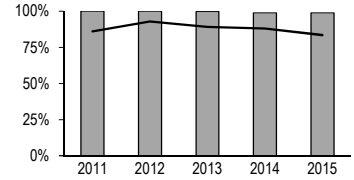
	2011	2012	2013	2014	2015
Wilson	58%	58%	58%	53%	54%
Average	53%	50%	50%	46%	47%

Percent of Lane Miles Rated Below 45



	2011	2012	2013	2014	2015
Wilson	0.04	4.0%	4.0%	8.2%	6.0%
Average		7.9%	8.6%	10.1%	9.6%

Percentage of Potholes Repaired within 24 hours



	2011	2012	2013	2014	2015
Wilson	100%	100%	100%	99%	99%
Average	86%	93%	89%	88%	84%

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery

The City of Winston-Salem was responsible for maintaining approximately 2,209 lane miles of city streets during FY 2014–15. The city treated 43.9 lane miles or 2.0 percent of the total lane miles.

The city used a variety of treatment methods for repair of roads. A total of about 16 lane miles were treated by contract crews with preservation methods such as crack sealing or thin overlays. A further 0.8 lane miles of preservation work was done by city crews. City crews resurfaced about 1.1 lane miles using a total of 1,602 tons of asphalt. Finally, 26 lane miles were rehabilitated by contract crews with milling followed by resurfacing. A total of 31,401 tons of asphalt was used by contracted crews for this work.

The city reported that 50 percent of its lane miles rated 85 or above on its most recent pavement condition rating, conducted in 2015. The city used the Pavement Tracking System (PTS).

The city reported 1,549 potholes in FY 2014–15. The percentage of potholes repaired within twenty-four hours was estimated at 76 percent. City policy is to repair potholes within twenty-four hours, but the lower response level is a result of calls on weekends and sick or vacation time of repair crews.

Conditions Affecting Service, Performance, and Costs

The hard winter conditions in FY 2013–14 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.

The City introduced a mobile phone application called "See, Click, Fix" that allowed citizens to report potholes in a more convenient fashion. Along with more experience using the city's customer service line, City Link, there was an increase in reported potholes in FY 2013–14. Additionally the harsher winter was a factor in the number of increased potholes.

Municipal Profile

Population (OSBM 2014)	237,905
Land Area (Square Miles)	132.45
Persons per Square Mile	1,796
Topography	Gently rolling
Climate	Temperate; some ice and snow

Service Profile

FTE Positions—Crews	39.50
FTE Positions—Other	4.00
Lane Miles Maintained	2,208.6
Lane Miles Treated	
Preservation	16.8
Resurfacing	1.1
Rehabilitation	26.0
TOTAL	43.9
Total Costs for All Treatment Types	$2,663,250
Potholes Repaired	1,549
Number of Utility Cuts	552
Number of Maintenance Patches (exclusive of potholes and utility cuts)	100
Average Cost per Ton of Hot Asphalt during Year	$67.39

Full Cost Profile

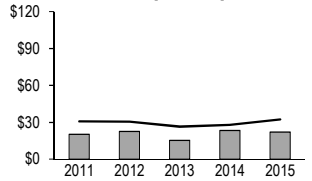
Cost Breakdown by Percentage	
Personal Services	24.4%
Operating Costs	71.0%
Capital Costs	4.6%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,284,967
Operating Costs	$3,741,047
Capital Costs	$240,620
TOTAL	$5,266,634

Winston-Salem — Asphalt Maintenance and Repair

Key: Winston-Salem ■ Benchmarking Average — Fiscal Years 2011 through 2015

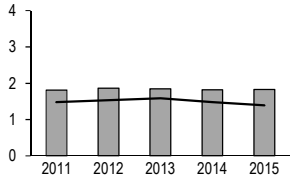
Resource Measures

Asphalt Maintenance and Repair Services Costs per Capita



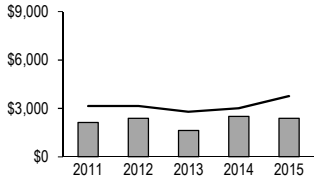
	2011	2012	2013	2014	2015
Winston-Salem	$20.14	$22.49	$15.31	$23.42	$22.14
Average	$30.54	$30.42	$26.40	$27.85	$32.29

Asphalt Maintenance and Repair FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Winston-Salem	1.81	1.87	1.84	1.83	1.83
Average	1.48	1.53	1.58	1.48	1.39

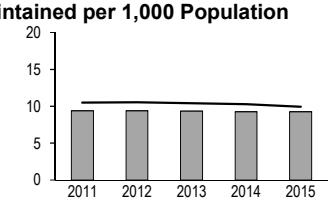
Service Costs per Lane Mile of Road Maintained



	2011	2012	2013	2014	2015
Winston-Salem	$2,143	$2,394	$1,635	$2,522	$2,385
Average	$3,154	$3,137	$2,793	$3,004	$3,765

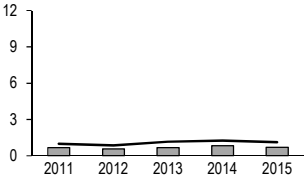
Workload Measures

Number of Lane Miles Maintained per 1,000 Population



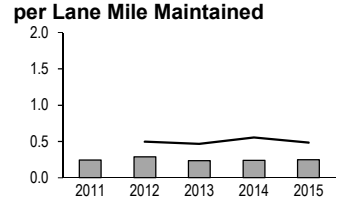
	2011	2012	2013	2014	2015
Winston-Salem	9.4	9.4	9.4	9.3	9.3
Average	10.5	10.5	10.4	10.3	9.9

Reported Potholes per Lane Mile Maintained



	2011	2012	2013	2014	2015
Winston-Salem	0.67	0.58	0.68	0.84	0.70
Average	1.00	0.86	1.16	1.25	1.12

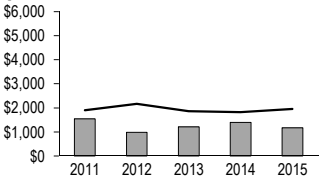
Repaired Utility Cuts per Lane Mile Maintained



	2011	2012	2013	2014	2015
Winston-Salem	0.25	0.29	0.24	0.24	0.25
Average		0.50	0.47	0.56	0.48

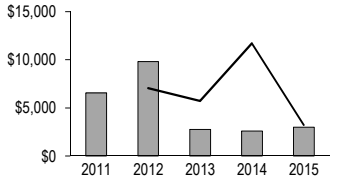
Efficiency Measures

Cost of Maintenance per Lane Mile Maintained



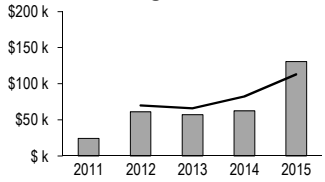
	2011	2012	2013	2014	2015
Winston-Salem	$1,546	$986	$1,217	$1,404	$1,179
Average	$1,897	$2,173	$1,858	$1,825	$1,956

Cost per Lane Mile for Preservation Treatment



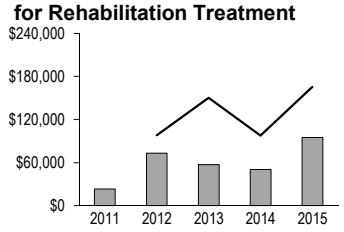
	2011	2012	2013	2014	2015
Winston-Salem	$6,566	$9,796	$2,759	$2,591	$3,004
Average		$7,050	$5,735	$11,702	$3,223

Cost per Lane Mile for Resurfacing Treatment



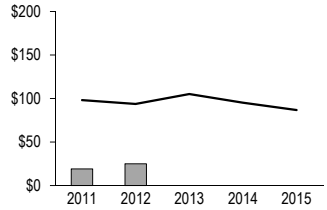
	2011	2012	2013	2014	2015
Winston-Salem	$25 k	$61 k	$57 k	$62 k	$131 k
Average		$70 k	$66 k	$83 k	$113 k

Cost per Lane Mile for Rehabilitation Treatment



	2011	2012	2013	2014	2015
Winston-Salem	$23 k	$73 k	$57 k	$50 k	$95 k
Average		$98 k	$150 k	$98 k	$165 k

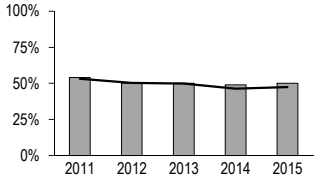
Cost per Ton for Contract Resurfacing



	2011	2012	2013	2014	2015
Winston-Salem	$19	$25			
Average	$98	$94	$105	$95	$87

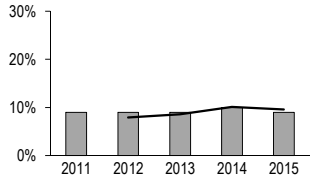
Effectiveness Measures

Percent of Lane Miles Rated 85 or Better



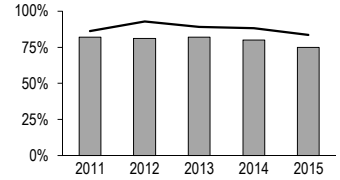
	2011	2012	2013	2014	2015
Winston-Salem	54%	50%	50%	49%	50%
Average	53%	50%	50%	46%	47%

Percent of Lane Miles Rated Below 45



	2011	2012	2013	2014	2015
Winston-Salem	0.09	9.0%	9.0%	10.0%	9.0%
Average		7.9%	8.6%	10.1%	9.6%

Percentage of Potholes Repaired within 24 hours



	2011	2012	2013	2014	2015
Winston-Salem	82%	81%	82%	80%	75%
Average	86%	93%	89%	88%	84%

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	51,927	65.8	$5.6	2,871	246	4	64	3—town 6—outlying
Asheville	94,611	59.5	$11.8	16,877	8,193	12	257	3
Burlington	51,923	30.5	$4.6	8,286	2,137	5	92	3
Cary	155,676	62.7	$23.7	8,238	4,400	8	224	1
Chapel Hill	60,318	22.8	$7.5	4,642	NA	5	92	3
Concord	88,810	67.5	$9.9	9,839	2,722	10 + 1 airport	192	2
Greensboro	289,566	139.2	$26.0	33,417	9,983	25	572	1
Greenville	87,838	33.2	$5.9	16,365	3,072	6	158	3
Hickory	45,366	42.8	$5.3	6,600	3,335	6 + 1 airport	136	3
High Point	118,022	67.1	$9.8	12,403	3,625	14	234	1
Salisbury	33,955	22.2	$2.8	5,206	2,034	5	77	2
Wilson	49,222	30.5	$4.2	3,479	5,255	5	97	2
Winston-Salem	237,905	132.4	$20.0	20,188	9,139	19	343	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 2014–15

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 forty-nine square miles in surrounding fire districts.

The fire department uses a shift schedule with 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 3, while the surrounding fire districts served have an ISO rating of 6. The rating was done during 2013 and was an upgrade from the prior rating for both areas.

The Apex Fire Department conducted 530 fire maintenance, construction, and reinspections during FY 2014–15. 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.

Municipal Profile

Service Population	51,927
Land Area (Square Miles)	65.78
Persons per Square Mile	789
Median Family Income U.S. Census 2010	$97,201

Service Profile

FTE Positions—Firefighters	51.0
FTE Positions—Other	13.0
Fire Stations	4
First-Line Fire Apparatus	
Pumpers	3
Aerial Trucks	1
Quints	1
Squads	0
Rescue	1
Other	7
Fire Department Responses	2,871
Responses for Fires	107
Structural Fires Reported	17
Inspections Completed for Maintenance, Construction, and Reinspections	530
Fire Code Violations Reported	246
Estimated Fire Loss (millions)	$0.61
Amount of Property Protected in Service Area (millions)	$5,607
Number of Fire Education Programs or Events	121

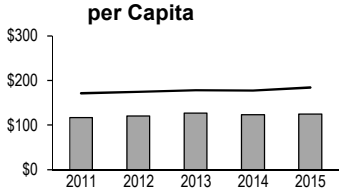
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	71.5%
Operating Costs	17.0%
Capital Costs	11.5%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$4,643,067
Operating Costs	$1,106,261
Capital Costs	$745,430
TOTAL	$6,494,758

Key: Apex ■ Benchmarking Average — Fiscal Years 2011 through 2015

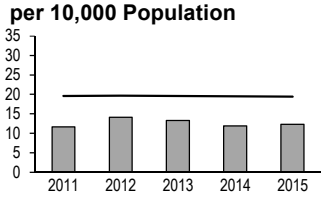
Resource Measures

Fire Services Costs per Capita



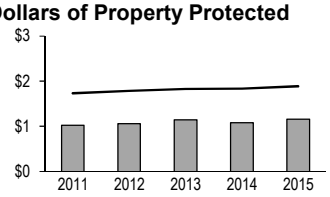
	2011	2012	2013	2014	2015
Apex	$117	$120	$127	$123	$125
Average	$172	$175	$178	$178	$184

Fire Services Total FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Apex	11.6	14.1	13.3	11.9	12.3
Average	19.6	19.7	19.6	19.5	19.4

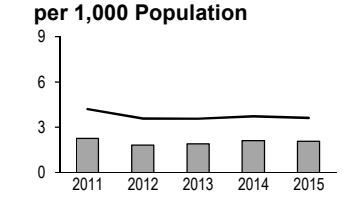
Fire Services Cost per Thousand Dollars of Property Protected



	2011	2012	2013	2014	2015
Apex	$1.02	$1.06	$1.14	$1.08	$1.16
Average	$1.73	$1.79	$1.83	$1.84	$1.89

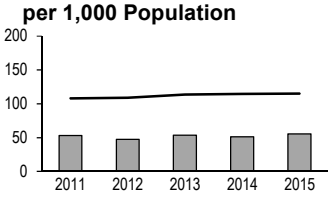
Workload Measures

Actual Fires per 1,000 Population



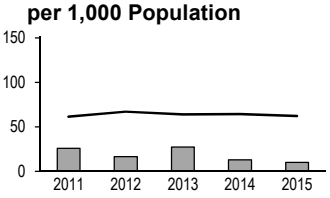
	2011	2012	2013	2014	2015
Apex	2.26	1.82	1.89	2.10	2.06
Average	4.20	3.56	3.56	3.72	3.62

Fire Department Responses per 1,000 Population



	2011	2012	2013	2014	2015
Apex	53	48	53	51	55
Average	108	109	114	115	115

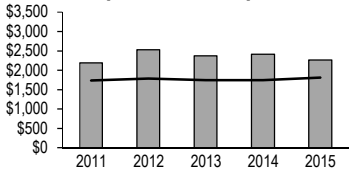
Fire Inspections Completed per 1,000 Population



	2011	2012	2013	2014	2015
Apex	26	17	28	13	10
Average	61	67	64	64	62

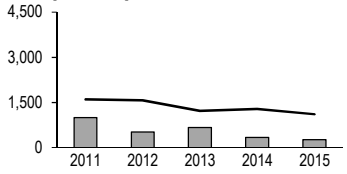
Efficiency Measures

Fire Services Cost per Fire Department Response



	2011	2012	2013	2014	2015
Apex	$2,194	$2,527	$2,376	$2,411	$2,262
Average	$1,733	$1,785	$1,747	$1,745	$1,810

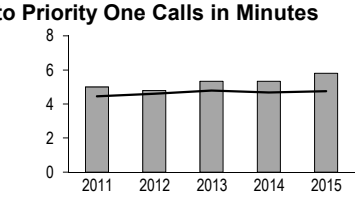
Inspections Completed per Inspector FTE



	2011	2012	2013	2014	2015
Apex	994	516	663	333	265
Average	1,600	1,573	1,223	1,285	1,106

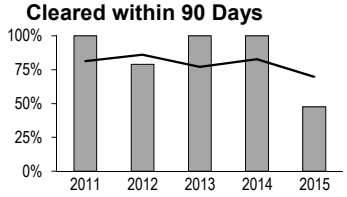
Effectiveness Measures

Average Response Time to Priority One Calls in Minutes



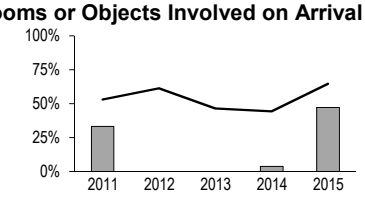
	2011	2012	2013	2014	2015
Apex	5.0	4.8	5.3	5.3	5.8
Average	4.5	4.6	4.8	4.7	4.7

Percentage of Fire Code Violations Cleared within 90 Days



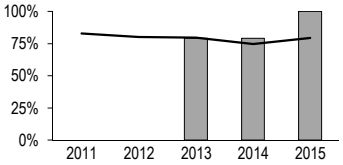
	2011	2012	2013	2014	2015
Apex	100%	79%	100%	100%	48%
Average	81%	86%	77%	83%	70%

Percentage of Fires Confined to Rooms or Objects Involved on Arrival



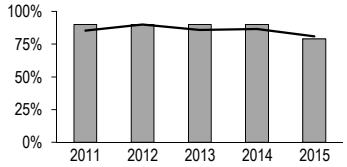
	2011	2012	2013	2014	2015
Apex	33%	0%	0%	4%	47%
Average	53%	61%	47%	44%	65%

Percentage of Fires for Which Cause Was Determined



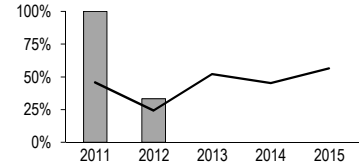
	2011	2012	2013	2014	2015
Apex			79%	79%	100%
Average	83%	80%	80%	75%	79%

Percentage of Full Response within 8 Minutes Travel Time



	2011	2012	2013	2014	2015
Apex	90%	90%	90%	90%	79%
Average	85%	90%	86%	87%	81%

Percentage of Lost Pulse Cases Recovered Pulse at Transfer of Care



	2011	2012	2013	2014	2015
Apex	100.0%	33.3%			
Average	45.9%	24.2%	52.0%	45.3%	56.5%

Fiscal Year 2014–15

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 department covers an area of 14 square miles outside of Asheville city limits.

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 10,237 fire maintenance, construction, and reinspections during FY 2014–15. 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

Municipal Profile

Service Population	94,611
Land Area (Square Miles)	59.52
Persons per Square Mile	1,589
Median Family Income U.S. Census 2010	$53,350

Service Profile

FTE Positions—Firefighters	232.0
FTE Positions—Other	25.0
Fire Stations	12
First-Line Fire Apparatus	
Pumpers	9
Aerial Trucks	3
Quints	2
Squads	1
Rescue	1
Other	37
Fire Department Responses	16,877
Responses for Fires	413
Structural Fires Reported	140
Inspections Completed for Maintenance, Construction, and Reinspections	10,237
Fire Code Violations Reported	8,193
Estimated Fire Loss (millions)	$7.77
Amount of Property Protected in Service Area (millions)	$11,766
Number of Fire Education Programs or Events	488

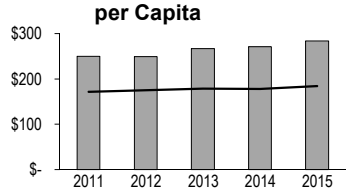
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	71.0%
Operating Costs	18.2%
Capital Costs	10.8%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$19,047,436
Operating Costs	$4,890,972
Capital Costs	$2,905,402
TOTAL	$26,843,810

Key: Asheville ■ Benchmarking Average — Fiscal Years 2011 through 2015

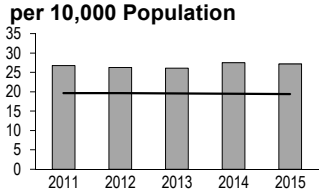
Resource Measures

Fire Services Costs per Capita



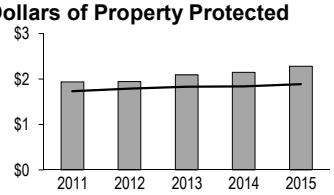
	2011	2012	2013	2014	2015
Asheville	$250.37	$249.34	$266.76	$271	$284
Average	$172	$175	$178	$178	$184

Fire Services Total FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Asheville	26.8	26.2	26.1	27.5	27.2
Average	19.6	19.7	19.6	19.5	19.4

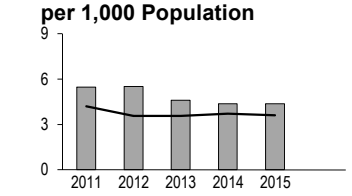
Fire Services Cost per Thousand Dollars of Property Protected



	2011	2012	2013	2014	2015
Asheville	$1.94	$1.95	$2.10	$2.15	$2.28
Average	$1.73	$1.79	$1.83	$1.84	$1.89

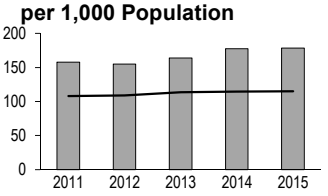
Workload Measures

Actual Fires per 1,000 Population



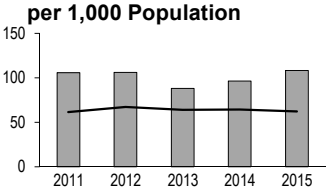
	2011	2012	2013	2014	2015
Asheville	5.46	5.52	4.60	4.37	4.37
Average	4.20	3.56	3.56	3.72	3.62

Fire Department Responses per 1,000 Population



	2011	2012	2013	2014	2015
Asheville	158	155	164	178	178
Average	108	109	114	115	115

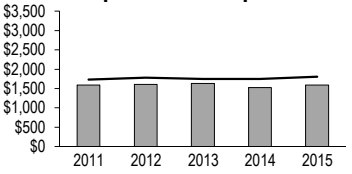
Fire Inspections Completed per 1,000 Population



	2011	2012	2013	2014	2015
Asheville	106	106	88	96	108
Average	61	67	64	64	62

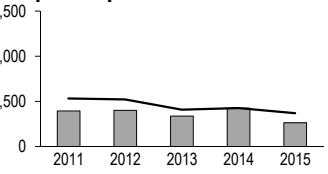
Efficiency Measures

Fire Services Cost per Fire Department Response



	2011	2012	2013	2014	2015
Asheville	$1,588	$1,607	$1,629	$1,528	$1,591
Average	$1,733	$1,785	$1,747	$1,745	$1,810

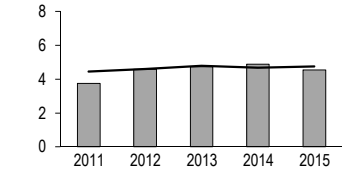
Inspections Completed per Inspector FTE



	2011	2012	2013	2014	2015
Asheville	1,180	1,208	1,010	1,286	787
Average	1,600	1,573	1,223	1,285	1,106

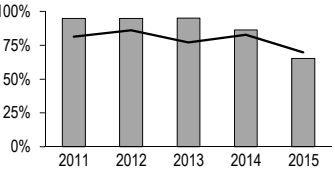
Effectiveness Measures

Average Response Time to Priority One Calls in Minutes



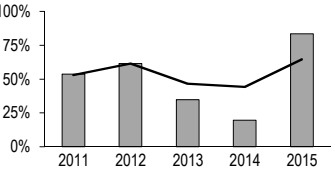
	2011	2012	2013	2014	2015
Asheville	3.8	4.6	4.7	4.9	4.6
Average	4.5	4.6	4.8	4.7	4.7

Percentage of Fire Code Violations Cleared within 90 Days



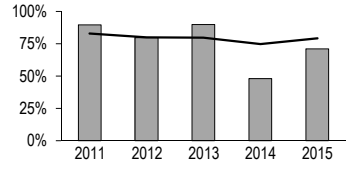
	2011	2012	2013	2014	2015
Asheville	95%	95%	95%	86%	65%
Average	81%	86%	77%	83%	70%

Percentage of Fires Confined to Rooms or Objects Involved on Arrival



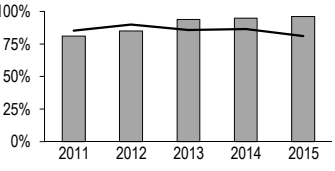
	2011	2012	2013	2014	2015
Asheville	54%	62%	35%	20%	84%
Average	53%	61%	47%	44%	65%

Percentage of Fires for Which Cause Was Determined



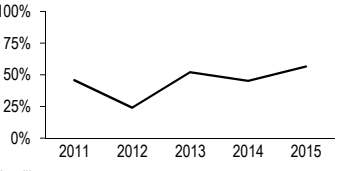
	2011	2012	2013	2014	2015
Asheville	90%	80%	90%	48%	71%
Average	83%	80%	80%	75%	79%

Percentage of Full Response within 8 Minutes Travel Time



	2011	2012	2013	2014	2015
Asheville	81%	85%	94%	95%	96%
Average	85%	90%	86%	87%	81%

Percentage of Lost Pulse Cases Recovered Pulse at Transfer of Care



	2011	2012	2013	2014	2015
Asheville					
Average	45.9%	24.2%	52.0%	45.3%	56.5%

Fiscal Year 2014–15

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 3,153 fire maintenance, construction, and reinspections during FY 2014–15. 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

Municipal Profile

Service Population	51,923
Land Area (Square Miles)	30.52
Persons per Square Mile	1,701
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	8,286
Responses for Fires	240
Structural Fires Reported	63
Inspections Completed for Maintenance, Construction, and Reinspections	3,153
Fire Code Violations Reported	2,137
Estimated Fire Loss (millions)	$2.46
Amount of Property Protected in Service Area (millions)	$4,565
Number of Fire Education Programs or Events	531

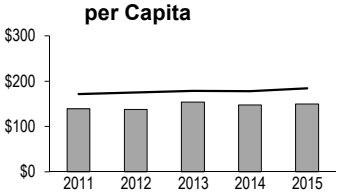
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	73.2%
Operating Costs	15.0%
Capital Costs	11.9%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$5,690,765
Operating Costs	$1,163,994
Capital Costs	$922,202
TOTAL	$7,776,961

Key: Burlington ■ Benchmarking Average — Fiscal Years 2011 through 2015

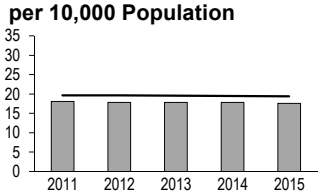
Resource Measures

Fire Services Costs per Capita



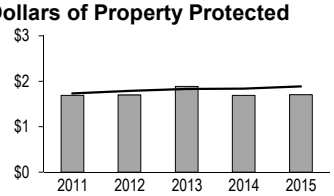
	2011	2012	2013	2014	2015
Burlington	$139	$138	$154	$148	$150
Average	$172	$175	$178	$178	$184

Fire Services Total FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Burlington	18.1	17.8	17.9	17.8	17.6
Average	19.6	19.7	19.6	19.5	19.4

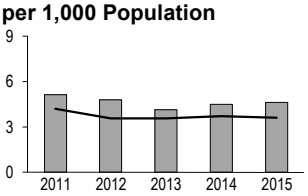
Fire Services Cost per Thousand Dollars of Property Protected



	2011	2012	2013	2014	2015
Burlington	$1.69	$1.70	$1.89	$1.69	$1.70
Average	$1.73	$1.79	$1.83	$1.84	$1.89

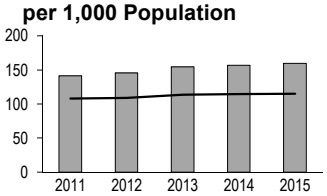
Workload Measures

Actual Fires per 1,000 Population



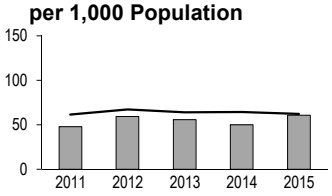
	2011	2012	2013	2014	2015
Burlington	5.13	4.80	4.14	4.49	4.62
Average	4.20	3.56	3.56	3.72	3.62

Fire Department Responses per 1,000 Population



	2011	2012	2013	2014	2015
Burlington	141	146	155	157	160
Average	108	109	114	115	115

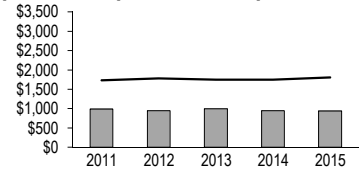
Fire Inspections Completed per 1,000 Population



	2011	2012	2013	2014	2015
Burlington	48	59	56	50	61
Average	61	67	64	64	62

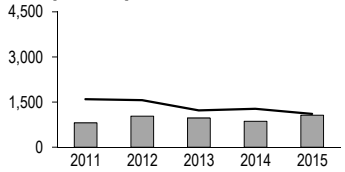
Efficiency Measures

Fire Services Cost per Fire Department Response



	2011	2012	2013	2014	2015
Burlington	$984	$946	$994	$941	$939
Average	$1,733	$1,785	$1,747	$1,745	$1,810

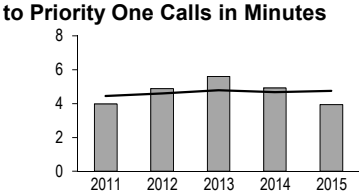
Inspections Completed per Inspector FTE



	2011	2012	2013	2014	2015
Burlington	815	1,033	968	869	1,069
Average	1,600	1,573	1,223	1,285	1,106

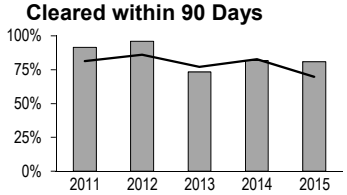
Effectiveness Measures

Average Response Time to Priority One Calls in Minutes



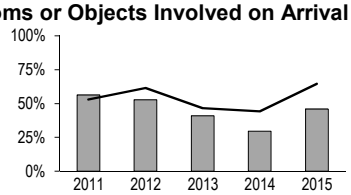
	2011	2012	2013	2014	2015
Burlington	4.0	4.9	5.6	4.9	4.0
Average	4.5	4.6	4.8	4.7	4.7

Percentage of Fire Code Violations Cleared within 90 Days



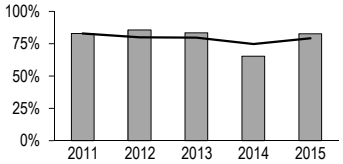
	2011	2012	2013	2014	2015
Burlington	92%	96%	73%	82%	81%
Average	81%	86%	77%	83%	70%

Percentage of Fires Confined to Rooms or Objects Involved on Arrival



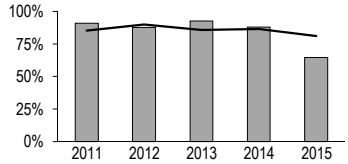
	2011	2012	2013	2014	2015
Burlington	56%	53%	41%	30%	46%
Average	53%	61%	47%	44%	65%

Percentage of Fires for Which Cause Was Determined



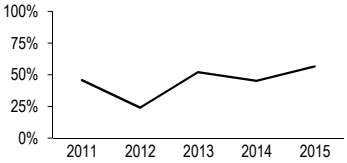
	2011	2012	2013	2014	2015
Burlington	83%	86%	83%	65%	83%
Average	83%	80%	80%	75%	79%

Percentage of Full Response within 8 Minutes Travel Time



	2011	2012	2013	2014	2015
Burlington	91%	88%	93%	88%	65%
Average	85%	90%	86%	87%	81%

Percentage of Lost Pulse Cases Recovered Pulse at Transfer of Care



	2011	2012	2013	2014	2015
Burlington					
Average	45.9%	24.2%	52.0%	45.3%	56.5%

Fiscal Year 2014–15

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. The town provides fire coverage for six square miles outside the town boundaries.

All emergency services (shift) personnel are trained and certified as "NC FFII," "EMT–with defibrillator," and rescue technicians. Emergency services staff members work from eight 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 1, as rated in 2015. This is the highest rating possible to get. The Cary Fire Department has been accredited since 1999.

The town conducted 6,133 fire maintenance, construction, and reinspections during FY 2014–15. 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 charges 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

Municipal Profile

Service Population	155,676
Land Area (Square Miles)	62.67
Persons per Square Mile	2,484
Median Family Income U.S. Census 2010	$108,956

Service Profile

FTE Positions—Firefighters	210.0
FTE Positions—Other	14.0
Fire Stations	8
First-Line Fire Apparatus	
Pumpers	8
Aerial Trucks	4
Quints	0
Squads	0
Rescue	3
Other	10
Fire Department Responses	8,238
Responses for Fires	255
Structural Fires Reported	45
Inspections Completed for Maintenance, Construction, and Reinspections	6,133
Fire Code Violations Reported	4,400
Estimated Fire Loss (millions)	$2.09
Amount of Property Protected in Service Area (millions)	$23,681
Number of Fire Education Programs or Events	388

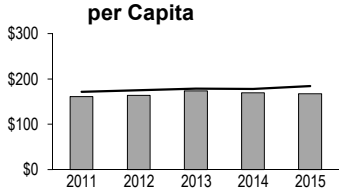
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	72.1%
Operating Costs	18.7%
Capital Costs	9.2%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$18,832,998
Operating Costs	$4,888,557
Capital Costs	$2,394,941
TOTAL	$26,116,496

Key: Cary ■ Benchmarking Average — Fiscal Years 2011 through 2015

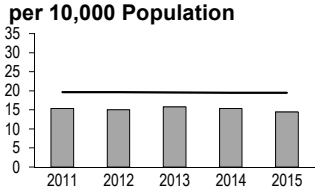
Resource Measures

Fire Services Costs per Capita



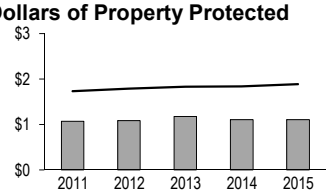
	2011	2012	2013	2014	2015
Cary	$161	$164	$174	$169	$168
Average	$172	$175	$178	$178	$184

Fire Services Total FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Cary	15.4	15.0	15.8	15.4	14.4
Average	19.6	19.7	19.6	19.5	19.4

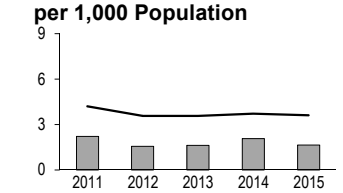
Fire Services Cost per Thousand Dollars of Property Protected



	2011	2012	2013	2014	2015
Cary	$1.07	$1.08	$1.17	$1.11	$1.10
Average	$1.73	$1.79	$1.83	$1.84	$1.89

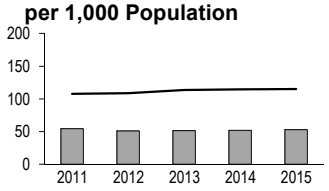
Workload Measures

Actual Fires per 1,000 Population



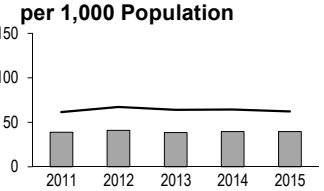
	2011	2012	2013	2014	2015
Cary	2.22	1.55	1.62	2.07	1.64
Average	4.20	3.56	3.56	3.72	3.62

Fire Department Responses per 1,000 Population



	2011	2012	2013	2014	2015
Cary	54	51	51	52	53
Average	108	109	114	115	115

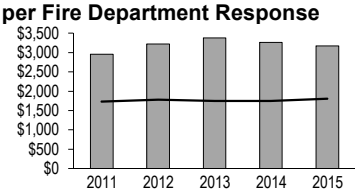
Fire Inspections Completed per 1,000 Population



	2011	2012	2013	2014	2015
Cary	39	41	38	40	39
Average	61	67	64	64	62

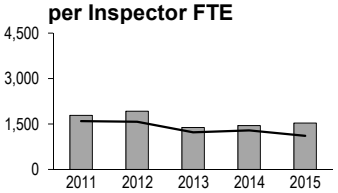
Efficiency Measures

Fire Services Cost per Fire Department Response



	2011	2012	2013	2014	2015
Cary	$2,960	$3,226	$3,382	$3,260	$3,170
Average	$1,733	$1,785	$1,747	$1,745	$1,810

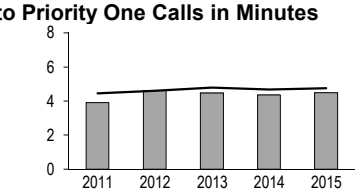
Inspections Completed per Inspector FTE



	2011	2012	2013	2014	2015
Cary	1,788	1,920	1,382	1,451	1,533
Average	1,600	1,573	1,223	1,285	1,106

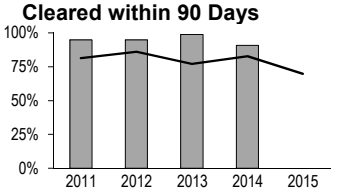
Effectiveness Measures

Average Response Time to Priority One Calls in Minutes



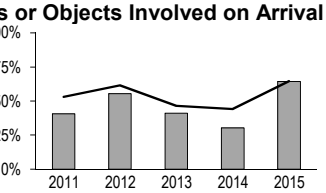
	2011	2012	2013	2014	2015
Cary	3.9	4.6	4.5	4.4	4.5
Average	4.5	4.6	4.8	4.7	4.7

Percentage of Fire Code Violations Cleared within 90 Days



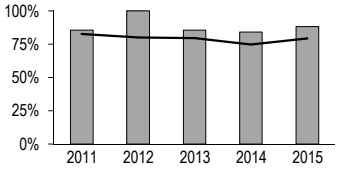
	2011	2012	2013	2014	2015
Cary	95%	95%	99%	91%	
Average	81%	86%	77%	83%	70%

Percentage of Fires Confined to Rooms or Objects Involved on Arrival



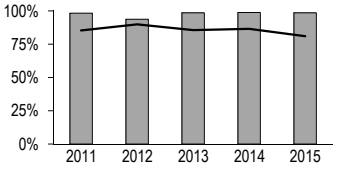
	2011	2012	2013	2014	2015
Cary	41%	55%	41%	30%	64%
Average	53%	61%	47%	44%	65%

Percentage of Fires for Which Cause Was Determined



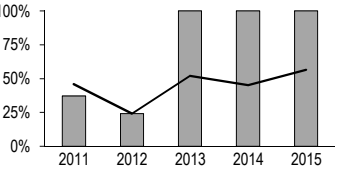
	2011	2012	2013	2014	2015
Cary	86%	100%	86%	84%	88%
Average	83%	80%	80%	75%	79%

Percentage of Full Response within 8 Minutes Travel Time



	2011	2012	2013	2014	2015
Cary	98%	94%	99%	99%	99%
Average	85%	90%	86%	87%	81%

Percentage of Lost Pulse Cases Recovered Pulse at Transfer of Care



	2011	2012	2013	2014	2015
Cary	37.1%	24.1%	100.0%	100.0%	100.0%
Average	45.9%	24.2%	52.0%	45.3%	56.5%

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery

The Town of Chapel Hill's Fire Department mission is to minimize the risk of fire and other hazards to the life and property of the citizens of Chapel Hill. To accomplish this mission, the department provides response to and mitigation of fires, medical emergencies, hazardous materials incidents, and other emergencies as they arise.

The fire department is organized into three divisions: operations, administration, and life safety. Operations and life safety are administered by a deputy chief with support staff. Administration consists of the Fire Chief and his support staff.

The fire department works a 3/4 system where personnel are on duty for 24 hours starting at 7am. The town has five community stations with six primary vehicles for response.

The town has an ISO rating of 3. The fire department is not accredited.

The fire department conducted 4,642 fire maintenance, construction, and reinspections during FY 2014–15. Fire inspections are performed by fire inspectors and are designed to be completed in accordance with the State of North Carolina's inspection schedule. Initial inspections may generate findings for reinspection. The Town of Chapel Hill has implemented a tablet based fire inspection system to more efficiently manage the inspection process as well as initiate the fire inspection fee schedule and billing system. The department counts malls as one inspection per occupancy and one per building structure. High rises have one inspection per building plus one per commercial occupancy. Multi-structure apartment complexes have just one inspection per complex.

Conditions Affecting Service, Performance, and Costs

The Town of Chapel Hill began participation in the benchmarking project in July 2015, with FY 2014–15 being the first reporting year.

Municipal Profile

Service Population	60,318
Land Area (Square Miles)	22.77
Persons per Square Mile	2,649
Median Family Income U.S. Census 2010	$61,405

Service Profile

FTE Positions—Firefighters	77.0
FTE Positions—Other	15.0
Fire Stations	5
First-Line Fire Apparatus	
Pumpers	3
Aerial Trucks	1
Quints	1
Squads	0
Rescue	1
Other	0
Fire Department Responses	4,642
Responses for Fires	137
Structural Fires Reported	21
Inspections Completed for Maintenance, Construction, and Reinspections	NA
Fire Code Violations Reported	NA
Estimated Fire Loss (millions)	$0.78
Amount of Property Protected in Service Area (millions)	$7,505
Number of Fire Education Programs or Events	197

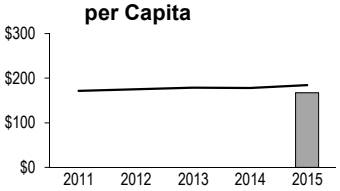
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	69.4%
Operating Costs	20.1%
Capital Costs	10.5%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$7,006,974
Operating Costs	$2,029,300
Capital Costs	$1,064,147
TOTAL	$10,100,421

Key: Chapel Hill ■ Benchmarking Average — Fiscal Years 2011 through 2015

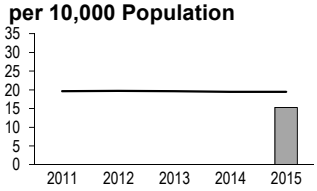
Resource Measures

Fire Services Costs per Capita



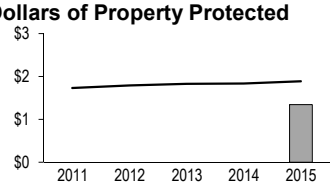
	2011	2012	2013	2014	2015
Chapel Hill					$167
Average	$172	$175	$178	$178	$184

Fire Services Total FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Chapel Hill					15.3
Average	19.6	19.7	19.6	19.5	19.4

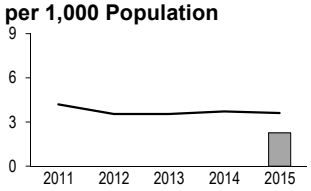
Fire Services Cost per Thousand Dollars of Property Protected



	2011	2012	2013	2014	2015
Chapel Hill					$1.35
Average	$1.73	$1.79	$1.83	$1.84	$1.89

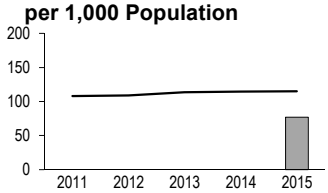
Workload Measures

Actual Fires per 1,000 Population



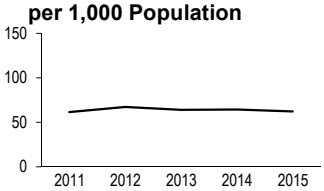
	2011	2012	2013	2014	2015
Chapel Hill					2.27
Average	4.20	3.56	3.56	3.72	3.62

Fire Department Responses per 1,000 Population



	2011	2012	2013	2014	2015
Chapel Hill					77
Average	108	109	114	115	115

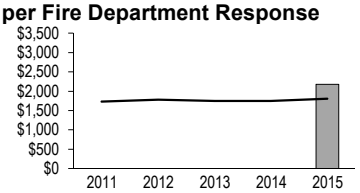
Fire Inspections Completed per 1,000 Population



	2011	2012	2013	2014	2015
Chapel Hill					
Average	61	67	64	64	62

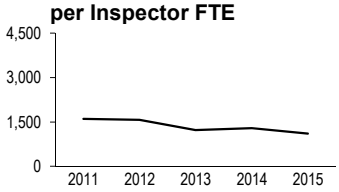
Efficiency Measures

Fire Services Cost per Fire Department Response



	2011	2012	2013	2014	2015
Chapel Hill					$2,176
Average	$1,733	$1,785	$1,747	$1,745	$1,810

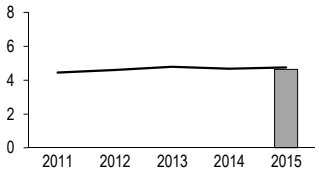
Inspections Completed per Inspector FTE



	2011	2012	2013	2014	2015
Chapel Hill					
Average	1,600	1,573	1,223	1,285	1,106

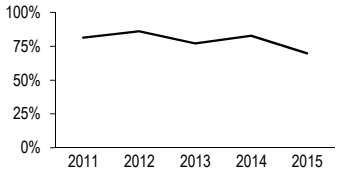
Effectiveness Measures

Average Response Time to Priority One Calls in Minutes



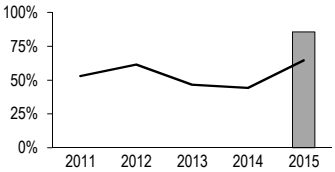
	2011	2012	2013	2014	2015
Chapel Hill					4.7
Average	4.5	4.6	4.8	4.7	4.7

Percentage of Fire Code Violations Cleared within 90 Days



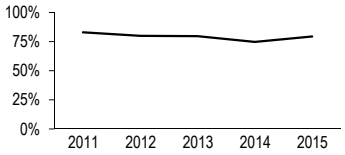
	2011	2012	2013	2014	2015
Chapel Hill					
Average	81%	86%	77%	83%	70%

Percentage of Fires Confined to Rooms or Objects Involved on Arrival



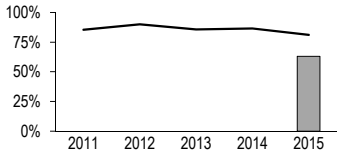
	2011	2012	2013	2014	2015
Chapel Hill					86%
Average	53%	61%	47%	44%	65%

Percentage of Fires for Which Cause Was Determined



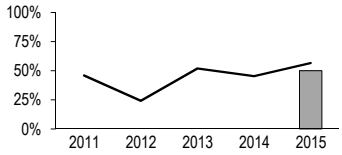
	2011	2012	2013	2014	2015
Chapel Hill					
Average	83%	80%	80%	75%	79%

Percentage of Full Response within 8 Minutes Travel Time



	2011	2012	2013	2014	2015
Chapel Hill					63%
Average	85%	90%	86%	87%	81%

Percentage of Lost Pulse Cases Recovered Pulse at Transfer of Care



	2011	2012	2013	2014	2015
Chapel Hill					50.0%
Average	45.9%	24.2%	52.0%	45.3%	56.5%

Fiscal Year 2014–15

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 2, as rated in 2013. This represented an improvement from the prior rating.

The fire department conducted 7,502 fire maintenance, construction, and reinspections during FY 2014–15. 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
Concord staffs a fire station at the airport in addition to ten community fire stations.

Municipal Profile

Service Population	88,810
Land Area (Square Miles)	67.54
Persons per Square Mile	1,315
Median Family Income	$63,643
U.S. Census 2010	

Service Profile

FTE Positions—Firefighters	174.0
FTE Positions—Other	18.0
Fire Stations	11
First-Line Fire Apparatus	
Pumpers	9
Aerial Trucks	3
Quints	0
Squads	0
Rescue	1
Other	11
Fire Department Responses	9,839
Responses for Fires	290
Structural Fires Reported	41
Inspections Completed for Maintenance, Construction, and Reinspections	7,502
Fire Code Violations Reported	2,722
Estimated Fire Loss (millions)	$5.10
Amount of Property Protected in Service Area (millions)	$9,859
Number of Fire Education Programs or Events	344

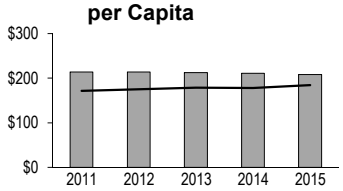
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	69.2%
Operating Costs	19.2%
Capital Costs	11.5%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$12,821,035
Operating Costs	$3,565,331
Capital Costs	$2,136,749
TOTAL	$18,523,115

Key: Concord ■ Benchmarking Average — Fiscal Years 2011 through 2015

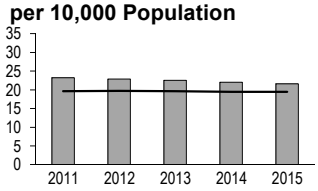
Resource Measures

Fire Services Costs per Capita



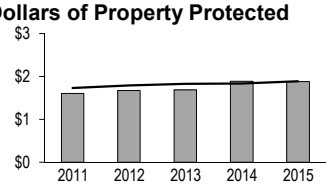
	2011	2012	2013	2014	2015
Concord	$214	$214	$213	$211	$209
Average	$172	$175	$178	$178	$184

Fire Services Total FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Concord	23.2	22.8	22.5	22.1	21.6
Average	19.6	19.7	19.6	19.5	19.4

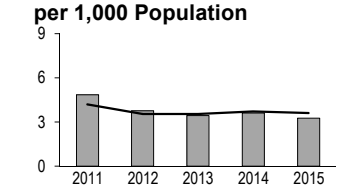
Fire Services Cost per Thousand Dollars of Property Protected



	2011	2012	2013	2014	2015
Concord	$1.61	$1.68	$1.69	$1.89	$1.88
Average	$1.73	$1.79	$1.83	$1.84	$1.89

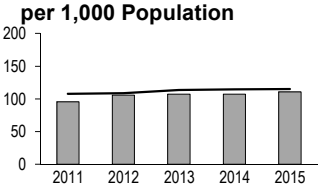
Workload Measures

Actual Fires per 1,000 Population



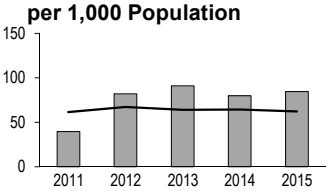
	2011	2012	2013	2014	2015
Concord	4.86	3.77	3.45	3.62	3.27
Average	4.20	3.56	3.56	3.72	3.62

Fire Department Responses per 1,000 Population



	2011	2012	2013	2014	2015
Concord	96	106	107	107	111
Average	108	109	114	115	115

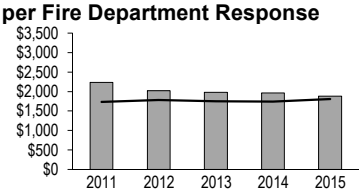
Fire Inspections Completed per 1,000 Population



	2011	2012	2013	2014	2015
Concord	40	82	91	80	84
Average	61	67	64	64	62

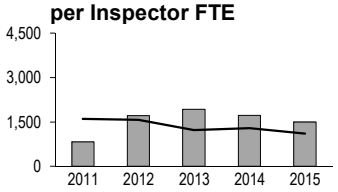
Efficiency Measures

Fire Services Cost per Fire Department Response



	2011	2012	2013	2014	2015
Concord	$2,232	$2,023	$1,984	$1,963	$1,883
Average	$1,733	$1,785	$1,747	$1,745	$1,810

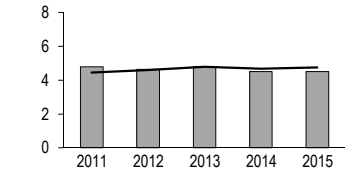
Inspections Completed per Inspector FTE



	2011	2012	2013	2014	2015
Concord	820	1,717	1,926	1,727	1,500
Average	1,600	1,573	1,223	1,285	1,106

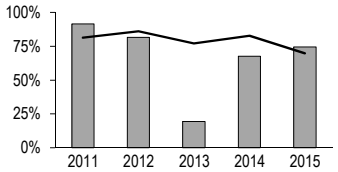
Effectiveness Measures

Average Response Time to Priority One Calls in Minutes



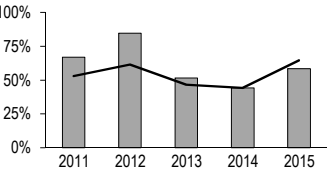
	2011	2012	2013	2014	2015
Concord	4.8	4.6	4.8	4.5	4.5
Average	4.5	4.6	4.8	4.7	4.7

Percentage of Fire Code Violations Cleared within 90 Days



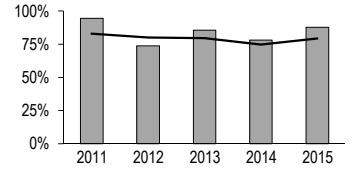
	2011	2012	2013	2014	2015
Concord	92%	82%	20%	68%	75%
Average	81%	86%	77%	83%	70%

Percentage of Fires Confined to Rooms or Objects Involved on Arrival



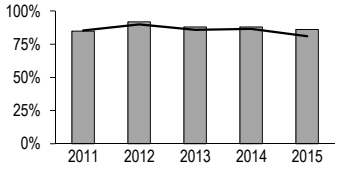
	2011	2012	2013	2014	2015
Concord	67%	85%	52%	44%	59%
Average	53%	61%	47%	44%	65%

Percentage of Fires for Which Cause Was Determined



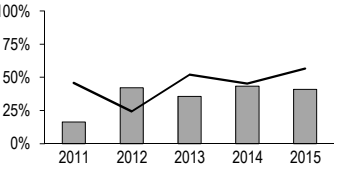
	2011	2012	2013	2014	2015
Concord	95%	74%	86%	78%	88%
Average	83%	80%	80%	75%	79%

Percentage of Full Response within 8 Minutes Travel Time



	2011	2012	2013	2014	2015
Concord	85%	92%	88%	88%	86%
Average	85%	90%	86%	87%	81%

Percentage of Lost Pulse Cases Recovered Pulse at Transfer of Care



	2011	2012	2013	2014	2015
Concord	16.3%	42.1%	35.6%	43.3%	40.9%
Average	45.9%	24.2%	52.0%	45.3%	56.5%

Fiscal Year 2014–15

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 two branches: emergency services and support 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, as rated in 2012. The Greensboro Fire Department has been accredited since 1997.

The fire department in Greensboro conducted 9,708 fire maintenance, construction, and reinspections during FY 2014–15. 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

Municipal Profile

Service Population	289,566
Land Area (Square Miles)	139.22
Persons per Square Mile	2,080
Median Family Income U.S. Census 2010	$52,752

Service Profile

FTE Positions—Firefighters	515.0
FTE Positions—Other	57.0
Fire Stations	25
First-Line Fire Apparatus	
Pumpers	24
Aerial Trucks	0
Quints	11
Squads	0
Rescue	1
Other	0
Fire Department Responses	33,417
Responses for Fires	1,079
Structural Fires Reported	263
Inspections Completed for Maintenance, Construction, and Reinspections	9,708
Fire Code Violations Reported	9,983
Estimated Fire Loss (millions)	$4.35
Amount of Property Protected in Service Area (millions)	$26,021
Number of Fire Education Programs or Events	616

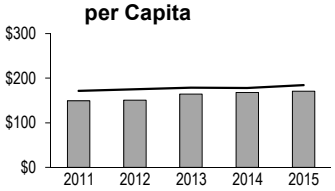
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	78.5%
Operating Costs	21.5%
Capital Costs	0.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$38,889,515
Operating Costs	$10,633,782
Capital Costs	$0
TOTAL	$49,523,297

Key: Greensboro ■ Benchmarking Average — Fiscal Years 2011 through 2015

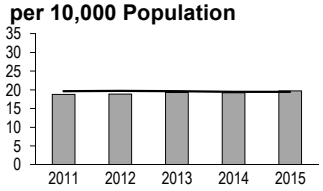
Resource Measures

Fire Services Costs per Capita



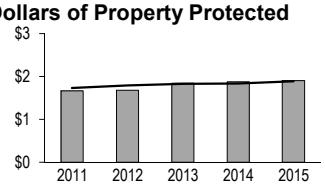
	2011	2012	2013	2014	2015
Greensboro	$149	$151	$164	$168	$171
Average	$172	$175	$178	$178	$184

Fire Services Total FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Greensboro	18.8	18.8	19.3	19.2	19.8
Average	19.6	19.7	19.6	19.5	19.4

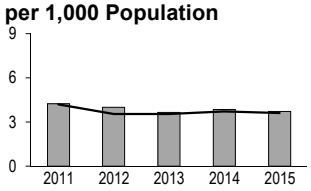
Fire Services Cost per Thousand Dollars of Property Protected



	2011	2012	2013	2014	2015
Greensboro	$1.66	$1.68	$1.85	$1.87	$1.90
Average	$1.73	$1.79	$1.83	$1.84	$1.89

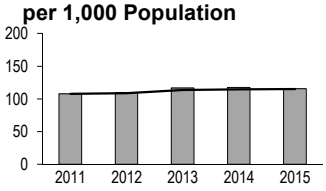
Workload Measures

Actual Fires per 1,000 Population



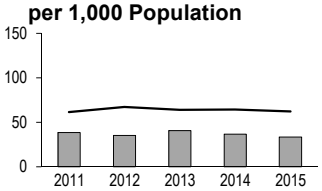
	2011	2012	2013	2014	2015
Greensboro	4.25	4.02	3.66	3.87	3.73
Average	4.20	3.56	3.56	3.72	3.62

Fire Department Responses per 1,000 Population



	2011	2012	2013	2014	2015
Greensboro	108	110	116	118	115
Average	108	109	114	115	115

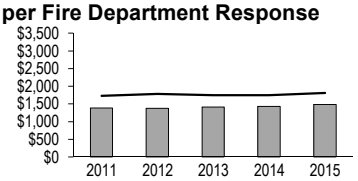
Fire Inspections Completed per 1,000 Population



	2011	2012	2013	2014	2015
Greensboro	38	35	41	37	34
Average	61	67	64	64	62

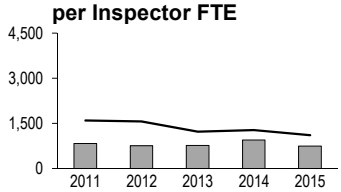
Efficiency Measures

Fire Services Cost per Fire Department Response



	2011	2012	2013	2014	2015
Greensboro	$1,382	$1,375	$1,410	$1,428	$1,482
Average	$1,733	$1,785	$1,747	$1,745	$1,810

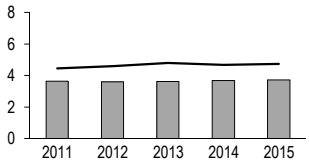
Inspections Completed per Inspector FTE



	2011	2012	2013	2014	2015
Greensboro	831	764	767	954	747
Average	1,600	1,573	1,223	1,285	1,106

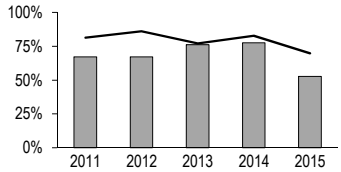
Effectiveness Measures

Average Response Time to Priority One Calls in Minutes



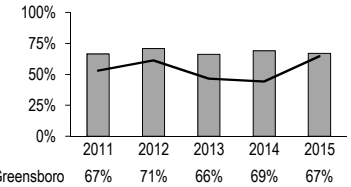
	2011	2012	2013	2014	2015
Greensboro	3.7	3.6	3.6	3.7	3.7
Average	4.5	4.6	4.8	4.7	4.7

Percentage of Fire Code Violations Cleared within 90 Days



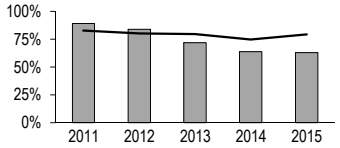
	2011	2012	2013	2014	2015
Greensboro	67%	67%	76%	78%	53%
Average	81%	86%	77%	83%	70%

Percentage of Fires Confined to Rooms or Objects Involved on Arrival



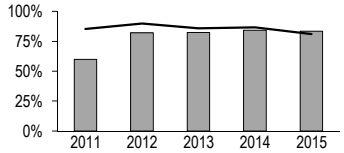
	2011	2012	2013	2014	2015
Greensboro	67%	71%	66%	69%	67%
Average	53%	61%	47%	44%	65%

Percentage of Fires for Which Cause Was Determined



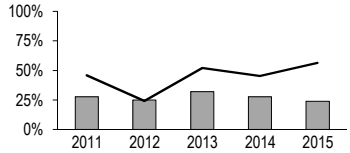
	2011	2012	2013	2014	2015
Greensboro	89%	84%	72%	64%	63%
Average	83%	80%	80%	75%	79%

Percentage of Full Response within 8 Minutes Travel Time



	2011	2012	2013	2014	2015
Greensboro	60%	82%	82%	84%	83%
Average	85%	90%	86%	87%	81%

Percentage of Lost Pulse Cases Recovered Pulse at Transfer of Care



	2011	2012	2013	2014	2015
Greensboro	27.6%	24.8%	32.1%	27.6%	24.0%
Average	45.9%	24.2%	52.0%	45.3%	56.5%

Fiscal Year 2014–15

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. The city provides fire services in areas beyond the city boundaries covering thirty-two square miles.

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 1,922 fire maintenance, construction, and reinspections during FY 2014–15. The Life Safety Services Division handles all inspection-related matters following the International Fire Code.

Conditions Affecting Service, Performance, and Costs
Greenville is the only city in the benchmarking project that has emergency medical services transports (EMS) provided through the city fire department. In the other jurisdictions, EMS transports 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	87,838
Land Area (Square Miles)	66.60
Persons per Square Mile	1,319
Median Family Income U.S. Census 2010	$50,395

Service Profile

FTE Positions—Firefighters	142.0
FTE Positions—Other	16.0
Fire Stations	6
First-Line Fire Apparatus	
Pumpers	2
Aerial Trucks	1
Quints	5
Squads	1
Rescue	1
Other	7
Fire Department Responses	16,365
Responses for Fires	283
Structural Fires Reported	80
Inspections Completed for Maintenance, Construction, and Reinspections	1,922
Fire Code Violations Reported	3,072
Estimated Fire Loss (millions)	$1.66
Amount of Property Protected in Service Area (millions)	$5,924
Number of Fire Education Programs or Events	120

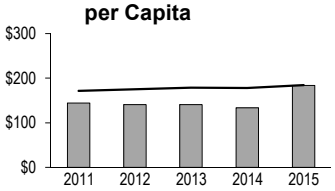
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	71.5%
Operating Costs	18.8%
Capital Costs	9.7%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$11,536,977
Operating Costs	$3,039,156
Capital Costs	$1,567,128
TOTAL	$16,143,261

Key: Greenville ■ Benchmarking Average — Fiscal Years 2011 through 2015

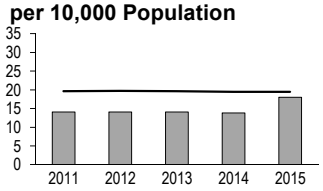
Resource Measures

Fire Services Costs per Capita



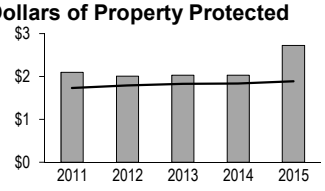
	2011	2012	2013	2014	2015
Greenville	$144	$141	$141	$134	$184
Average	$172	$175	$178	$178	$184

Fire Services Total FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Greenville	14.1	14.1	14.1	13.8	18.0
Average	19.6	19.7	19.6	19.5	19.4

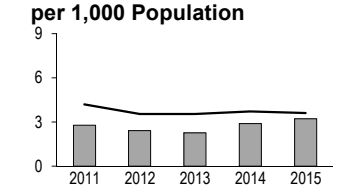
Fire Services Cost per Thousand Dollars of Property Protected



	2011	2012	2013	2014	2015
Greenville	$2.10	$2.01	$2.03	$2.03	$2.73
Average	$1.73	$1.79	$1.83	$1.84	$1.89

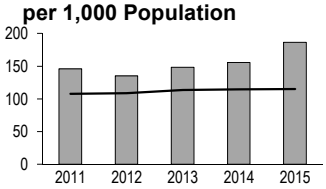
Workload Measures

Actual Fires per 1,000 Population



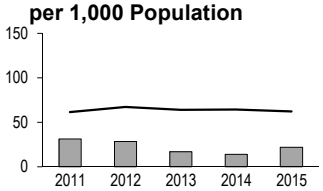
	2011	2012	2013	2014	2015
Greenville	2.79	2.42	2.26	2.91	3.22
Average	4.20	3.56	3.56	3.72	3.62

Fire Department Responses per 1,000 Population



	2011	2012	2013	2014	2015
Greenville	146	135	148	156	186
Average	108	109	114	115	115

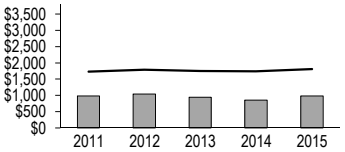
Fire Inspections Completed per 1,000 Population



	2011	2012	2013	2014	2015
Greenville	31	28	17	14	22
Average	61	67	64	64	62

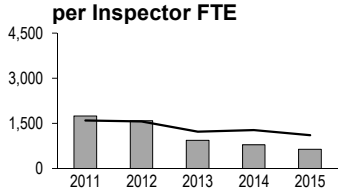
Efficiency Measures

Fire Services Cost per Fire Department Response



	2011	2012	2013	2014	2015
Greenville	$986	$1,040	$949	$860	$986
Average	$1,733	$1,785	$1,747	$1,745	$1,810

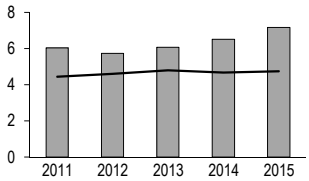
Inspections Completed per Inspector FTE



	2011	2012	2013	2014	2015
Greenville	1,745	1,585	941	790	641
Average	1,600	1,573	1,223	1,285	1,106

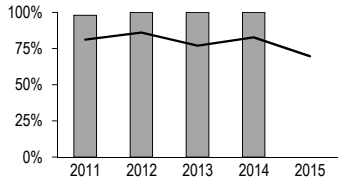
Effectiveness Measures

Average Response Time to Priority One Calls in Minutes



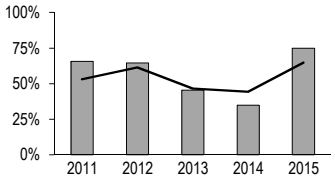
	2011	2012	2013	2014	2015
Greenville	6.1	5.7	6.1	6.5	7.2
Average	4.5	4.6	4.8	4.7	4.7

Percentage of Fire Code Violations Cleared within 90 Days



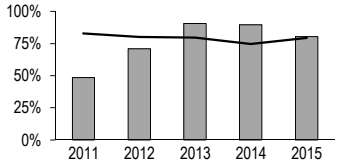
	2011	2012	2013	2014	2015
Greenville	98%	100%	100%	100%	
Average	81%	86%	77%	83%	70%

Percentage of Fires Confined to Rooms or Objects Involved on Arrival



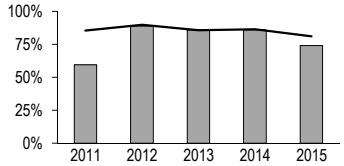
	2011	2012	2013	2014	2015
Greenville	66%	65%	45%	35%	75%
Average	53%	61%	47%	44%	65%

Percentage of Fires for Which Cause Was Determined



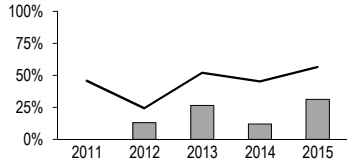
	2011	2012	2013	2014	2015
Greenville	49%	71%	91%	89%	80%
Average	83%	80%	80%	75%	79%

Percentage of Full Response within 8 Minutes Travel Time



	2011	2012	2013	2014	2015
Greenville	60%	89%	86%	86%	74%
Average	85%	90%	86%	87%	81%

Percentage of Lost Pulse Cases Recovered Pulse at Transfer of Care



	2011	2012	2013	2014	2015
Greenville		13.0%	26.4%	12.0%	31.3%
Average	45.9%	24.2%	52.0%	45.3%	56.5%

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery
The goal of Hickory Fire Department is to provide high quality emergency services, education, and prevention that protects the community through professional coworkers focused on customer service, compassion, commitment, and innovation. The city provides fire coverage for an area of 13 square miles beyond city boundaries.

The fire department contains the following divisions: administration, fire and life safety, 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 5,226 fire maintenance, construction, and reinspections during FY 2014–15. 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
Hickory has a fire station staffed at the regional airport in addition to the six community fire stations.

Municipal Profile

Service Population	45,366
Land Area (Square Miles)	42.76
Persons per Square Mile	1,061
Median Family Income U.S. Census 2010	$54,093

Service Profile

FTE Positions—Firefighters	117.0
FTE Positions—Other	19.0
Fire Stations	7
First-Line Fire Apparatus	
Pumpers	7
Aerial Trucks	2
Quints	0
Squads	0
Rescue	1
Other	3
Fire Department Responses	6,600
Responses for Fires	238
Structural Fires Reported	49
Inspections Completed for Maintenance, Construction, and Reinspections	5,226
Fire Code Violations Reported	3,335
Estimated Fire Loss (millions)	$1.19
Amount of Property Protected in Service Area (millions)	$5,252
Number of Fire Education Programs or Events	405

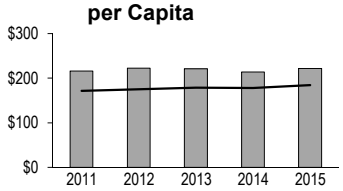
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	80.3%
Operating Costs	16.7%
Capital Costs	3.1%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$8,076,726
Operating Costs	$1,674,972
Capital Costs	$307,377
TOTAL	$10,059,075

Key: Hickory ■ Benchmarking Average — Fiscal Years 2011 through 2015

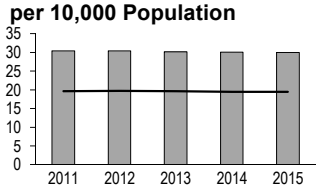
Resource Measures

Fire Services Costs per Capita



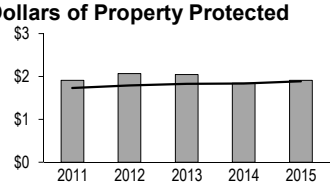
	2011	2012	2013	2014	2015
Hickory	$216	$223	$221	$214	$222
Average	$172	$175	$178	$178	$184

Fire Services Total FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Hickory	30.4	30.4	30.2	30.1	30.0
Average	19.6	19.7	19.6	19.5	19.4

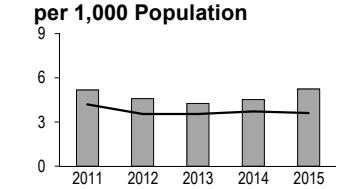
Fire Services Cost per Thousand Dollars of Property Protected



	2011	2012	2013	2014	2015
Hickory	$1.91	$2.07	$2.05	$1.84	$1.92
Average	$1.73	$1.79	$1.83	$1.84	$1.89

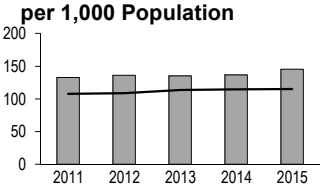
Workload Measures

Actual Fires per 1,000 Population



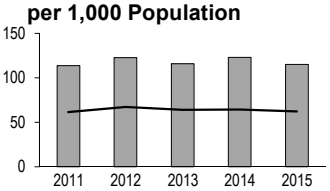
	2011	2012	2013	2014	2015
Hickory	5.19	4.59	4.26	4.53	5.25
Average	4.20	3.56	3.56	3.72	3.62

Fire Department Responses per 1,000 Population



	2011	2012	2013	2014	2015
Hickory	133	136	135	137	145
Average	108	109	114	115	115

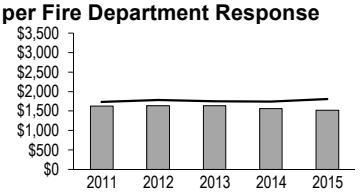
Fire Inspections Completed per 1,000 Population



	2011	2012	2013	2014	2015
Hickory	114	123	116	123	115
Average	61	67	64	64	62

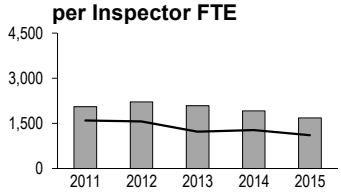
Efficiency Measures

Fire Services Cost per Fire Department Response



	2011	2012	2013	2014	2015
Hickory	$1,629	$1,635	$1,637	$1,565	$1,524
Average	$1,733	$1,785	$1,747	$1,745	$1,810

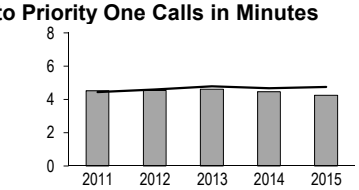
Inspections Completed per Inspector FTE



	2011	2012	2013	2014	2015
Hickory	2,052	2,215	2,086	1,918	1,686
Average	1,600	1,573	1,223	1,285	1,106

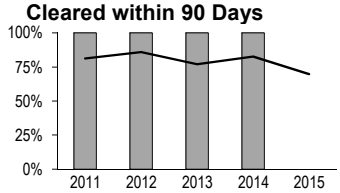
Effectiveness Measures

Average Response Time to Priority One Calls in Minutes



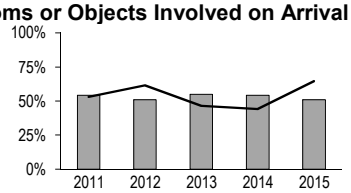
	2011	2012	2013	2014	2015
Hickory	4.5	4.6	4.6	4.5	4.3
Average	4.5	4.6	4.8	4.7	4.7

Percentage of Fire Code Violations Cleared within 90 Days



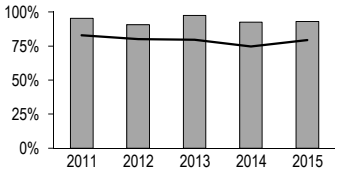
	2011	2012	2013	2014	2015
Hickory	100%	100%	100%	100%	
Average	81%	86%	77%	83%	70%

Percentage of Fires Confined to Rooms or Objects Involved on Arrival



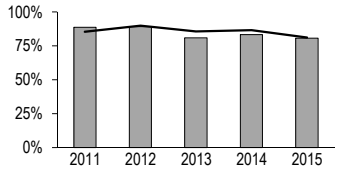
	2011	2012	2013	2014	2015
Hickory	54%	51%	55%	54%	51%
Average	53%	61%	47%	44%	65%

Percentage of Fires for Which Cause Was Determined



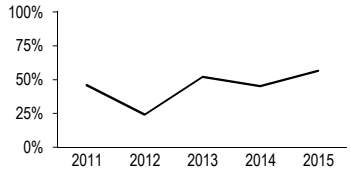
	2011	2012	2013	2014	2015
Hickory	95%	91%	97%	93%	93%
Average	83%	80%	80%	75%	79%

Percentage of Full Response within 8 Minutes Travel Time



	2011	2012	2013	2014	2015
Hickory	89%	89%	81%	83%	81%
Average	85%	90%	86%	87%	81%

Percentage of Lost Pulse Cases Recovered Pulse at Transfer of Care



	2011	2012	2013	2014	2015
Hickory					
Average	45.9%	24.2%	52.0%	45.3%	56.5%

Fiscal Year 2014–15

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 three rotating shifts. A shift cycle alternates three twenty-four-hour shifts on duty with one twenty-four break between each scheduled shift day. This is then followed by a four day break. This averages to a fifty-six hour work week over a twenty-seven day period.

The city has an ISO rating of 1, as rated in 2015. This is the highest rating possible.

The fire department in High Point conducted 6,849 fire maintenance, construction, and reinspections during FY 2014–15. 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

Municipal Profile

Service Population	118,022
Land Area (Square Miles)	67.05
Persons per Square Mile	1,760
Median Family Income U.S. Census 2010	$49,720

Service Profile

FTE Positions—Firefighters	210.0
FTE Positions—Other	24.0
Fire Stations	14
First-Line Fire Apparatus	
Pumpers	14
Aerial Trucks	4
Quints	0
Squads	0
Rescue	1
Other	10
Fire Department Responses	12,403
Responses for Fires	523
Structural Fires Reported	121
Inspections Completed for Maintenance, Construction, and Reinspections	6,849
Fire Code Violations Reported	3,625
Estimated Fire Loss (millions)	$4.00
Amount of Property Protected in Service Area (millions)	$9,803
Number of Fire Education Programs or Events	300

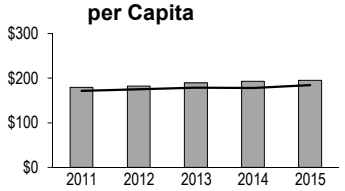
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	71.0%
Operating Costs	18.4%
Capital Costs	10.6%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$16,386,149
Operating Costs	$4,240,783
Capital Costs	$2,455,627
TOTAL	$23,082,559

Key: High Point ■ Benchmarking Average — Fiscal Years 2011 through 2015

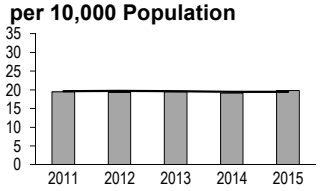
Resource Measures

Fire Services Costs per Capita



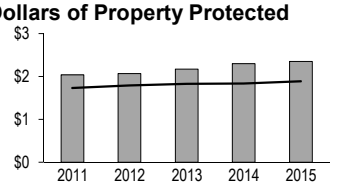
	2011	2012	2013	2014	2015
High Point	$180	$182	$190	$193	$196
Average	$172	$175	$178	$178	$184

Fire Services Total FTEs per 10,000 Population



	2011	2012	2013	2014	2015
High Point	19.5	19.3	19.5	19.1	19.8
Average	19.6	19.7	19.6	19.5	19.4

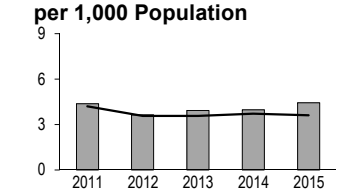
Fire Services Cost per Thousand Dollars of Property Protected



	2011	2012	2013	2014	2015
High Point	$2.04	$2.07	$2.17	$2.30	$2.35
Average	$1.73	$1.79	$1.83	$1.84	$1.89

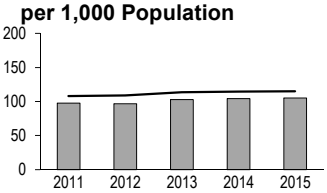
Workload Measures

Actual Fires per 1,000 Population



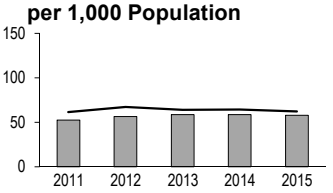
	2011	2012	2013	2014	2015
High Point	4.38	3.62	3.93	3.96	4.43
Average	4.20	3.56	3.56	3.72	3.62

Fire Department Responses per 1,000 Population



	2011	2012	2013	2014	2015
High Point	98	97	103	104	105
Average	108	109	114	115	115

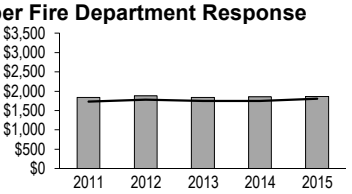
Fire Inspections Completed per 1,000 Population



	2011	2012	2013	2014	2015
High Point	52	57	58	59	58
Average	61	67	64	64	62

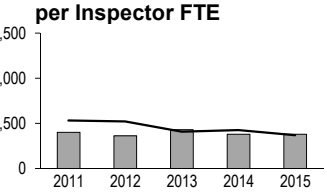
Efficiency Measures

Fire Services Cost per Fire Department Response



	2011	2012	2013	2014	2015
High Point	$1,836	$1,884	$1,840	$1,852	$1,861
Average	$1,733	$1,785	$1,747	$1,745	$1,810

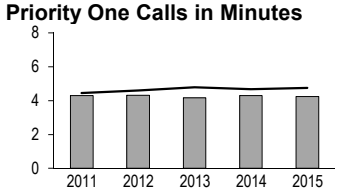
Inspections Completed per Inspector FTE



	2011	2012	2013	2014	2015
High Point	1,201	1,087	1,288	1,141	1,142
Average	1,600	1,573	1,223	1,285	1,106

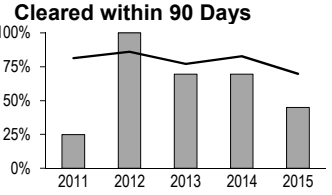
Effectiveness Measures

Average Response Time to Priority One Calls in Minutes



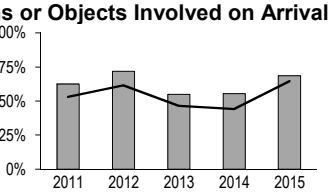
	2011	2012	2013	2014	2015
High Point	4.3	4.3	4.2	4.3	4.3
Average	4.5	4.6	4.8	4.7	4.7

Percentage of Fire Code Violations Cleared within 90 Days



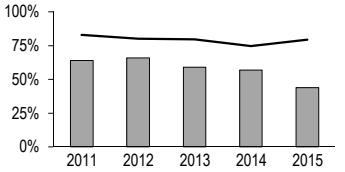
	2011	2012	2013	2014	2015
High Point	25%	100%	69%	70%	45%
Average	81%	86%	77%	83%	70%

Percentage of Fires Confined to Rooms or Objects Involved on Arrival



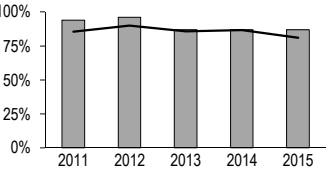
	2011	2012	2013	2014	2015
High Point	62%	72%	55%	55%	69%
Average	53%	61%	47%	44%	65%

Percentage of Fires for Which Cause Was Determined



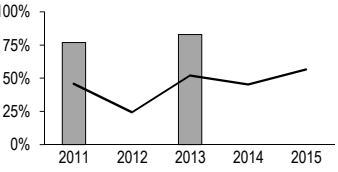
	2011	2012	2013	2014	2015
High Point	64%	66%	59%	57%	44%
Average	83%	80%	80%	75%	79%

Percentage of Full Response within 8 Minutes Travel Time



	2011	2012	2013	2014	2015
High Point	94%	96%	87%	87%	87%
Average	85%	90%	86%	87%	81%

Percentage of Lost Pulse Cases Recovered Pulse at Transfer of Care



	2011	2012	2013	2014	2015
High Point	76.9%	0.0%	82.9%		
Average	45.9%	24.2%	52.0%	45.3%	56.5%

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery

The purpose of 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 2008.

The fire department in Salisbury conducted 1,676 fire maintenance, construction, and reinspections in FY 2014–15. 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

Municipal Profile

Service Population	33,955
Land Area (Square Miles)	22.22
Persons per Square Mile	1,528
Median Family Income U.S. Census 2010	$40,192

Service Profile

FTE Positions—Firefighters	69.0
FTE Positions—Other	8.0
Fire Stations	5
First-Line Fire Apparatus	
Pumpers	2
Aerial Trucks	2
Quints	2
Squads	0
Rescue	0
Other	3
Fire Department Responses	5,206
Responses for Fires	158
Structural Fires Reported	43
Inspections Completed for Maintenance, Construction, and Reinspections	1,676
Fire Code Violations Reported	2,034
Estimated Fire Loss (millions)	$0.34
Amount of Property Protected in Service Area (millions)	$2,828
Number of Fire Education Programs or Events	73

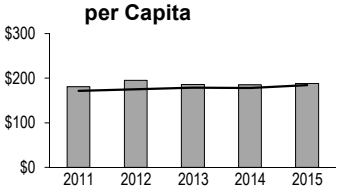
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	66.0%
Operating Costs	21.5%
Capital Costs	12.5%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$4,218,370
Operating Costs	$1,374,549
Capital Costs	$801,455
TOTAL	$6,394,374

Key: Salisbury ■ Benchmarking Average — Fiscal Years 2011 through 2015

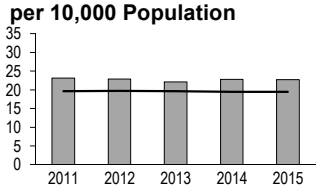
Resource Measures

Fire Services Costs per Capita



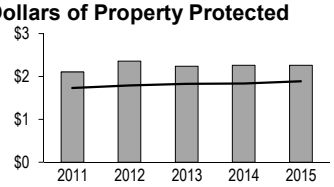
	2011	2012	2013	2014	2015
Salisbury	$181	$195	$186	$185	$188
Average	$172	$175	$178	$178	$184

Fire Services Total FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Salisbury	23.1	22.8	22.1	22.8	22.7
Average	19.6	19.7	19.6	19.5	19.4

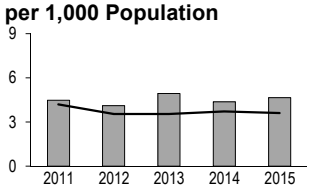
Fire Services Cost per Thousand Dollars of Property Protected



	2011	2012	2013	2014	2015
Salisbury	$2.11	$2.36	$2.24	$2.26	$2.26
Average	$1.73	$1.79	$1.83	$1.84	$1.89

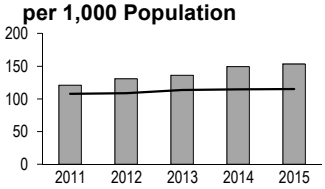
Workload Measures

Actual Fires per 1,000 Population



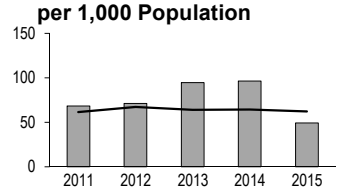
	2011	2012	2013	2014	2015
Salisbury	4.48	4.12	4.93	4.39	4.65
Average	4.20	3.56	3.56	3.72	3.62

Fire Department Responses per 1,000 Population



	2011	2012	2013	2014	2015
Salisbury	121	131	136	149	153
Average	108	109	114	115	115

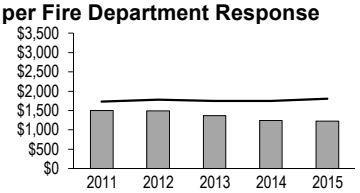
Fire Inspections Completed per 1,000 Population



	2011	2012	2013	2014	2015
Salisbury	68	71	95	97	49
Average	61	67	64	64	62

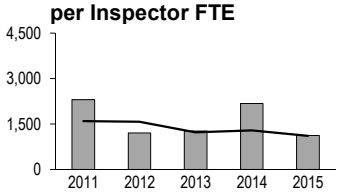
Efficiency Measures

Fire Services Cost per Fire Department Response



	2011	2012	2013	2014	2015
Salisbury	$1,500	$1,494	$1,368	$1,240	$1,228
Average	$1,733	$1,785	$1,747	$1,745	$1,810

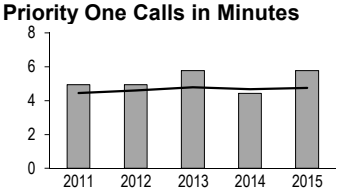
Inspections Completed per Inspector FTE



	2011	2012	2013	2014	2015
Salisbury	2,308	1,201	1,265	2,172	1,117
Average	1,600	1,573	1,223	1,285	1,106

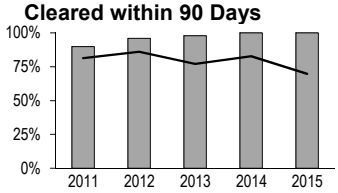
Effectiveness Measures

Average Response Time to Priority One Calls in Minutes



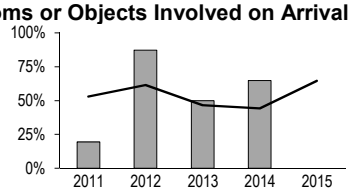
	2011	2012	2013	2014	2015
Salisbury	4.9	4.9	5.8	4.4	5.8
Average	4.5	4.6	4.8	4.7	4.7

Percentage of Fire Code Violations Cleared within 90 Days



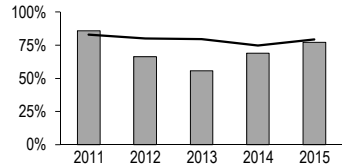
	2011	2012	2013	2014	2015
Salisbury	90%	96%	98%	100%	100%
Average	81%	86%	77%	83%	70%

Percentage of Fires Confined to Rooms or Objects Involved on Arrival



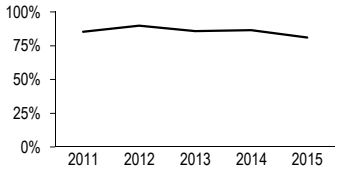
	2011	2012	2013	2014	2015
Salisbury	19%	87%	50%	65%	
Average	53%	61%	47%	44%	65%

Percentage of Fires for Which Cause Was Determined



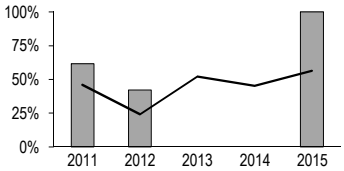
	2011	2012	2013	2014	2015
Salisbury	86%	66%	56%	69%	77%
Average	83%	80%	80%	75%	79%

Percentage of Full Response within 8 Minutes Travel Time



	2011	2012	2013	2014	2015
Salisbury					
Average	85%	90%	86%	87%	81%

Percentage of Lost Pulse Cases Recovered Pulse at Transfer of Care



	2011	2012	2013	2014	2015
Salisbury	61.5%	42.1%			100.0%
Average	45.9%	24.2%	52.0%	45.3%	56.5%

Fiscal Year 2014–15

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-hour 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 5,541 fire maintenance, construction, and reinspections during FY 2014–15. Fire inspections are conducted by the Fire Prevention Bureau on a daily basis. Each inspector is assigned a district in which he or she handles all inspections. A charge is made on the third reinspection.

Conditions Affecting Service, Performance, and Costs

Municipal Profile

Service Population	49,222
Land Area (Square Miles)	30.52
Persons per Square Mile	1,613
Median Family Income	$43,442
U.S. Census 2010	

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	3,479
Responses for Fires	200
Structural Fires Reported	60
Inspections Completed for Maintenance, Construction, and Reinspections	5,541
Fire Code Violations Reported	5,225
Estimated Fire Loss (millions)	$1.48
Amount of Property Protected in Service Area (millions)	$4,201
Number of Fire Education Programs or Events	915

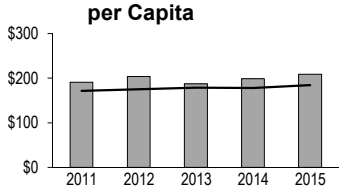
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	73.0%
Operating Costs	19.0%
Capital Costs	8.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$7,504,958
Operating Costs	$1,951,930
Capital Costs	$826,737
TOTAL	$10,283,625

Key: Wilson ■ Benchmarking Average — Fiscal Years 2011 through 2015

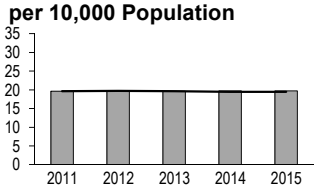
Resource Measures

Fire Services Costs per Capita



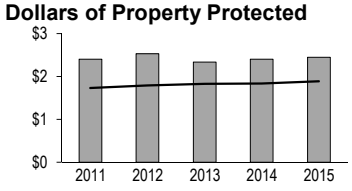
	2011	2012	2013	2014	2015
Wilson	$191	$204	$187	$199	$209
Average	$172	$175	$178	$178	$184

Fire Services Total FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Wilson	19.6	19.7	19.6	19.8	19.7
Average	19.6	19.7	19.6	19.5	19.4

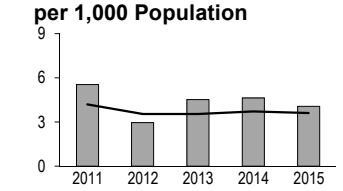
Fire Services Cost per Thousand Dollars of Property Protected



	2011	2012	2013	2014	2015
Wilson	$2.41	$2.53	$2.34	$2.41	$2.45
Average	$1.73	$1.79	$1.83	$1.84	$1.89

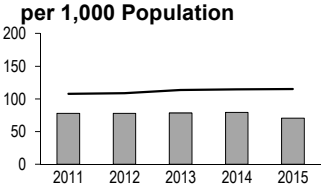
Workload Measures

Actual Fires per 1,000 Population



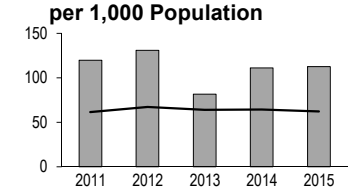
	2011	2012	2013	2014	2015
Wilson	5.54	2.97	4.53	4.64	4.06
Average	4.20	3.56	3.56	3.72	3.62

Fire Department Responses per 1,000 Population



	2011	2012	2013	2014	2015
Wilson	78	78	78	79	71
Average	108	109	114	115	115

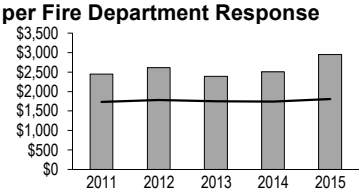
Fire Inspections Completed per 1,000 Population



	2011	2012	2013	2014	2015
Wilson	120	131	82	111	113
Average	61	67	64	64	62

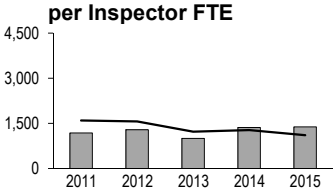
Efficiency Measures

Fire Services Cost per Fire Department Response



	2011	2012	2013	2014	2015
Wilson	$2,446	$2,617	$2,389	$2,511	$2,956
Average	$1,733	$1,785	$1,747	$1,745	$1,810

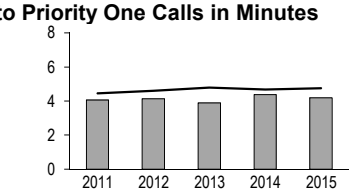
Inspections Completed per Inspector FTE



	2011	2012	2013	2014	2015
Wilson	1,184	1,287	1,008	1,366	1,385
Average	1,600	1,573	1,223	1,285	1,106

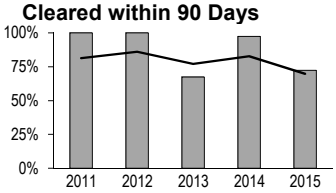
Effectiveness Measures

Average Response Time to Priority One Calls in Minutes



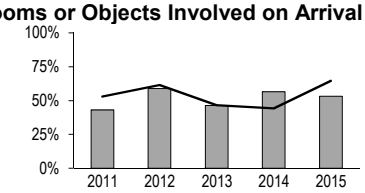
	2011	2012	2013	2014	2015
Wilson	4.1	4.1	3.9	4.4	4.2
Average	4.5	4.6	4.8	4.7	4.7

Percentage of Fire Code Violations Cleared within 90 Days



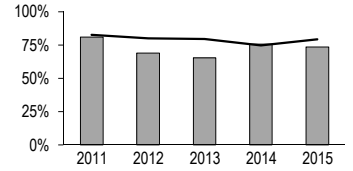
	2011	2012	2013	2014	2015
Wilson	100%	100%	67%	97%	73%
Average	81%	86%	77%	83%	70%

Percentage of Fires Confined to Rooms or Objects Involved on Arrival



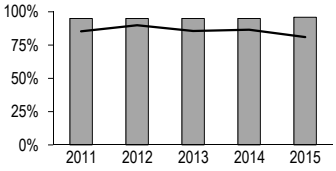
	2011	2012	2013	2014	2015
Wilson	43%	59%	46%	57%	53%
Average	53%	61%	47%	44%	65%

Percentage of Fires for Which Cause Was Determined



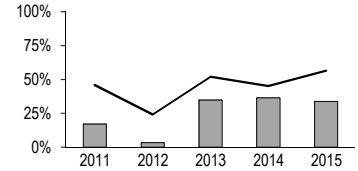
	2011	2012	2013	2014	2015
Wilson	81%	69%	65%	76%	74%
Average	83%	80%	80%	75%	79%

Percentage of Full Response within 8 Minutes Travel Time



	2011	2012	2013	2014	2015
Wilson	95%	95%	95%	95%	96%
Average	85%	90%	86%	87%	81%

Percentage of Lost Pulse Cases Recovered Pulse at Transfer of Care



	2011	2012	2013	2014	2015
Wilson	17.1%	3.4%	34.9%	36.4%	34.0%
Average	45.9%	24.2%	52.0%	45.3%	56.5%

Fiscal Year 2014–15

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 2, as rated in 2015.

The fire department in Winston-Salem conducted 12,635 fire maintenance, construction, and reinspections during FY 2014–15. 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
Winston-Salem has a high number of inspections per inspector full-time equivalent (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.

Winston-Salem made a policy change for medical call responses which lowered the total number of incidents which the fire department responded to during FY 2013–14. The city worked through the dispatch protocol to eliminate certain "non-life threatening" calls, which lowered the number of medical calls.

Municipal Profile

Service Population	237,905
Land Area (Square Miles)	132.45
Persons per Square Mile	1,796
Median Family Income U.S. Census 2010	$51,491

Service Profile

FTE Positions—Firefighters	316.2
FTE Positions—Other	26.8
Fire Stations	19
First-Line Fire Apparatus	
Pumpers	19
Aerial Trucks	5
Quints	0
Squads	0
Rescue	2
Other	14
Fire Department Responses	20,188
Responses for Fires	819
Structural Fires Reported	263
Inspections Completed for Maintenance, Construction, and Reinspections	12,635
Fire Code Violations Reported	9,139
Estimated Fire Loss (millions)	$5.17
Amount of Property Protected in Service Area (millions)	$20,000
Number of Fire Education Programs or Events	556

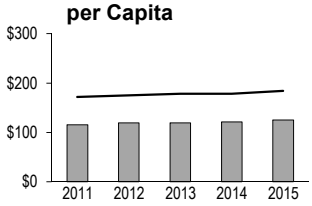
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	78.8%
Operating Costs	13.4%
Capital Costs	7.8%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$23,419,278
Operating Costs	$3,994,525
Capital Costs	$2,319,025
TOTAL	$29,732,828

Key: Winston-Salem ■ Benchmarking Average — Fiscal Years 2011 through 2015

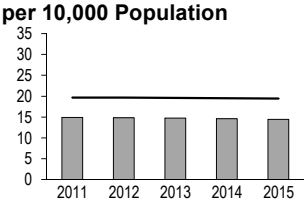
Resource Measures

Fire Services Costs per Capita



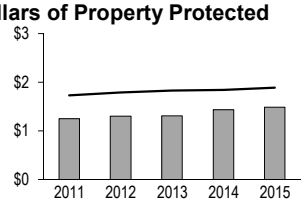
	2011	2012	2013	2014	2015
Winston-Salem	$116	$120	$119	$121	$125
Average	$172	$175	$178	$178	$184

Fire Services Total FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Winston-Salem	14.9	14.8	14.7	14.6	14.4
Average	19.6	19.7	19.6	19.5	19.4

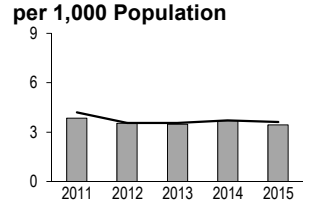
Fire Services Cost per Thousand Dollars of Property Protected



	2011	2012	2013	2014	2015
Winston-Salem	$1.25	$1.31	$1.31	$1.43	$1.49
Average	$1.73	$1.79	$1.83	$1.84	$1.89

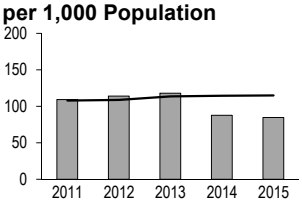
Workload Measures

Actual Fires per 1,000 Population



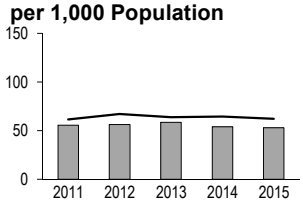
	2011	2012	2013	2014	2015
Winston-Salem	3.85	3.55	3.48	3.69	3.44
Average	4.20	3.56	3.56	3.72	3.62

Fire Department Responses per 1,000 Population



	2011	2012	2013	2014	2015
Winston-Salem	109	114	118	88	85
Average	108	109	114	115	115

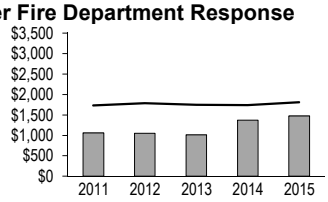
Fire Inspections Completed per 1,000 Population



	2011	2012	2013	2014	2015
Winston-Salem	56	56	59	54	53
Average	61	67	64	64	62

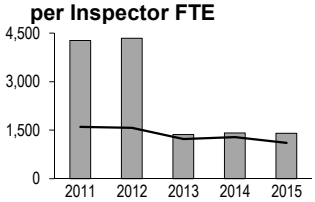
Efficiency Measures

Fire Services Cost per Fire Department Response



	2011	2012	2013	2014	2015
Winston-Salem	$1,057	$1,048	$1,009	$1,377	$1,473
Average	$1,733	$1,785	$1,747	$1,745	$1,810

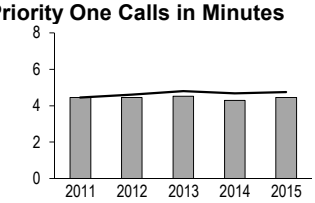
Inspections Completed per Inspector FTE



	2011	2012	2013	2014	2015
Winston-Salem	4,280	4,341	1,368	1,411	1,404
Average	1,600	1,573	1,223	1,285	1,106

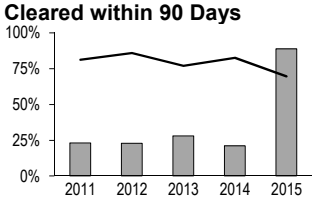
Effectiveness Measures

Average Response Time to Priority One Calls in Minutes



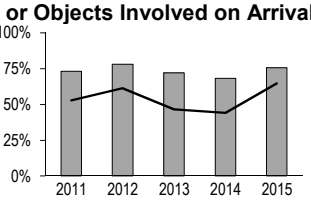
	2011	2012	2013	2014	2015
Winston-Salem	4.5	4.5	4.5	4.3	4.5
Average	4.5	4.6	4.8	4.7	4.7

Percentage of Fire Code Violations Cleared within 90 Days



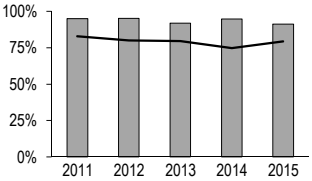
	2011	2012	2013	2014	2015
Winston-Salem	23%	23%	28%	21%	89%
Average	81%	86%	77%	83%	70%

Percentage of Fires Confined to Rooms or Objects Involved on Arrival



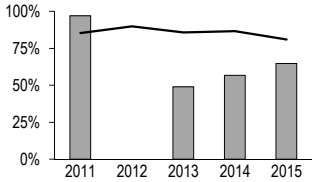
	2011	2012	2013	2014	2015
Winston-Salem	73%	78%	72%	68%	76%
Average	53%	61%	47%	44%	65%

Percentage of Fires for Which Cause Was Determined



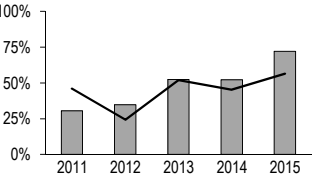
	2011	2012	2013	2014	2015
Winston-Salem	95%	95%	92%	95%	91%
Average	83%	80%	80%	75%	79%

Percentage of Full Response within 8 Minutes Travel Time



	2011	2012	2013	2014	2015
Winston-Salem	97%		49%	57%	65%
Average	85%	90%	86%	87%	81%

Percentage of Lost Pulse Cases Recovered Pulse at Transfer of Care



	2011	2012	2013	2014	2015
Winston-Salem	30.4%	34.8%	52.4%	52.2%	72.2%
Average	45.9%	24.2%	52.0%	45.3%	56.5%

UNC
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Performance and Cost Data

BUILDING INSPECTIONS

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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 made 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 2012	Building Inspections by Trade					Number of Plan Reviewers	Building Inspector FTEs	Total Staff FTEs
			Building	Electrical	Mechanical	Plumbing	Total			
Apex	35.4	91.5%	11,441	6,627	5,199	5,613	28,880	2	6	13
Asheville	45.8	24.3%	14,612	8,582	5,332	6,067	34,593	5	14	32
Burlington	43.9	14.1%	2,423	3,569	2,484	1,779	10,255	1	5	9
Cary	67.1	47.2%	26,050	16,089	14,642	10,800	67,581	4	21	37
Chapel Hill	27.5	11.8%	4,154	2,532	2,425	2,279	11,390	1	6	11
Greensboro	133.2	21.6%	22,771	15,099	12,674	11,218	61,762	5	15	30
Greenville	66.8	39.0%	3,792	3,435	3,505	2,278	13,010	1	5	9
High Point	60.5	22.9%	10,785	6,784	5,560	3,933	27,062	3	10	19
Wilson	58.5	10.6%	2,423	1,740	2,065	1,107	7,335	1	3	6
Winston-Salem	396.0	25.0%	17,876	12,284	17,726	11,979	59,865	4	16	36

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 2014–15

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 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 primarily 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 voicemail by 3 a.m. are to be performed on the next business day.

Total revenue received from inspection fees amounted to $1,244,015 for FY 2014–15.

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	62,598
Land Area Inspected (Square Miles)	35.36
Persons per Square Mile	1,770
Estimated Tax Base in Service Area (billions)	$7.39
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	6.0
Total Inspectors	6.0
FTE Plan Reviewers	2.0
Other FTE Positions	5.0
Total of All Positions	13.0
Number of Inspections by Type	
Building	11,441
Electrical	6,627
Mechanical	5,199
Plumbing	5,613
TOTAL	28,880
Building Permit Values	
Residential	$138,244,806
Multi-Family	with residential
Commercial	$47,279,557
TOTAL	$185,524,363
Inspection Fee Revenue	$1,244,015

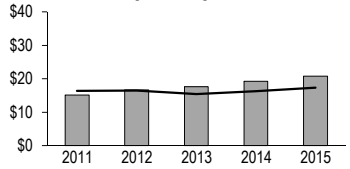
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	77.9%
Operating Costs	16.4%
Capital Costs	5.7%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,015,049
Operating Costs	$214,363
Capital Costs	$73,840
TOTAL	$1,303,252

Key: Apex ■ Benchmarking Average — Fiscal Years 2011 through 2015

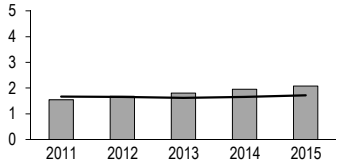
Resource Measures

Building Inspections Services Costs per Capita



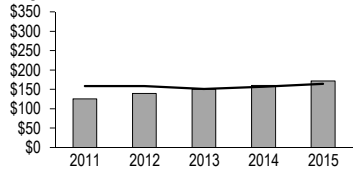
	2011	2012	2013	2014	2015
Apex	$15.15	$16.69	$17.57	$19.29	$20.82
Average	$16.33	$16.43	$15.40	$16.27	$17.37

Building Inspections Services FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Apex	1.54	1.68	1.81	1.96	2.08
Average	1.66	1.65	1.62	1.66	1.72

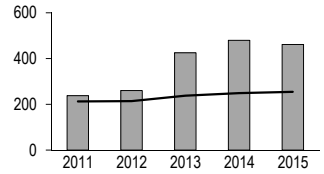
Building Inspections Services Cost per Million Dollars of Tax Base



	2011	2012	2013	2014	2015
Apex	$126	$139	$150	$160	$172
Average	$158	$159	$151	$157	$164

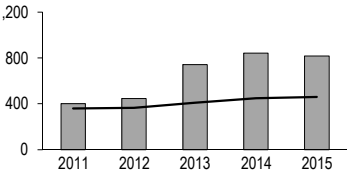
Workload Measures

Inspections per 1,000 Population in Service Area



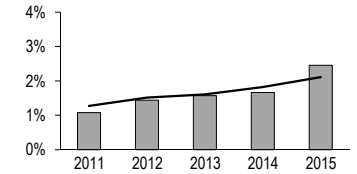
	2011	2012	2013	2014	2015
Apex	237	259	425	479	461
Average	211	214	238	248	255

Inspections per Square Mile in Service Area



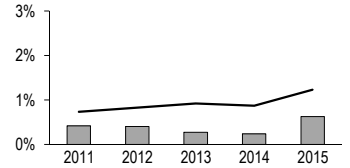
	2011	2012	2013	2014	2015
Apex	400	445	743	843	817
Average	358	364	410	448	461

Value of Building Permits as Percentage of Tax Base of Area Served



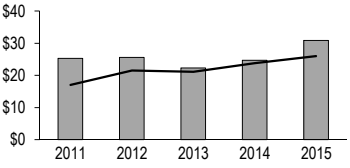
	2011	2012	2013	2014	2015
Apex	1.08%	1.44%	1.57%	1.67%	2.45%
Average	1.27%	1.51%	1.60%	1.82%	2.11%

Value of Commercial Permits as Percentage of Tax Base of Area Served



	2011	2012	2013	2014	2015
Apex	0.41%	0.40%	0.27%	0.24%	0.62%
Average	0.73%	0.82%	0.92%	0.87%	1.23%

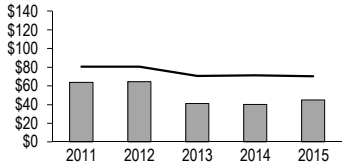
Value of Building Permits per Inspector FTE in Millions of Dollars



	2011	2012	2013	2014	2015
Apex	$25.3	$25.6	$22.3	$24.7	$30.9
Average	$17.0	$21.5	$21.2	$23.8	$25.9

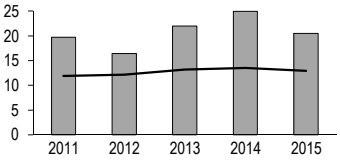
Efficiency Measures

Building Services Cost per Inspection—All Types



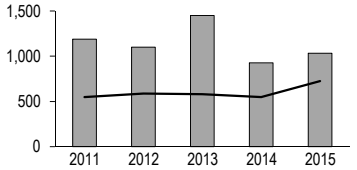
	2011	2012	2013	2014	2015
Apex	$63.80	$64.41	$41.38	$40.28	$45.13
Average	$80.41	$80.55	$70.67	$71.25	$70.19

Inspections per Day per Inspector FTE



	2011	2012	2013	2014	2015
Apex	19.7	16.4	22.0	25.0	20.5
Average	11.9	12.2	13.2	13.5	12.9

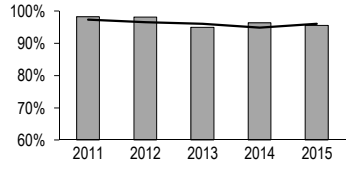
Plan Reviews per Year per Reviewer FTE



	2011	2012	2013	2014	2015
Apex	1,188	1,102	1,452	926	1,034
Average	546	587	579	548	724

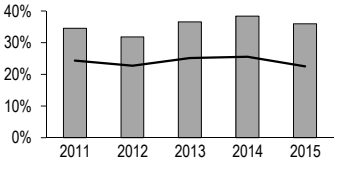
Effectiveness Measures

Percentage of Inspection Responses within One Working Day of Request



	2011	2012	2013	2014	2015
Apex	98.2%	98.1%	95.0%	96.4%	95.6%
Average	97.3%	96.5%	96.1%	94.9%	96.0%

Percentage of Inspections That Are Reinspections



	2011	2012	2013	2014	2015
Apex	34.5%	31.8%	36.6%	38.4%	36.0%
Average	24.4%	22.7%	25.2%	25.6%	22.6%

Fiscal Year 2014–15

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.

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 $3.7 million for FY 2014–15. 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 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	88,248
Land Area Inspected (Square Miles)	45.79
Persons per Square Mile	1,927
Estimated Tax Base in Service Area (billions)	$11.17
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	14.0
Total Inspectors	14.0
FTE Plan Reviewers	5.0
Other FTE Positions	13.0
Total of All Positions	32.0
Number of Inspections by Type	
Building	14,612
Electrical	8,582
Mechanical	5,332
Plumbing	6,067
TOTAL	34,593
Building Permit Values	
Residential	$119,810,656
Multi-Family	$49,958,010
Commercial	$297,436,214
TOTAL	$467,204,880
Inspection Fee Revenue	$3,729,510

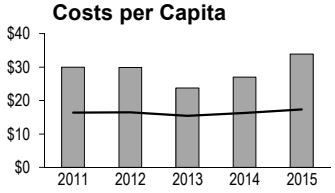
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	68.2%
Operating Costs	27.1%
Capital Costs	4.7%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$2,062,401
Operating Costs	$821,291
Capital Costs	$142,212
TOTAL	$3,025,904

Key: Asheville ■ Benchmarking Average — Fiscal Years 2011 through 2015

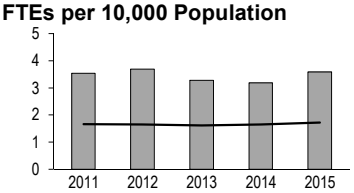
Resource Measures

Building Inspections Services Costs per Capita



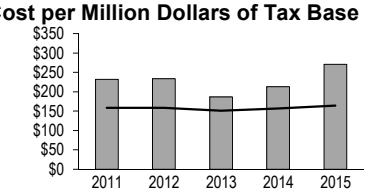
	2011	2012	2013	2014	2015
Asheville	$29.99	$29.92	$23.71	$27.04	$33.90
Average	$16.33	$16.43	$15.40	$16.27	$17.37

Building Inspections Services FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Asheville	3.54	3.69	3.28	3.18	3.59
Average	1.66	1.65	1.62	1.66	1.72

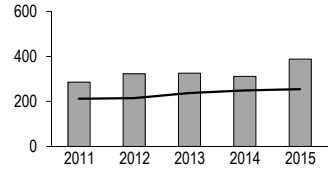
Building Inspections Services Cost per Million Dollars of Tax Base



	2011	2012	2013	2014	2015
Asheville	$232	$234	$186	$213	$271
Average	$158	$159	$151	$157	$164

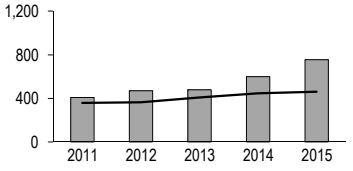
Workload Measures

Inspections per 1,000 Population in Service Area



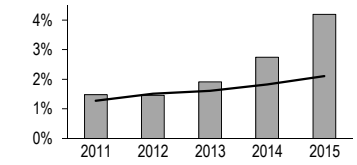
	2011	2012	2013	2014	2015
Asheville	285	323	325	311	388
Average	211	214	238	248	255

Inspections per Square Mile in Service Area



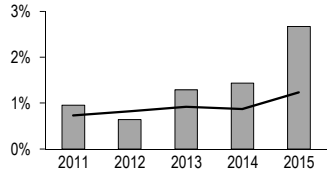
	2011	2012	2013	2014	2015
Asheville	410	471	478	599	755
Average	358	364	410	448	461

Value of Building Permits as Percentage of Tax Base of Area Served



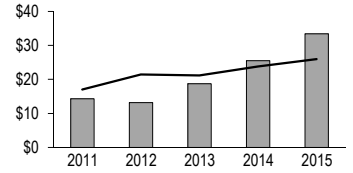
	2011	2012	2013	2014	2015
Asheville	1.48%	1.45%	1.91%	2.74%	4.19%
Average	1.27%	1.51%	1.60%	1.82%	2.11%

Value of Commercial Permits as Percentage of Tax Base of Area Served



	2011	2012	2013	2014	2015
Asheville	0.95%	0.64%	1.29%	1.43%	2.67%
Average	0.73%	0.82%	0.92%	0.87%	1.23%

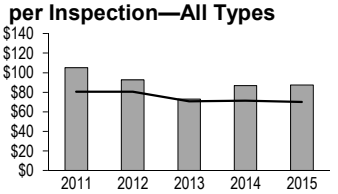
Value of Building Permits per Inspector FTE in Millions of Dollars



	2011	2012	2013	2014	2015
Asheville	$14.3	$13.2	$18.8	$25.5	$33.4
Average	$17.0	$21.5	$21.2	$23.8	$25.9

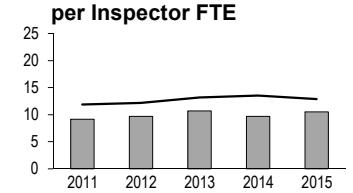
Efficiency Measures

Building Services Cost per Inspection—All Types



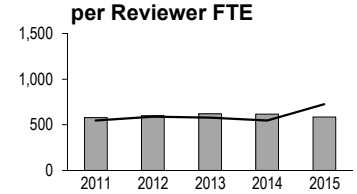
	2011	2012	2013	2014	2015
Asheville	$105.08	$92.76	$72.87	$86.83	$87.47
Average	$80.41	$80.55	$70.67	$71.25	$70.19

Inspections per Day per Inspector FTE



	2011	2012	2013	2014	2015
Asheville	9.1	9.7	10.7	9.7	10.5
Average	11.9	12.2	13.2	13.5	12.9

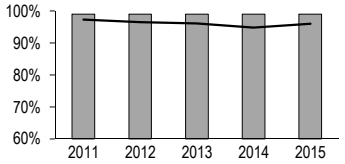
Plan Reviews per Year per Reviewer FTE



	2011	2012	2013	2014	2015
Asheville	578	598	622	616	585
Average	546	587	579	548	724

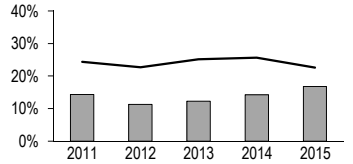
Effectiveness Measures

Percentage of Inspection Responses within One Working Day of Request



	2011	2012	2013	2014	2015
Asheville	99.0%	99.0%	99.0%	99.0%	99.0%
Average	97.3%	96.5%	96.1%	94.9%	96.0%

Percentage of Inspections That Are Reinspections



	2011	2012	2013	2014	2015
Asheville	14.3%	11.3%	12.3%	14.2%	16.8%
Average	24.4%	22.7%	25.2%	25.6%	22.6%

Fiscal Year 2014–15

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 division 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 $602,812 for FY 2014–15. 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.

Burlington started residential plan reviews on June 1, 2009.

Burlington had a large one-time charge for contracted services in FY 2014 which pushed costs up over the prior year.

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	56,742
Land Area Inspected (Square Miles)	43.91
Persons per Square Mile	1,292
Estimated Tax Base in Service Area (billions)	$4.87
Median Family Income U.S. Census 2010	$46,461

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	3.0
Total of All Positions	9.0
Number of Inspections by Type	
Building	2,423
Electrical	3,569
Mechanical	2,484
Plumbing	1,779
TOTAL	10,255
Building Permit Values	
Residential	$39,738,400
Multi-Family	with commercial
Commercial	$60,388,613
TOTAL	$100,127,013
Inspection Fee Revenue	$602,812

Full Cost Profile

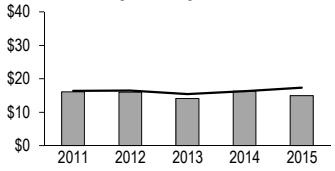
Cost Breakdown by Percentage	
Personal Services	75.7%
Operating Costs	14.6%
Capital Costs	9.6%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$640,131
Operating Costs	$123,450
Capital Costs	$81,501
TOTAL	$845,082

Burlington — Building Inspections

Key: Burlington ■ Benchmarking Average — Fiscal Years 2011 through 2015

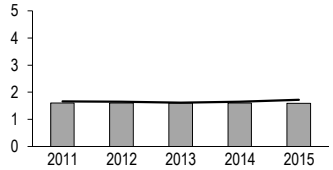
Resource Measures

Building Inspections Services Costs per Capita



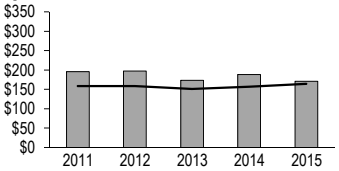
	2011	2012	2013	2014	2015
Burlington	$16.07	$16.00	$14.04	$16.29	$14.89
Average	$16.33	$16.43	$15.40	$16.27	$17.37

Building Inspections Services FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Burlington	1.61	1.60	1.61	1.60	1.59
Average	1.66	1.65	1.62	1.66	1.72

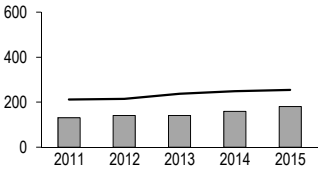
Building Inspections Services Cost per Million Dollars of Tax Base



	2011	2012	2013	2014	2015
Burlington	$196	$197	$173	$188	$170
Average	$158	$159	$151	$157	$164

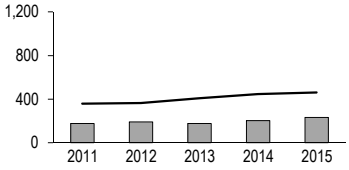
Workload Measures

Inspections per 1,000 Population in Service Area



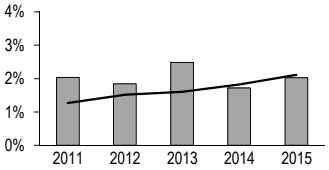
	2011	2012	2013	2014	2015
Burlington	131	140	140	159	181
Average	211	214	238	248	255

Inspections per Square Mile in Service Area



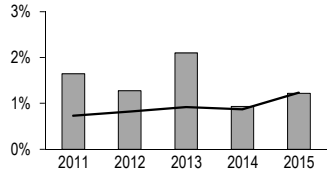
	2011	2012	2013	2014	2015
Burlington	178	192	178	203	234
Average	358	364	410	448	461

Value of Building Permits as Percentage of Tax Base of Area Served



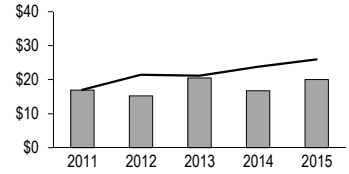
	2011	2012	2013	2014	2015
Burlington	2.03%	1.84%	2.49%	1.72%	2.02%
Average	1.27%	1.51%	1.60%	1.82%	2.11%

Value of Commercial Permits as Percentage of Tax Base of Area Served



	2011	2012	2013	2014	2015
Burlington	1.65%	1.28%	2.10%	0.93%	1.22%
Average	0.73%	0.82%	0.92%	0.87%	1.23%

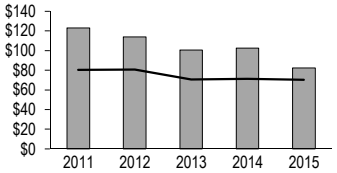
Value of Building Permits per Inspector FTE in Millions of Dollars



	2011	2012	2013	2014	2015
Burlington	$17.0	$15.2	$20.5	$16.7	$20.0
Average	$17.0	$21.5	$21.2	$23.8	$25.9

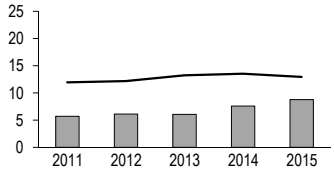
Efficiency Measures

Building Services Cost per Inspection—All Types



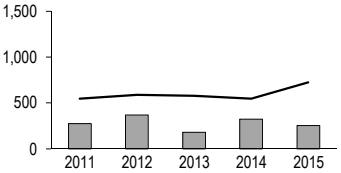
	2011	2012	2013	2014	2015
Burlington	$122.83	$113.99	$100.42	$102.51	$82.41
Average	$80.41	$80.55	$70.67	$71.25	$70.19

Inspections per Day per Inspector FTE



	2011	2012	2013	2014	2015
Burlington	5.7	6.1	6.1	7.6	8.7
Average	11.9	12.2	13.2	13.5	12.9

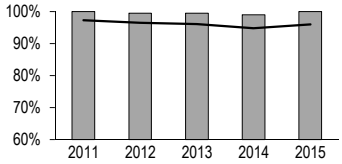
Plan Reviews per Year per Reviewer FTE



	2011	2012	2013	2014	2015
Burlington	276	370	182	324	254
Average	546	587	579	548	724

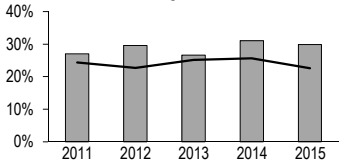
Effectiveness Measures

Percentage of Inspection Responses within One Working Day of Request



	2011	2012	2013	2014	2015
Burlington	100.0%	99.5%	99.5%	99.0%	100.0%
Average	97.3%	96.5%	96.1%	94.9%	96.0%

Percentage of Inspections That Are Reinspections



	2011	2012	2013	2014	2015
Burlington	27.0%	29.6%	26.6%	31.1%	29.9%
Average	24.4%	22.7%	25.2%	25.6%	22.6%

Fiscal Year 2014–15

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 entity, 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 North Carolina 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.

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 inspections trade groups.

Total revenue received from inspection fees amounted to $2.7.million for FY 2014–15. 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	158,957
Land Area Inspected (Square Miles)	67.10
Persons per Square Mile	2,369
Estimated Tax Base in Service Area (billions)	$23.54
Median Family Income U.S. Census 2010	$108,956

Service Profile

FTE Inspectors	
Building	8.0
Electrical	2.0
Mechanical	3.0
Plumbing	3.0
All Trades	5.0
Total Inspectors	21.0
FTE Plan Reviewers	4.0
Other FTE Positions	12.0
Total of All Positions	37.0
Number of Inspections by Type	
Building	26,050
Electrical	16,089
Mechanical	14,642
Plumbing	10,800
TOTAL	67,581
Building Permit Values	
Residential	$214,224,040
Multi-Family	$22,721,756
Commercial	$83,923,241
TOTAL	$320,869,037
Inspection Fee Revenue	$2,794,893

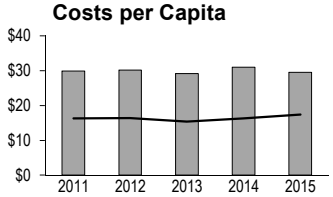
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	72.2%
Operating Costs	23.1%
Capital Costs	4.8%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$3,383,663
Operating Costs	$1,081,205
Capital Costs	$224,885
TOTAL	$4,689,753

Key: Cary ■ Benchmarking Average — Fiscal Years 2011 through 2015

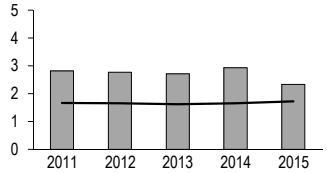
Resource Measures

Building Inspections Services Costs per Capita



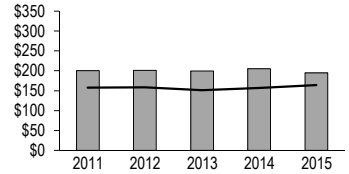
	2011	2012	2013	2014	2015
Cary	$29.92	$30.17	$29.19	$31.04	$29.50
Average	$16.33	$16.43	$15.40	$16.27	$17.37

Building Inspections Services FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Cary	2.82	2.76	2.71	2.93	2.33
Average	1.66	1.65	1.62	1.66	1.72

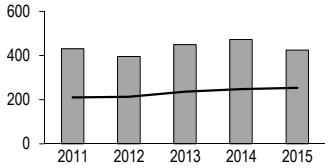
Building Inspections Services Cost per Million Dollars of Tax Base



	2011	2012	2013	2014	2015
Cary	$200	$201	$199	$205	$195
Average	$158	$159	$151	$157	$164

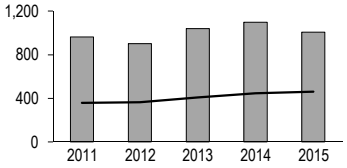
Workload Measures

Inspections per 1,000 Population in Service Area



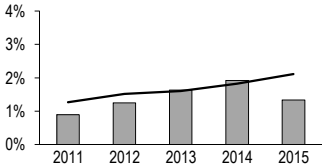
	2011	2012	2013	2014	2015
Cary	431	397	449	473	425
Average	211	214	238	248	255

Inspections per Square Mile in Service Area



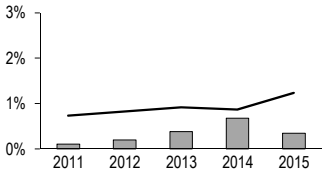
	2011	2012	2013	2014	2015
Cary	963	902	1,040	1,100	1,007
Average	358	364	410	448	461

Value of Building Permits as Percentage of Tax Base of Area Served



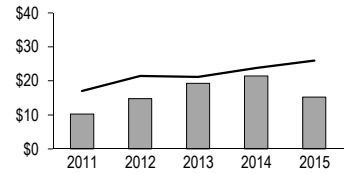
	2011	2012	2013	2014	2015
Cary	0.89%	1.24%	1.63%	1.92%	1.33%
Average	1.27%	1.51%	1.60%	1.82%	2.11%

Value of Commercial Permits as Percentage of Tax Base of Area Served



	2011	2012	2013	2014	2015
Cary	0.10%	0.20%	0.38%	0.68%	0.35%
Average	0.73%	0.82%	0.92%	0.87%	1.23%

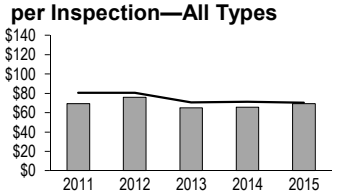
Value of Building Permits per Inspector FTE in Millions of Dollars



	2011	2012	2013	2014	2015
Cary	$10.3	$14.8	$19.3	$21.5	$15.3
Average	$17.0	$21.5	$21.2	$23.8	$25.9

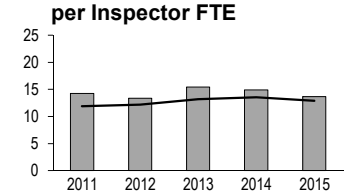
Efficiency Measures

Building Services Cost per Inspection—All Types



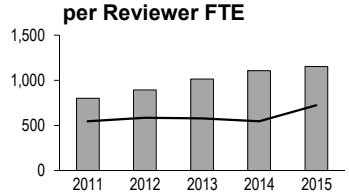
	2011	2012	2013	2014	2015
Cary	$69.45	$76.07	$64.98	$65.57	$69.39
Average	$80.41	$80.55	$70.67	$71.25	$70.19

Inspections per Day per Inspector FTE



	2011	2012	2013	2014	2015
Cary	14.2	13.4	15.4	14.9	13.7
Average	11.9	12.2	13.2	13.5	12.9

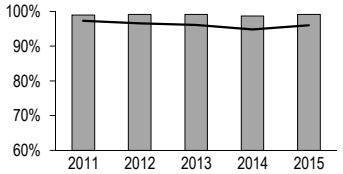
Plan Reviews per Year per Reviewer FTE



	2011	2012	2013	2014	2015
Cary	801	893	1,014	1,109	1,154
Average	546	587	579	548	724

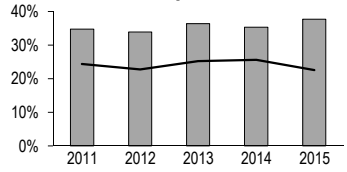
Effectiveness Measures

Percentage of Inspection Responses within One Working Day of Request



	2011	2012	2013	2014	2015
Cary	99.0%	99.2%	99.1%	98.7%	99.1%
Average	97.3%	96.5%	96.1%	94.9%	96.0%

Percentage of Inspections That Are Reinspections



	2011	2012	2013	2014	2015
Cary	34.7%	33.9%	36.3%	35.3%	37.6%
Average	24.4%	22.7%	25.2%	25.6%	22.6%

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery

The Town of Chapel Hill provides building inspection services within its corporate limits and extra-territorial jurisdiction (ETJ) through its Permits and Inspections Division within the Office of Planning and Sustainability. The division is a full-service entity, meeting all requirements mandated by the N.C. General Statutes.

Inspectors have a main discipline in one of the building trades and usually perform level 3 inspections plus they perform inspections in other disciplines when needed. On occassion retired part-time inspectors are brought in to help with overloads and the need for plan review in field inspections.

Total revenue received from inspection fees amounted to $1.2 million for FY 2014–15. The fee schedule separates fees for each type of permit, with specific fees depending on a minimum amount, square footage, and other factors. There is a fee for reinspections.

Conditions Affecting Service, Performance, and Costs

The Town of Chapel Hill began participation in the benchmarking project in July 2015, with FY 2014–15 being the first reporting year.

Although no earlier years are shown here, Chapel Hill has noted an uptick in permits and construction over prior years.

The population served is calculated by adding the population of Chapel Hill with the population of the ETJ. The tax base served is calculated by adding the tax base of Chapel Hill 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 Orange County and multiplying them by the square miles of the ETJ.

Municipal Profile

Population Served	61,928
Land Area Inspected (Square Miles)	27.50
Persons per Square Mile	2,252
Estimated Tax Base in Service Area (billions)	$23.54
Median Family Income U.S. Census 2010	$61,405

Service Profile

FTE Inspectors	
Building	1.0
Electrical	0.0
Mechanical	0.0
Plumbing	1.0
All Trades	4.0
Total Inspectors	6.0
FTE Plan Reviewers	1.0
Other FTE Positions	4.0
Total of All Positions	11.0
Number of Inspections by Type	
Building	4,154
Electrical	2,532
Mechanical	2,425
Plumbing	2,279
TOTAL	11,390
Building Permit Values	
Residential	na
Multi-Family	na
Commercial	na
TOTAL	$101,559,457
Inspection Fee Revenue	$1,183,718

Full Cost Profile

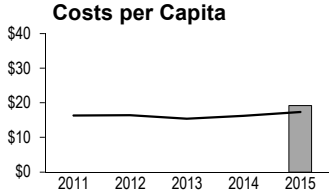
Cost Breakdown by Percentage	
Personal Services	73.5%
Operating Costs	22.6%
Capital Costs	3.8%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$872,922
Operating Costs	$268,630
Capital Costs	$45,394
TOTAL	$1,186,946

Chapel Hill — Building Inspections

Key: Chapel Hill ■ Benchmarking Average — Fiscal Years 2011 through 2015

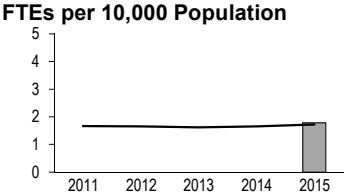
Resource Measures

Building Inspections Services Costs per Capita



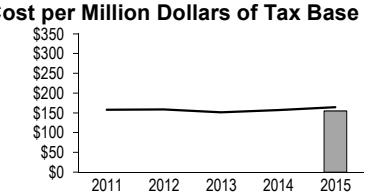
	2011	2012	2013	2014	2015
Chapel Hill					$19.17
Average	$16.33	$16.43	$15.40	$16.27	$17.37

Building Inspections Services FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Chapel Hill					1.78
Average	1.66	1.65	1.62	1.66	1.72

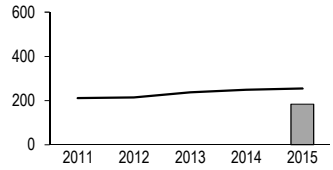
Building Inspections Services Cost per Million Dollars of Tax Base



	2011	2012	2013	2014	2015
Chapel Hill					$154
Average	$158	$159	$151	$157	$164

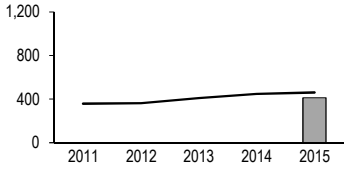
Workload Measures

Inspections per 1,000 Population in Service Area



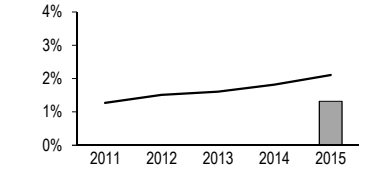
	2011	2012	2013	2014	2015
Chapel Hill					184
Average	211	214	238	248	255

Inspections per Square Mile in Service Area



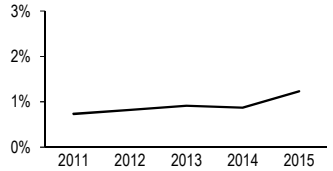
	2011	2012	2013	2014	2015
Chapel Hill					414
Average	358	364	410	448	461

Value of Building Permits as Percentage of Tax Base of Area Served



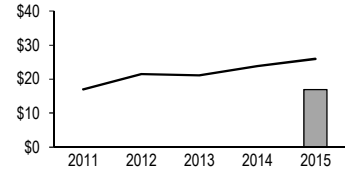
	2011	2012	2013	2014	2015
Chapel Hill					1.32%
Average	1.27%	1.51%	1.60%	1.82%	2.11%

Value of Commercial Permits as Percentage of Tax Base of Area Served



	2011	2012	2013	2014	2015
Chapel Hill					
Average	0.73%	0.82%	0.92%	0.87%	1.23%

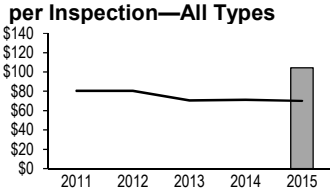
Value of Building Permits per Inspector FTE in Millions of Dollars



	2011	2012	2013	2014	2015
Chapel Hill					$16.9
Average	$17.0	$21.5	$21.2	$23.8	$25.9

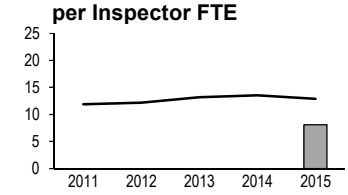
Efficiency Measures

Building Services Cost per Inspection—All Types



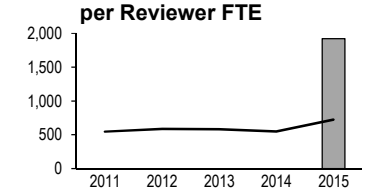
	2011	2012	2013	2014	2015
Chapel Hill					$104.21
Average	$80.41	$80.55	$70.67	$71.25	$70.19

Inspections per Day per Inspector FTE



	2011	2012	2013	2014	2015
Chapel Hill					8.1
Average	11.9	12.2	13.2	13.5	12.9

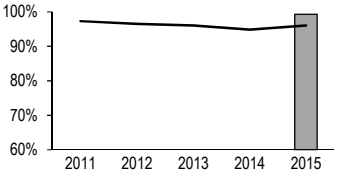
Plan Reviews per Year per Reviewer FTE



	2011	2012	2013	2014	2015
Chapel Hill					1,921
Average	546	587	579	548	724

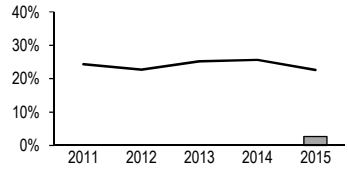
Effectiveness Measures

Percentage of Inspection Responses within One Working Day of Request



	2011	2012	2013	2014	2015
Chapel Hill					99.3%
Average	97.3%	96.5%	96.1%	94.9%	96.0%

Percentage of Inspections That Are Reinspections



	2011	2012	2013	2014	2015
Chapel Hill					2.7%
Average	24.4%	22.7%	25.2%	25.6%	22.6%

Fiscal Year 2014–15

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 are called into the city's automated system or entered via its website.

Total revenue received from inspection fees amounted to $2.6 million for FY 2014–15. 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	280,803
Land Area Inspected (Square Miles)	133.20
Persons per Square Mile	2,108
Estimated Tax Base in Service Area (billions)	$24.97
Median Family Income U.S. Census 2010	$52,752

Service Profile

FTE Inspectors	
Building	5.0
Electrical	4.0
Mechanical	3.0
Plumbing	3.0
All Trades	0.0
Total Inspectors	15.0
FTE Plan Reviewers	4.5
Other FTE Positions	10.5
Total of All Positions	30.0
Number of Inspections by Type	
Building	22,771
Electrical	15,099
Mechanical	12,674
Plumbing	11,218
TOTAL	61,762
Building Permit Values	
Residential	$113,940,009
Multi-Family	$110,964,234
Commercial	$279,573,765
TOTAL	$504,478,008
Inspection Fee Revenue	$2,599,924

Full Cost Profile

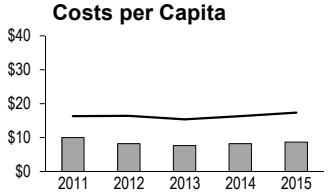
Cost Breakdown by Percentage	
Personal Services	77.7%
Operating Costs	22.3%
Capital Costs	0.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,897,292
Operating Costs	$543,472
Capital Costs	$0
TOTAL	$2,440,764

Greensboro — Building Inspections

Key: Greensboro ■ Benchmarking Average — Fiscal Years 2011 through 2015

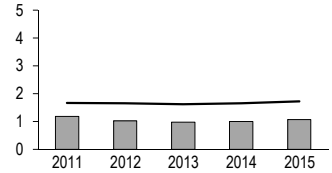
Resource Measures

Building Inspections Services Costs per Capita



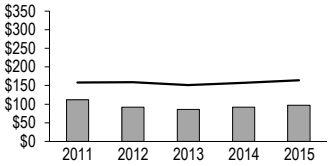
	2011	2012	2013	2014	2015
Greensboro	$10.00	$8.21	$7.65	$8.21	$8.69
Average	$16.33	$16.43	$15.40	$16.27	$17.37

Building Inspections Services FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Greensboro	1.18	1.03	0.98	1.00	1.07
Average	1.66	1.65	1.62	1.66	1.72

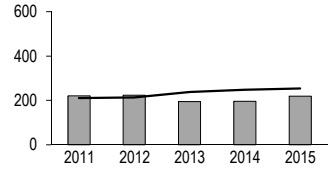
Building Inspections Services Cost per Million Dollars of Tax Base



	2011	2012	2013	2014	2015
Greensboro	$112	$92	$86	$92	$97
Average	$158	$159	$151	$157	$164

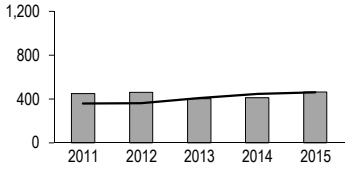
Workload Measures

Inspections per 1,000 Population in Service Area



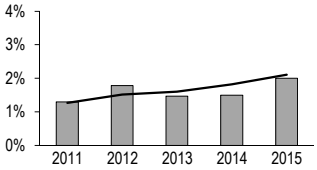
	2011	2012	2013	2014	2015
Greensboro	220	224	195	197	220
Average	211	214	238	248	255

Inspections per Square Mile in Service Area



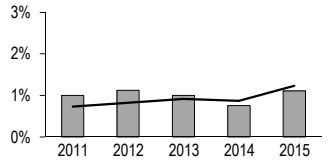
	2011	2012	2013	2014	2015
Greensboro	451	461	404	412	464
Average	358	364	410	448	461

Value of Building Permits as Percentage of Tax Base of Area Served



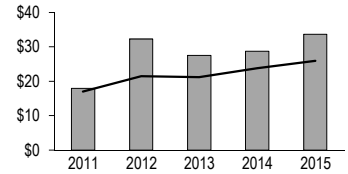
	2011	2012	2013	2014	2015
Greensboro	1.30%	1.78%	1.47%	1.50%	2.00%
Average	1.27%	1.51%	1.60%	1.82%	2.11%

Value of Commercial Permits as Percentage of Tax Base of Area Served



	2011	2012	2013	2014	2015
Greensboro	1.00%	1.12%	1.00%	0.76%	1.11%
Average	0.73%	0.82%	0.92%	0.87%	1.23%

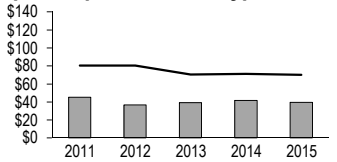
Value of Building Permits per Inspector FTE in Millions of Dollars



	2011	2012	2013	2014	2015
Greensboro	$17.9	$32.2	$27.5	$28.8	$33.6
Average	$17.0	$21.5	$21.2	$23.8	$25.9

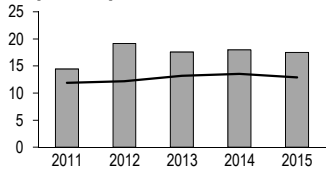
Efficiency Measures

Building Services Cost per Inspection—All Types



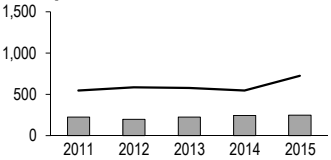
	2011	2012	2013	2014	2015
Greensboro	$45.42	$36.69	$39.20	$41.71	$39.52
Average	$80.41	$80.55	$70.67	$71.25	$70.19

Inspections per Day per Inspector FTE



	2011	2012	2013	2014	2015
Greensboro	14.5	19.2	17.6	18.0	17.5
Average	11.9	12.2	13.2	13.5	12.9

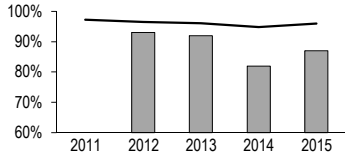
Plan Reviews per Year per Reviewer FTE



	2011	2012	2013	2014	2015
Greensboro	226	198	225	245	248
Average	546	587	579	548	724

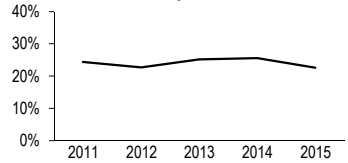
Effectiveness Measures

Percentage of Inspection Responses within One Working Day of Request



	2011	2012	2013	2014	2015
Greensboro		93.0%	92.0%	82.0%	87.0%
Average	97.3%	96.5%	96.1%	94.9%	96.0%

Percentage of Inspections That Are Reinspections



	2011	2012	2013	2014	2015
Greensboro					
Average	24.4%	22.7%	25.2%	25.6%	22.6%

Fiscal Year 2014–15

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 $1,082,946 for FY 2014–15. 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 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.

Plan reviews are being done by inspectors as the plan review position has been cut from the budget.

The downturn in the economy over the past several years has decreased the demand for inspections services.

Municipal Profile

Population Served	95,801
Land Area Inspected (Square Miles)	66.78
Persons per Square Mile	1,435
Estimated Tax Base in Service Area (billions)	$7.49
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	4.5
Total Inspectors	4.5
FTE Plan Reviewers	0.6
Other FTE Positions	3.9
Total of All Positions	9.0
Number of Inspections by Type	
Building	3,792
Electrical	3,435
Mechanical	3,505
Plumbing	2,278
TOTAL	13,010
Building Permit Values	
Residential	$27,015,014
Multi-Family	$19,803,610
Commercial	$150,315,766
TOTAL	$197,134,390
Inspection Fee Revenue	$1,082,946

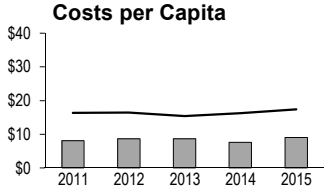
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	80.4%
Operating Costs	18.8%
Capital Costs	0.8%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$695,904
Operating Costs	$162,853
Capital Costs	$7,308
TOTAL	$866,065

Key: Greenville ■ Benchmarking Average — Fiscal Years 2011 through 2015

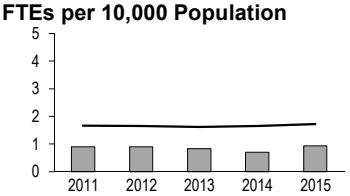
Resource Measures

Building Inspections Services Costs per Capita



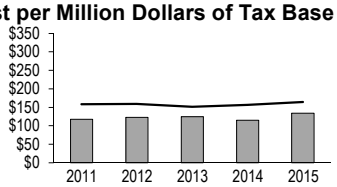
	2011	2012	2013	2014	2015
Greenville	$8.04	$8.61	$8.64	$7.58	$9.04
Average	$16.33	$16.43	$15.40	$16.27	$17.37

Building Inspections Services FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Greenville	0.90	0.90	0.83	0.70	0.94
Average	1.66	1.65	1.62	1.66	1.72

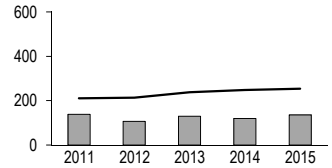
Building Inspections Services Cost per Million Dollars of Tax Base



	2011	2012	2013	2014	2015
Greenville	$117	$123	$125	$115	$134
Average	$158	$159	$151	$157	$164

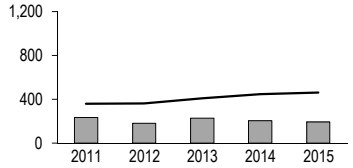
Workload Measures

Inspections per 1,000 Population in Service Area



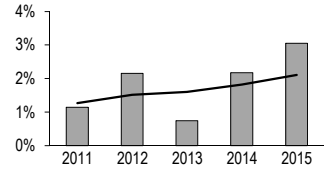
	2011	2012	2013	2014	2015
Greenville	139	108	130	120	136
Average	211	214	238	248	255

Inspections per Square Mile in Service Area



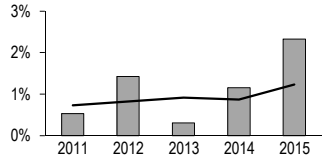
	2011	2012	2013	2014	2015
Greenville	234	182	228	204	195
Average	358	364	410	448	461

Value of Building Permits as Percentage of Tax Base of Area Served



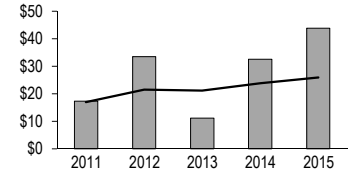
	2011	2012	2013	2014	2015
Greenville	1.14%	2.15%	0.74%	2.17%	3.05%
Average	1.27%	1.51%	1.60%	1.82%	2.11%

Value of Commercial Permits as Percentage of Tax Base of Area Served



	2011	2012	2013	2014	2015
Greenville	0.53%	1.42%	0.30%	1.16%	2.33%
Average	0.73%	0.82%	0.92%	0.87%	1.23%

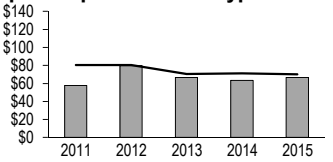
Value of Building Permits per Inspector FTE in Millions of Dollars



	2011	2012	2013	2014	2015
Greenville	$17.4	$33.5	$11.1	$32.6	$43.8
Average	$17.0	$21.5	$21.2	$23.8	$25.9

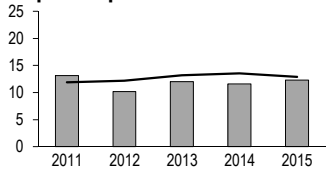
Efficiency Measures

Building Services Cost per Inspection—All Types



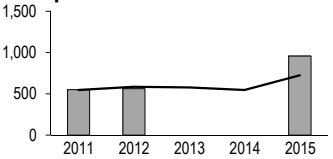
	2011	2012	2013	2014	2015
Greenville	$57.62	$79.84	$66.44	$63.30	$66.57
Average	$80.41	$80.55	$70.67	$71.25	$70.19

Inspections per Day per Inspector FTE



	2011	2012	2013	2014	2015
Greenville	13.1	10.2	12.0	11.6	12.3
Average	11.9	12.2	13.2	13.5	12.9

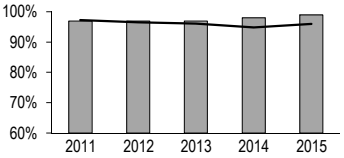
Plan Reviews per Year per Reviewer FTE



	2011	2012	2013	2014	2015
Greenville	550	563			957
Average	546	587	579	548	724

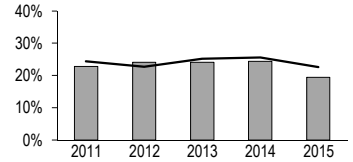
Effectiveness Measures

Percentage of Inspection Responses within One Working Day of Request



	2011	2012	2013	2014	2015
Greenville	97.0%	97.0%	97.0%	98.0%	99.0%
Average	97.3%	96.5%	96.1%	94.9%	96.0%

Percentage of Inspections That Are Reinspections



	2011	2012	2013	2014	2015
Greenville	22.8%	24.1%	24.1%	24.4%	19.4%
Average	24.4%	22.7%	25.2%	25.6%	22.6%

Fiscal Year 2014–15

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 $867,626 for FY 2014–15. 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	111,561
Land Area Inspected (Square Miles)	60.48
Persons per Square Mile	1,845
Estimated Tax Base in Service Area (billions)	$9.22
Median Family Income U.S. Census 2010	$49,720

Service Profile

FTE Inspectors	
Building	3.5
Electrical	2.5
Mechanical	2.5
Plumbing	1.5
All Trades	0.0
Total Inspectors	10.0
FTE Plan Reviewers	2.5
Other FTE Positions	6.5
Total of All Positions	19.0
Number of Inspections by Type	
Building	10,785
Electrical	6,784
Mechanical	5,560
Plumbing	3,933
TOTAL	27,062
Building Permit Values	
Residential	$62,498,392
Multi-Family	with commercial
Commercial	$123,128,950
TOTAL	$185,627,342
Inspection Fee Revenue	$867,626

Full Cost Profile

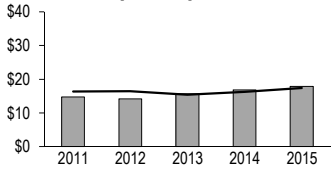
Cost Breakdown by Percentage	
Personal Services	76.8%
Operating Costs	19.2%
Capital Costs	4.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,528,512
Operating Costs	$382,570
Capital Costs	$80,195
TOTAL	$1,991,277

High Point — Building Inspections

Key: High Point ■ Benchmarking Average — Fiscal Years 2011 through 2015

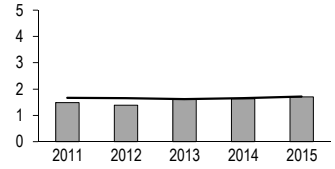
Resource Measures

Building Inspections Services Costs per Capita



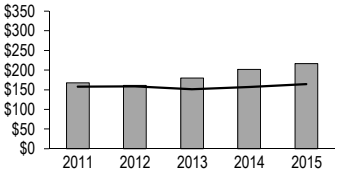
	2011	2012	2013	2014	2015
High Point	$14.74	$14.18	$15.64	$16.81	$17.85
Average	$16.33	$16.43	$15.40	$16.27	$17.37

Building Inspections Services FTEs per 10,000 Population



	2011	2012	2013	2014	2015
High Point	1.49	1.38	1.62	1.63	1.70
Average	1.66	1.65	1.62	1.66	1.72

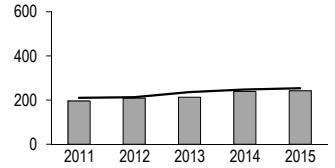
Building Inspections Services Cost per Million Dollars of Tax Base



	2011	2012	2013	2014	2015
High Point	$168	$161	$179	$202	$216
Average	$158	$159	$151	$157	$164

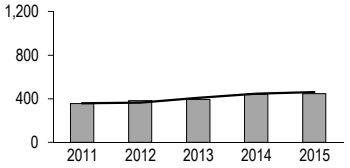
Workload Measures

Inspections per 1,000 Population in Service Area



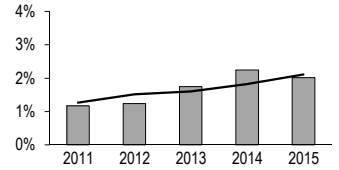
	2011	2012	2013	2014	2015
High Point	196	209	213	240	243
Average	211	214	238	248	255

Inspections per Square Mile in Service Area



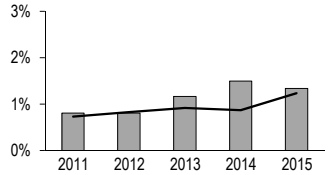
	2011	2012	2013	2014	2015
High Point	357	382	393	441	447
Average	358	364	410	448	461

Value of Building Permits as Percentage of Tax Base of Area Served



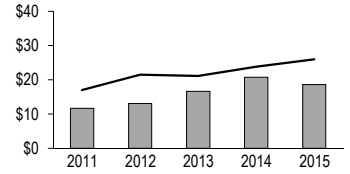
	2011	2012	2013	2014	2015
High Point	1.17%	1.23%	1.75%	2.25%	2.01%
Average	1.27%	1.51%	1.60%	1.82%	2.11%

Value of Commercial Permits as Percentage of Tax Base of Area Served



	2011	2012	2013	2014	2015
High Point	0.81%	0.80%	1.17%	1.50%	1.34%
Average	0.73%	0.82%	0.92%	0.87%	1.23%

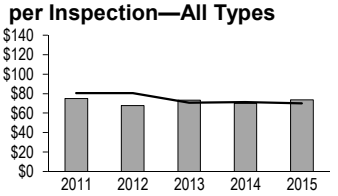
Value of Building Permits per Inspector FTE in Millions of Dollars



	2011	2012	2013	2014	2015
High Point	$11.6	$13.1	$16.7	$20.7	$18.6
Average	$17.0	$21.5	$21.2	$23.8	$25.9

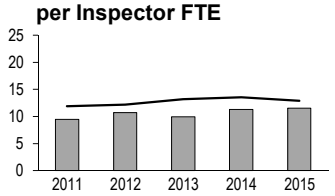
Efficiency Measures

Building Services Cost per Inspection—All Types



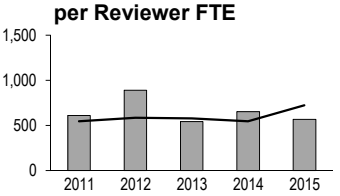
	2011	2012	2013	2014	2015
High Point	$75.12	$67.87	$73.31	$70.04	$73.58
Average	$80.41	$80.55	$70.67	$71.25	$70.19

Inspections per Day per Inspector FTE



	2011	2012	2013	2014	2015
High Point	9.5	10.7	9.9	11.3	11.5
Average	11.9	12.2	13.2	13.5	12.9

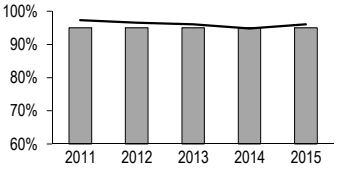
Plan Reviews per Year per Reviewer FTE



	2011	2012	2013	2014	2015
High Point	611	890	544	653	568
Average	546	587	579	548	724

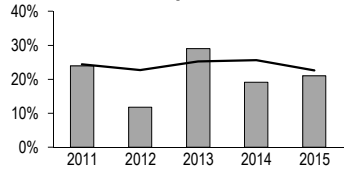
Effectiveness Measures

Percentage of Inspection Responses within One Working Day of Request



	2011	2012	2013	2014	2015
High Point	95.0%	95.0%	95.0%	95.0%	95.0%
Average	97.3%	96.5%	96.1%	94.9%	96.0%

Percentage of Inspections That Are Reinspections



	2011	2012	2013	2014	2015
High Point	23.9%	11.8%	29.0%	19.1%	21.0%
Average	24.4%	22.7%	25.2%	25.6%	22.6%

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery
The City of Wilson's inspection team serves 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 is made.

Total revenue received from inspection fees was $340,033 for FY 2014–15. 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 had reduced building activity and the number of requests for inspections.

Municipal Profile

Population Served	55,145
Land Area Inspected (Square Miles)	58.50
Persons per Square Mile	943
Estimated Tax Base in Service Area (billions)	$4.54
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	3.0
Total Inspectors	3.0
FTE Plan Reviewers	1.0
Other FTE Positions	2.0
Total of All Positions	6.0
Number of Inspections by Type	
Building	2,423
Electrical	1,740
Mechanical	2,065
Plumbing	1,107
TOTAL	7,335
Building Permit Values	
Residential	$22,277,114
Multi-Family	$0
Commercial	$27,139,438
TOTAL	$49,416,552
Inspection Fee Revenue	$340,033

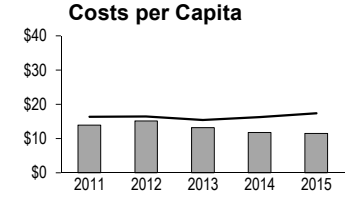
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	73.9%
Operating Costs	18.8%
Capital Costs	7.3%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$469,559
Operating Costs	$119,685
Capital Costs	$46,243
TOTAL	$635,487

Key: Wilson ■ Benchmarking Average — Fiscal Years 2011 through 2015

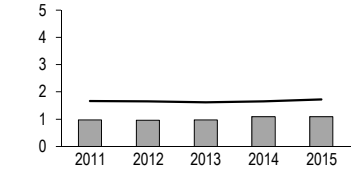
Resource Measures

Building Inspections Services Costs per Capita



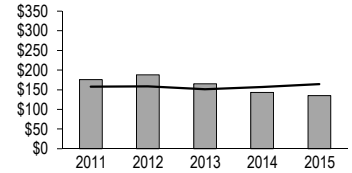
	2011	2012	2013	2014	2015
Wilson	$13.91	$15.11	$13.19	$11.78	$11.52
Average	$16.33	$16.43	$15.40	$16.27	$17.37

Building Inspections Services FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Wilson	0.97	0.97	0.97	1.09	1.09
Average	1.66	1.65	1.62	1.66	1.72

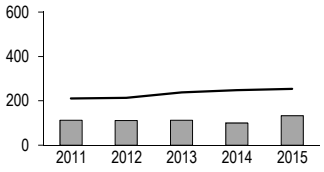
Building Inspections Services Cost per Million Dollars of Tax Base



	2011	2012	2013	2014	2015
Wilson	$176	$188	$165	$143	$135
Average	$158	$159	$151	$157	$164

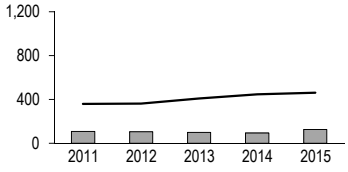
Workload Measures

Inspections per 1,000 Population in Service Area



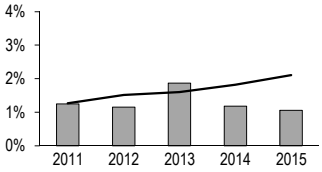
	2011	2012	2013	2014	2015
Wilson	114	111	114	101	133
Average	211	214	238	248	255

Inspections per Square Mile in Service Area



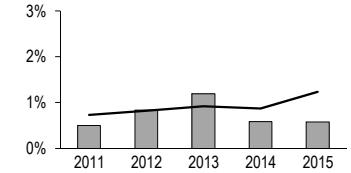
	2011	2012	2013	2014	2015
Wilson	109	106	99	95	125
Average	358	364	410	448	461

Value of Building Permits as Percentage of Tax Base of Area Served



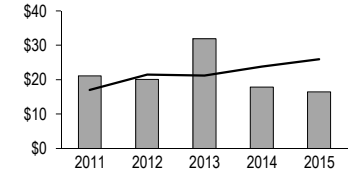
	2011	2012	2013	2014	2015
Wilson	1.25%	1.16%	1.87%	1.18%	1.05%
Average	1.27%	1.51%	1.60%	1.82%	2.11%

Value of Commercial Permits as Percentage of Tax Base of Area Served



	2011	2012	2013	2014	2015
Wilson	0.50%	0.83%	1.19%	0.58%	0.58%
Average	0.73%	0.82%	0.92%	0.87%	1.23%

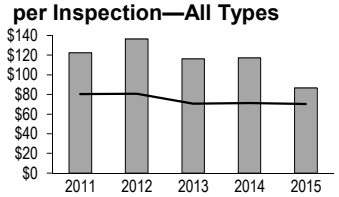
Value of Building Permits per Inspector FTE in Millions of Dollars



	2011	2012	2013	2014	2015
Wilson	$21.1	$20.0	$31.9	$17.8	$16.5
Average	$17.0	$21.5	$21.2	$23.8	$25.9

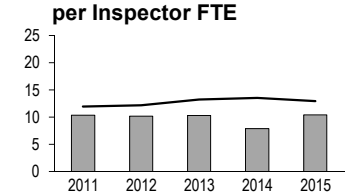
Efficiency Measures

Building Services Cost per Inspection—All Types



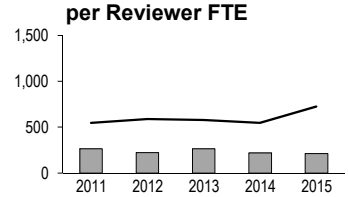
	2011	2012	2013	2014	2015
Wilson	$122.46	$136.23	$116.09	$117.19	$86.64
Average	$80.41	$80.55	$70.67	$71.25	$70.19

Inspections per Day per Inspector FTE



	2011	2012	2013	2014	2015
Wilson	10.3	10.2	10.3	7.8	10.4
Average	11.9	12.2	13.2	13.5	12.9

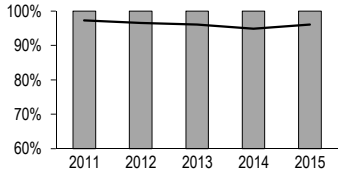
Plan Reviews per Year per Reviewer FTE



	2011	2012	2013	2014	2015
Wilson	265	224	265	221	211
Average	546	587	579	548	724

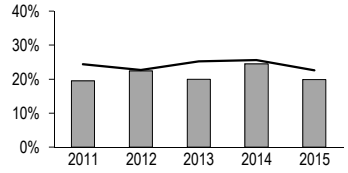
Effectiveness Measures

Percentage of Inspection Responses within One Working Day of Request



	2011	2012	2013	2014	2015
Wilson	100.0%	100.0%	100.0%	100.0%	100.0%
Average	97.3%	96.5%	96.1%	94.9%	96.0%

Percentage of Inspections That Are Reinspections



	2011	2012	2013	2014	2015
Wilson	19.4%	22.4%	19.9%	24.5%	19.9%
Average	24.4%	22.7%	25.2%	25.6%	22.6%

Fiscal Year 2014–15

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 it achieves this goal.

Total revenue received from inspection fees amounted to $3.4 million for FY 2014–15. 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	340,071
Land Area Inspected (Square Miles)	396.00
Persons per Square Mile	859
Estimated Tax Base in Service Area (billions)	$29.51
Median Family Income U.S. Census 2010	$51,491

Service Profile

FTE Inspectors	
Building	4.0
Electrical	4.0
Mechanical	5.0
Plumbing	3.0
All Trades	0.0
Total Inspectors	16.0
FTE Plan Reviewers	4.0
Other FTE Positions	16.0
Total of All Positions	36.0
Number of Inspections by Type	
Building	17,876
Electrical	12,284
Mechanical	17,726
Plumbing	11,979
TOTAL	59,865
Building Permit Values	
Residential	$223,279,262
Multi-Family	with residential
Commercial	$264,135,045
TOTAL	$487,414,307
Inspection Fee Revenue	$3,420,356

Full Cost Profile

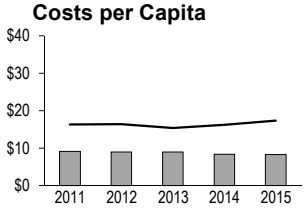
Cost Breakdown by Percentage	
Personal Services	56.8%
Operating Costs	36.6%
Capital Costs	6.6%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,597,196
Operating Costs	$1,029,154
Capital Costs	$187,005
TOTAL	$2,813,355

Winston-Salem Building Inspections

Key: Winston-Salem ■ Benchmarking Average — Fiscal Years 2011 through 2015

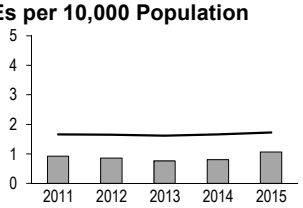
Resource Measures

Building Inspections Services Costs per Capita



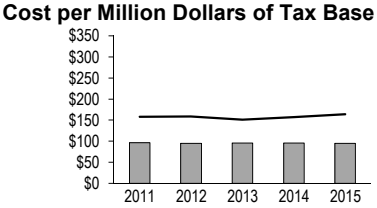
	2011	2012	2013	2014	2015
Winston-Salem	$9.19	$8.95	$8.99	$8.39	$8.27
Average	$16.33	$16.43	$15.40	$16.27	$17.37

Building Inspections Services FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Winston-Salem	0.92	0.86	0.76	0.80	1.06
Average	1.66	1.65	1.62	1.66	1.72

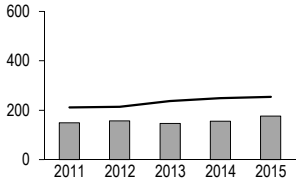
Building Inspections Services Cost per Million Dollars of Tax Base



	2011	2012	2013	2014	2015
Winston-Salem	$96	$95	$96	$96	$95
Average	$158	$159	$151	$157	$164

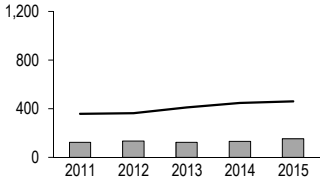
Workload Measures

Inspections per 1,000 Population in Service Area



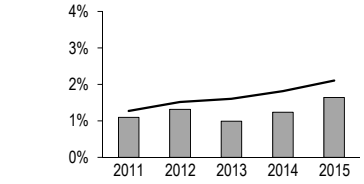
	2011	2012	2013	2014	2015
Winston-Salem	148	157	147	156	176
Average	211	214	238	248	255

Inspections per Square Mile in Service Area



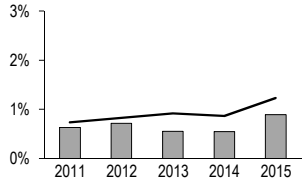
	2011	2012	2013	2014	2015
Winston-Salem	123	133	124	133	151
Average	358	364	410	448	461

Value of Building Permits as Percentage of Tax Base of Area Served



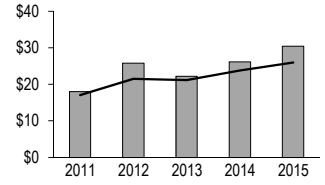
	2011	2012	2013	2014	2015
Winston-Salem	1.09%	1.32%	0.99%	1.24%	1.64%
Average	1.27%	1.51%	1.60%	1.82%	2.11%

Value of Commercial Permits as Percentage of Tax Base of Area Served



	2011	2012	2013	2014	2015
Winston-Salem	0.63%	0.72%	0.55%	0.55%	0.89%
Average	0.73%	0.82%	0.92%	0.87%	1.23%

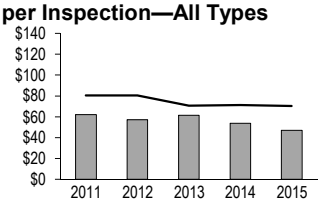
Value of Building Permits per Inspector FTE in Millions of Dollars



	2011	2012	2013	2014	2015
Winston-Salem	$18.0	$25.8	$22.2	$26.1	$30.5
Average	$17.0	$21.5	$21.2	$23.8	$25.9

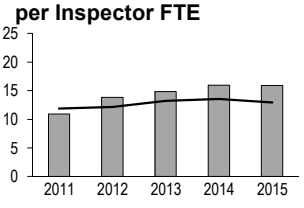
Efficiency Measures

Building Services Cost per Inspection—All Types



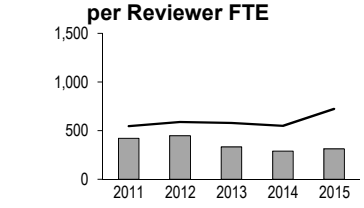
	2011	2012	2013	2014	2015
Winston-Salem	$61.89	$57.09	$61.35	$53.78	$46.99
Average	$80.41	$80.55	$70.67	$71.25	$70.19

Inspections per Day per Inspector FTE



	2011	2012	2013	2014	2015
Winston-Salem	10.9	13.8	14.9	16.0	15.9
Average	11.9	12.2	13.2	13.5	12.9

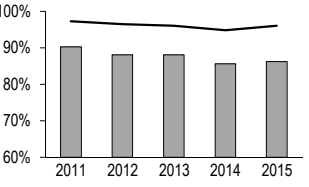
Plan Reviews per Year per Reviewer FTE



	2011	2012	2013	2014	2015
Winston-Salem	421	447	331	290	312
Average	546	587	579	548	724

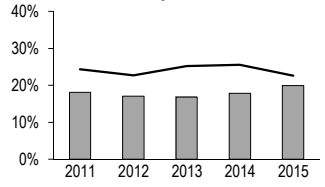
Effectiveness Measures

Percentage of Inspection Responses within One Working Day of Request



	2011	2012	2013	2014	2015
Winston-Salem	90.3%	88.0%	88.0%	85.7%	86.2%
Average	97.3%	96.5%	96.1%	94.9%	96.0%

Percentage of Inspections That Are Reinspections



	2011	2012	2013	2014	2015
Winston-Salem	18.1%	17.0%	16.8%	17.9%	20.0%
Average	24.4%	22.7%	25.2%	25.6%	22.6%

UNC
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GOVERNMENT

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 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. 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 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 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	367	8.8	2,104	1,300	6	4.0	NA	4.0	General Fund
Asheville	805	8.7	4,715	1,556	16	9.0	$50—Cars and Small Trucks $60—Large Truck and Off-Road	1.5	General Fund
Burlington	519	11.0	3,592	2,305	19	8.0	$55—Heavy Equipment $45—Auto/Light Truck $35—Small Engine/Mowers	0.8	General Fund
Cary	806	7.1	6,691	2,703	6	9.0	$60--Light Duty $89--Heavy Duty	62.4	Internal Service
Chapel Hill	414	7.2	1,783	962	10	6.0	$90.00	2.0	Internal Service
Concord	822	8.0	3,826	1,728	8	7.5	$60.00	11.3	General Fund
Greensboro	1,582	7.3	12,089	5,771	34	32.0	$52.00	4.9	Internal Service
Greenville	613	9.6	5,221	2,333	12	13.0	$60.00	2.2	Internal Service
Hickory	537	10.8	5,472	na	14	7.0	$50.00	6.0	Internal Service
High Point	967	9.1	4,675	2,213	18	12.0	$60.00	6.0	Internal Service
Salisbury	494	10.9	4,955	1,510	14	10.0	NA	2.2	General Fund
Wilson	789	10.2	6,992	1,265	15	11.0	$44.00	3.3	General Fund
Winston-Salem	1,816	9.2	8,784	1,896	31	19.0	$50.00	2.5	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 2014–15

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 conditioners, 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 2014)	42,689
Land Area (Square Miles)	17.25
Persons per Square Mile	2,475

Service Profile

FTE Positions—Technician	4.0
FTE Positions—Other	2.0
Work Bays	6

Rolling Stock Maintained	No.	Average Age
Cars—Normal Usage	7	4.0 Years
Cars—Severe Usage	72	5.0 Years
Light Vehicles	105	8.0 Years
Medium Vehicles	27	11.0 Years
Heavy—Sanitation	0	NA
Heavy—Sewer	2	4.0 Years
Heavy—Fire Apparatus	12	12.0 Years
Heavy—Other	22	8.0 Years
Trailed Equipment	72	11.0 Years
Off-Road/Construction/Tractors	48	12.0 Years
Buses	0	NA
TOTAL	367	

Vehicle Equivalent Units (VEUs)	1,092
Average Rolling Stock Units Available per Day	325
Hours Billed	7,187
Work Orders	2,104
Repeat Repairs within 30 Days	50
Work Orders Completed within 24 hours	1,521
Preventive Maintenance Jobs (PMs)	1,300
PMs Completed as Scheduled	1,100

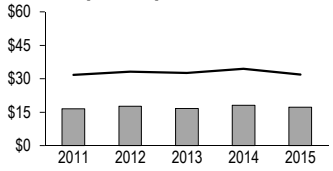
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	34.7%
Operating Costs	56.0%
Capital Costs	9.2%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$255,117
Operating Costs	$411,359
Capital Costs	$67,839
TOTAL	$734,315

Key: Apex ■ Benchmarking Average — Fiscal Years 2011 through 2015

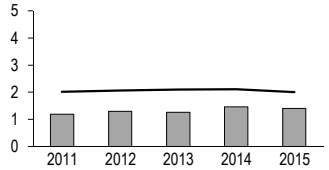
Resource Measures

Fleet Maintenance Services Cost per Capita



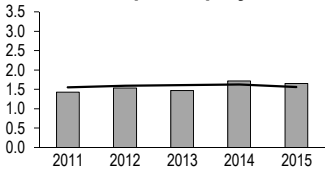
	2011	2012	2013	2014	2015
Apex	$16.49	$17.63	$16.65	$18.05	$17.20
Average	$31.75	$33.12	$32.61	$34.50	$31.91

Fleet Maintenance FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Apex	1.19	1.29	1.26	1.47	1.41
Average	2.02	2.07	2.10	2.11	2.01

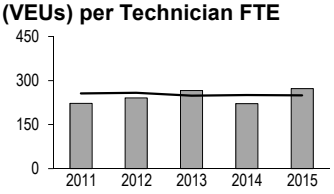
Fleet Maintenance FTEs per 100 Municipal Employees



	2011	2012	2013	2014	2015
Apex	1.42	1.54	1.47	1.72	1.65
Average	1.55	1.60	1.61	1.62	1.56

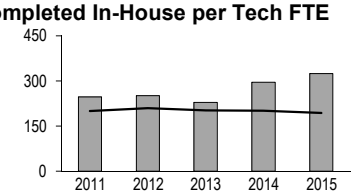
Workload Measures

Number of Vehicle Equivalent Units (VEUs) per Technician FTE



	2011	2012	2013	2014	2015
Apex	223	241	266	221	273
Average	257	258	249	251	250

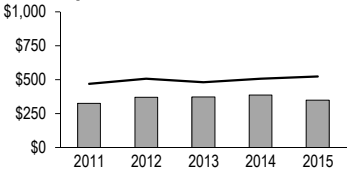
Preventive Maintenances (PMs) Completed In-House per Tech FTE



	2011	2012	2013	2014	2015
Apex	247	252	229	297	325
Average	200	210	202	201	194

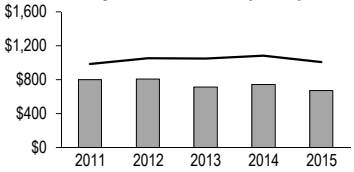
Efficiency Measures

Fleet Maintenance Cost per Work Order



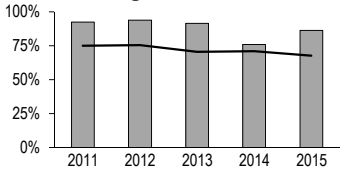
	2011	2012	2013	2014	2015
Apex	$325	$371	$372	$388	$349
Average	$470	$508	$481	$508	$525

Fleet Maintenance Cost per Vehicle Equivalent Unit (VEU)



	2011	2012	2013	2014	2015
Apex	$799	$808	$712	$742	$672
Average	$987	$1,052	$1,050	$1,084	$1,010

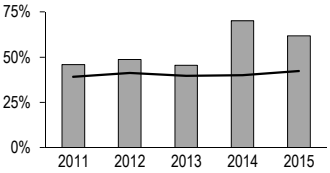
Hours Billed as a Percentage of Total Hours



	2011	2012	2013	2014	2015
Apex	93%	94%	92%	76%	86%
Average	75%	76%	70%	71%	68%

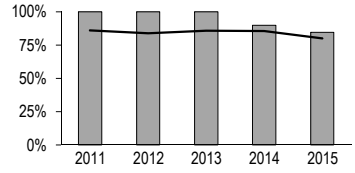
Effectiveness Measures

Preventive Maintenances (PMs) as a Percentage of All Work Orders



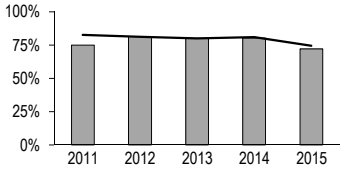
	2011	2012	2013	2014	2015
Apex	46%	49%	46%	70%	62%
Average	39%	41%	40%	40%	42%

Percentage of Preventive Maintenances (PMs) Completed as Scheduled



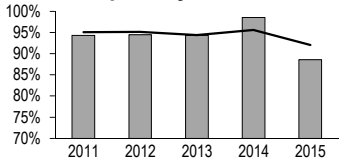
	2011	2012	2013	2014	2015
Apex	100%	100%	100%	90%	85%
Average	86%	84%	86%	86%	80%

Percentage of Work Orders Completed within 24 Hours



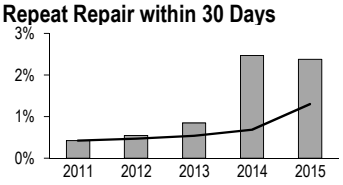
	2011	2012	2013	2014	2015
Apex	75%	82%	80%	81%	72%
Average	83%	81%	80%	81%	75%

Percentage of Rolling Stock Available per Day



	2011	2012	2013	2014	2015
Apex	94%	94%	94%	99%	89%
Average	95%	95%	94%	96%	92%

Percentage of Work Orders Requiring Repeat Repair within 30 Days



	2011	2012	2013	2014	2015
Apex	0.42%	0.54%	0.84%	2.47%	2.38%
Average	0.42%	0.47%	0.54%	0.68%	1.30%

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery
Fleet management is a division of the Asheville General Services 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
- paint and body repairs
- tire repairs on trucks over one ton
- major hydraulic cylinder 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 2014)	89,248
Land Area (Square Miles)	45.52
Persons per Square Mile	1,961

Service Profile

FTE Positions—Technician	9.0
FTE Positions—Other	6.0
Work Bays	16

Rolling Stock Maintained	No.	Average Age
Cars—Normal Usage	101	7.9 Years
Cars—Severe Usage	207	8.8 Years
Light Vehicles	191	6.2 Years
Medium Vehicles	23	5.0 Years
Heavy—Sanitation	20	4.1 Years
Heavy—Sewer	3	6.8 Years
Heavy—Fire Apparatus	30	12.0 Years
Heavy—Other	44	7.9 Years
Trailed Equipment	104	14.0 Years
Off-Road/Construction/Tractors	81	10.2 Years
Buses	1	14.0 Years
TOTAL	805	

Vehicle Equivalent Units (VEUs)	2,580
Average Rolling Stock Units Available per Day	781
Hours Billed	7,623
Work Orders	4,715
Repeat Repairs within 30 Days	NA
Work Orders Completed within 24 hours	NA
Preventive Maintenance Jobs (PMs)	1,556
PMs Completed as Scheduled	NA

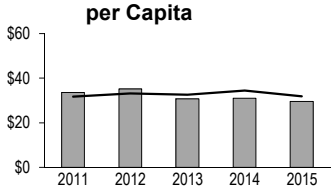
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	32.3%
Operating Costs	63.0%
Capital Costs	4.7%
TOTAL	100.0%

Cost Breakdown in Dollars	
Personal Services	$852,862
Operating Costs	$1,661,453
Capital Costs	$124,456
TOTAL	$2,638,771

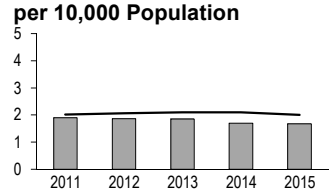
Resource Measures

Fleet Maintenance Services Cost per Capita



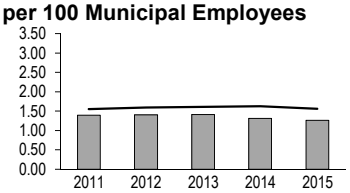
	2011	2012	2013	2014	2015
Asheville	$33.59	$35.16	$30.74	$31.07	$29.57
Average	$31.75	$33.12	$32.61	$34.50	$31.91

Fleet Maintenance FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Asheville	1.91	1.87	1.86	1.70	1.68
Average	2.02	2.07	2.10	2.11	2.01

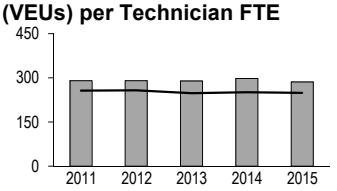
Fleet Maintenance FTEs per 100 Municipal Employees



	2011	2012	2013	2014	2015
Asheville	1.40	1.40	1.41	1.31	1.26
Average	1.55	1.60	1.61	1.62	1.56

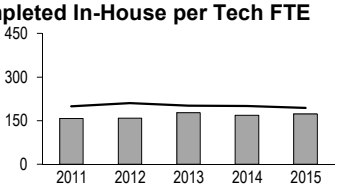
Workload Measures

Number of Vehicle Equivalent Units (VEUs) per Technician FTE



	2011	2012	2013	2014	2015
Asheville	290	290	289	298	287
Average	257	258	249	251	250

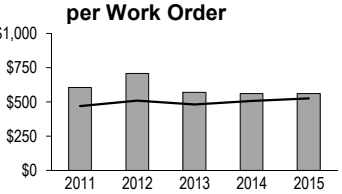
Preventive Maintenances (PMs) Completed In-House per Tech FTE



	2011	2012	2013	2014	2015
Asheville	157	159	177	168	173
Average	200	210	202	201	194

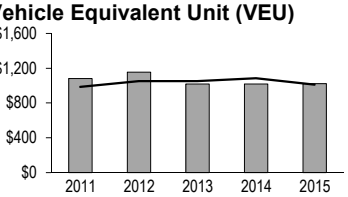
Efficiency Measures

Fleet Maintenance Cost per Work Order



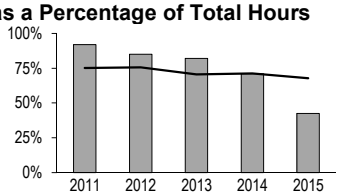
	2011	2012	2013	2014	2015
Asheville	$604	$708	$571	$560	$560
Average	$470	$508	$481	$508	$525

Fleet Maintenance Cost per Vehicle Equivalent Unit (VEU)



	2011	2012	2013	2014	2015
Asheville	$1,079	$1,153	$1,019	$1,018	$1,023
Average	$987	$1,052	$1,050	$1,084	$1,010

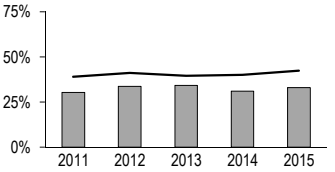
Hours Billed as a Percentage of Total Hours



	2011	2012	2013	2014	2015
Asheville	92%	85%	82%	71%	43%
Average	75%	76%	70%	71%	68%

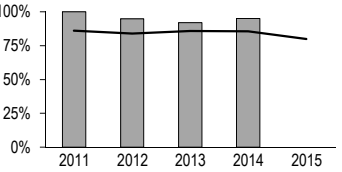
Effectiveness Measures

Preventive Maintenances (PMs) as a Percentage of All Work Orders



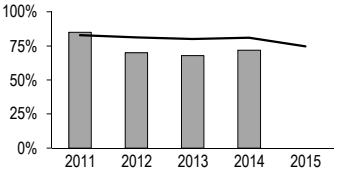
	2011	2012	2013	2014	2015
Asheville	30%	34%	34%	31%	33%
Average	39%	41%	40%	40%	42%

Percentage of Preventive Maintenances (PMs) Completed as Scheduled



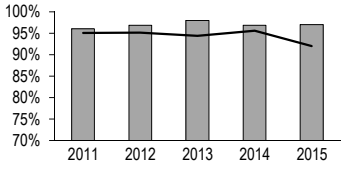
	2011	2012	2013	2014	2015
Asheville	100%	95%	92%	95%	
Average	86%	84%	86%	86%	80%

Percentage of Work Orders Completed within 24 Hours



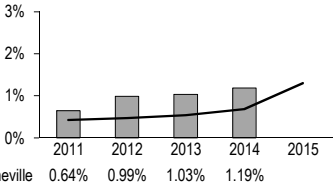
	2011	2012	2013	2014	2015
Asheville	85%	70%	68%	72%	
Average	83%	81%	80%	81%	75%

Percentage of Rolling Stock Available per Day



	2011	2012	2013	2014	2015
Asheville	96%	97%	98%	97%	97%
Average	95%	95%	94%	96%	92%

Percentage of Work Orders Requiring Repeat Repair within 30 Days



	2011	2012	2013	2014	2015
Asheville	0.64%	0.99%	1.03%	1.19%	
Average	0.42%	0.47%	0.54%	0.68%	1.30%

Fiscal Year 2014–15

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.

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.

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.

Municipal Profile

Population (OSBM 2014)	51,923
Land Area (Square Miles)	30.52
Persons per Square Mile	1,701

Service Profile

FTE Positions—Technician	8.0
FTE Positions—Other	6.0
Work Bays	19

Rolling Stock Maintained	No.	Average Age
Cars—Normal Usage	49	7.5 Years
Cars—Severe Usage	103	6.4 Years
Light Vehicles	139	9.4 Years
Medium Vehicles	40	13.4 Years
Heavy—Sanitation	22	7.5 Years
Heavy—Sewer	4	7.5 Years
Heavy—Fire Apparatus	11	6.2 Years
Heavy—Other	7	14.0 Years
Trailed Equipment	95	17.9 Years
Off-Road/Construction/Tractors	46	15.8 Years
Buses	3	11.0 Years
TOTAL	519	

Vehicle Equivalent Units (VEUs)	1,616
Average Rolling Stock Units Available per Day	459
Hours Billed	8,737
Work Orders	3,592
Repeat Repairs within 30 Days	0
Work Orders Completed within 24 hours	2,300
Preventive Maintenance Jobs (PMs)	2,305
PMs Completed as Scheduled	902

Full Cost Profile

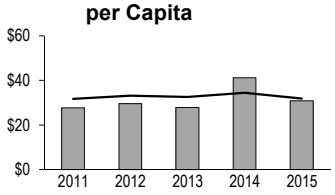
Cost Breakdown by Percentage	
Personal Services	31.3%
Operating Costs	65.3%
Capital Costs	3.4%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$501,870
Operating Costs	$1,046,264
Capital Costs	$54,958
TOTAL	$1,603,092

Burlington — Fleet Maintenance

Key: Burlington ■ Benchmarking Average — Fiscal Years 2011 through 2015

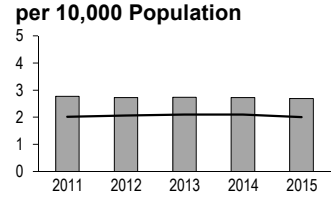
Resource Measures

Fleet Maintenance Services Cost per Capita



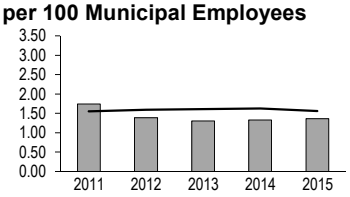
	2011	2012	2013	2014	2015
Burlington	$27.79	$29.57	$27.90	$41.24	$30.87
Average	$31.75	$33.12	$32.61	$34.50	$31.91

Fleet Maintenance FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Burlington	2.77	2.73	2.73	2.72	2.70
Average	2.02	2.07	2.10	2.11	2.01

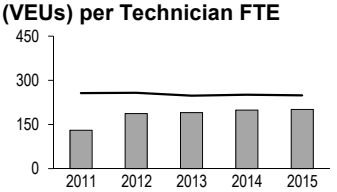
Fleet Maintenance FTEs per 100 Municipal Employees



	2011	2012	2013	2014	2015
Burlington	1.74	1.39	1.30	1.33	1.36
Average	1.55	1.60	1.61	1.62	1.56

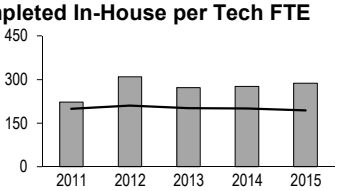
Workload Measures

Number of Vehicle Equivalent Units (VEUs) per Technician FTE



	2011	2012	2013	2014	2015
Burlington	130	188	191	200	202
Average	257	258	249	251	250

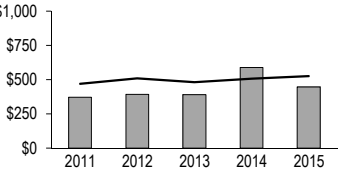
Preventive Maintenances (PMs) Completed In-House per Tech FTE



	2011	2012	2013	2014	2015
Burlington	223	309	272	276	288
Average	200	210	202	201	194

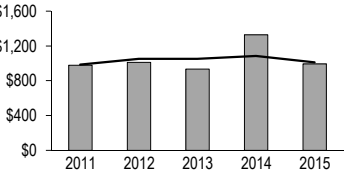
Efficiency Measures

Fleet Maintenance Cost per Work Order



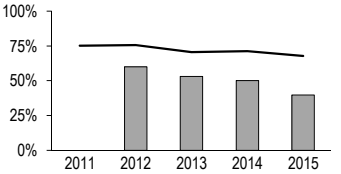
	2011	2012	2013	2014	2015
Burlington	$370	$392	$389	$588	$446
Average	$470	$508	$481	$508	$525

Fleet Maintenance Cost per Vehicle Equivalent Unit (VEU)



	2011	2012	2013	2014	2015
Burlington	$977	$1,010	$935	$1,327	$992
Average	$987	$1,052	$1,050	$1,084	$1,010

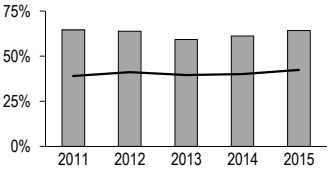
Hours Billed as a Percentage of Total Hours



	2011	2012	2013	2014	2015
Burlington		60%	53%	50%	40%
Average	75%	76%	70%	71%	68%

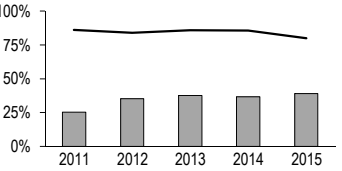
Effectiveness Measures

Preventive Maintenances (PMs) as a Percentage of All Work Orders



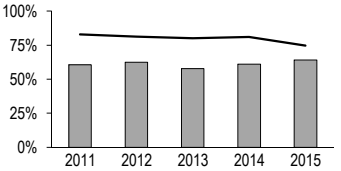
	2011	2012	2013	2014	2015
Burlington	65%	64%	59%	61%	64%
Average	39%	41%	40%	40%	42%

Percentage of Preventive Maintenances (PMs) Completed as Scheduled



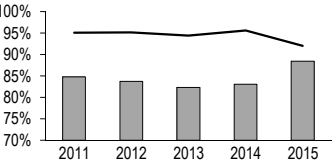
	2011	2012	2013	2014	2015
Burlington	25%	35%	38%	37%	39%
Average	86%	84%	86%	86%	80%

Percentage of Work Orders Completed within 24 Hours



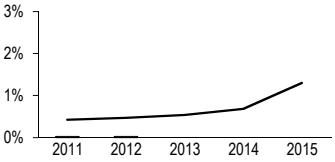
	2011	2012	2013	2014	2015
Burlington	61%	63%	58%	61%	64%
Average	83%	81%	80%	81%	75%

Percentage of Rolling Stock Available per Day



	2011	2012	2013	2014	2015
Burlington	85%	84%	82%	83%	88%
Average	95%	95%	94%	96%	92%

Percentage of Work Orders Requiring Repeat Repair within 30 Days



	2011	2012	2013	2014	2015
Burlington	0.03%	0.03%	0.00%	0.00%	0.00%
Average	0.42%	0.47%	0.54%	0.68%	1.30%

Fiscal Year 2014–15

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 light duty vehicles and $89 on heavy duty plus 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. Based on this the estimated turnover in parts was 62.43 times during the year.

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, weedwhackers, 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 2014)	148,333
Land Area (Square Miles)	56.47
Persons per Square Mile	2,627

Service Profile

FTE Positions—Technician	9.0
FTE Positions—Other	3.0
Work Bays	6

Rolling Stock Maintained	No.	Average Age
Cars—Normal Usage	35	7.8 Years
Cars—Severe Usage	122	6.5 Years
Light Vehicles	271	6.7 Years
Medium Vehicles	65	8.5 Years
Heavy—Sanitation	33	5.0 Years
Heavy—Sewer	4	6.8 Years
Heavy—Fire Apparatus	20	7.9 Years
Heavy—Other	15	9.6 Years
Trailed Equipment	77	10.0 Years
Off-Road/Construction/Tractors	164	6.0 Years
Buses	0	NA
TOTAL	806	

Vehicle Equivalent Units (VEUs)	2,785
Average Rolling Stock Units Available per Day	785
Hours Billed	10,466
Work Orders	6,691
Repeat Repairs within 30 Days	29
Work Orders Completed within 24 hours	6,039
Preventive Maintenance Jobs (PMs)	2,703
PMs Completed as Scheduled	2,458

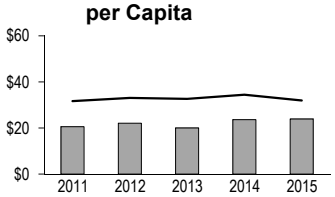
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	23.0%
Operating Costs	72.8%
Capital Costs	4.2%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$815,550
Operating Costs	$2,582,500
Capital Costs	$147,537
TOTAL	$3,545,587

Key: Cary ■ Benchmarking Average — Fiscal Years 2011 through 2015

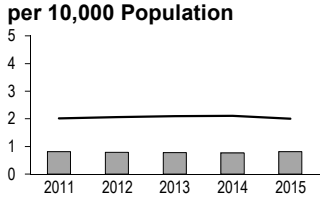
Resource Measures

Fleet Maintenance Services Cost per Capita



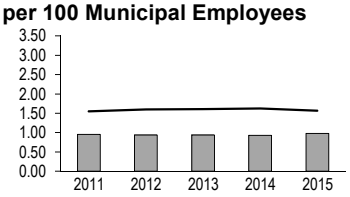
	2011	2012	2013	2014	2015
Cary	$20.59	$22.13	$20.00	$23.70	$23.90
Average	$31.75	$33.12	$32.61	$34.50	$31.91

Fleet Maintenance FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Cary	0.81	0.79	0.77	0.76	0.81
Average	2.02	2.07	2.10	2.11	2.01

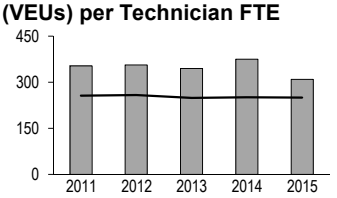
Fleet Maintenance FTEs per 100 Municipal Employees



	2011	2012	2013	2014	2015
Cary	0.96	0.94	0.93	0.93	0.98
Average	1.55	1.60	1.61	1.62	1.56

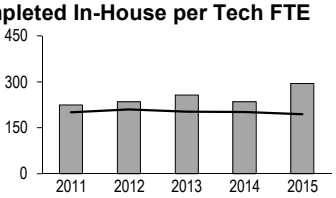
Workload Measures

Number of Vehicle Equivalent Units (VEUs) per Technician FTE



	2011	2012	2013	2014	2015
Cary	353	356	345	375	309
Average	257	258	249	251	250

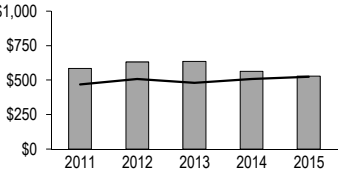
Preventive Maintenances (PMs) Completed In-House per Tech FTE



	2011	2012	2013	2014	2015
Cary	224	235	257	235	295
Average	200	210	202	201	194

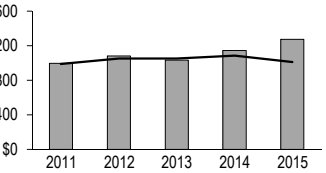
Efficiency Measures

Fleet Maintenance Cost per Work Order



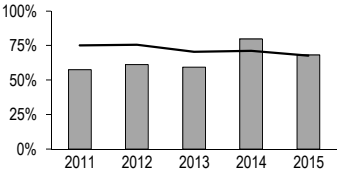
	2011	2012	2013	2014	2015
Cary	$584	$630	$636	$564	$530
Average	$470	$508	$481	$508	$525

Fleet Maintenance Cost per Vehicle Equivalent Unit (VEU)



	2011	2012	2013	2014	2015
Cary	$993	$1,081	$1,032	$1,141	$1,273
Average	$987	$1,052	$1,050	$1,084	$1,010

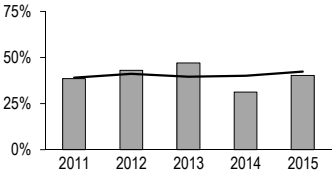
Hours Billed as a Percentage of Total Hours



	2011	2012	2013	2014	2015
Cary	58%	61%	59%	80%	68%
Average	75%	76%	70%	71%	68%

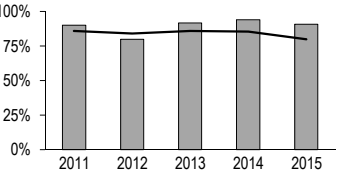
Effectiveness Measures

Preventive Maintenances (PMs) as a Percentage of All Work Orders



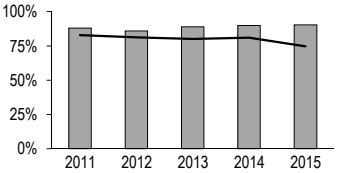
	2011	2012	2013	2014	2015
Cary	39%	43%	47%	31%	40%
Average	39%	41%	40%	40%	42%

Percentage of Preventive Maintenances (PMs) Completed as Scheduled



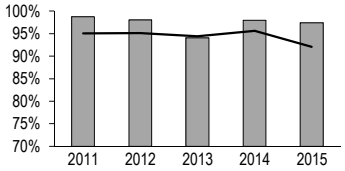
	2011	2012	2013	2014	2015
Cary	90%	80%	92%	94%	91%
Average	86%	84%	86%	86%	80%

Percentage of Work Orders Completed within 24 Hours



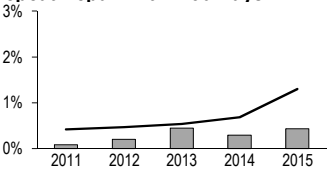
	2011	2012	2013	2014	2015
Cary	88%	86%	89%	90%	90%
Average	83%	81%	80%	81%	75%

Percentage of Rolling Stock Available per Day



	2011	2012	2013	2014	2015
Cary	99%	98%	94%	98%	97%
Average	95%	95%	94%	96%	92%

Percentage of Work Orders Requiring Repeat Repair within 30 Days



	2011	2012	2013	2014	2015
Cary	0.08%	0.20%	0.45%	0.30%	0.43%
Average	0.42%	0.47%	0.54%	0.68%	1.30%

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery
The Town of Chapel Hill provides fleet maintenance through the Fleet Managment Program in the Public Works Department Administration Divsion. The program is operated as an internal service fund charging departments for services.

A labor rate of $90 per hour is charged for maintenance work. Additionally, a parts markup of 20 percent is applied to the cost of parts and a 10 percent markup is charged for overseeing sublet work.

The town contracted out some maintenance services during the fiscal year including towing, bodywork, lift truck inspections, and parts inventory. The overall turnover in parts was estimated at two times per year.

Conditions Affecting Service, Performance, and Costs
The Town of Chapel Hill began participation in the benchmarking project in July 2015, with FY 2014–15 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. Chapel Hill indicated that 4.4 technician full-time equivalents (FTEs) of 6 budgeted technician positions were actually available for work during the fiscal year for this calculation. There was a large degree of turnover in the shop during the year with a full complement only reached at the start of FY 2015–16.

In Chapel Hill the preventive maintenance (PM) completion standard for "percentage of PMs completed as scheduled" includes varying standards depending on the work but must occur within thirty days of the scheduled date, within the scheduled month, or within mileage parameters.

In addition to rolling stock, Chapel Hill's fleet services had maintenance responsibilities for generators, light towers, mowers, weed wackers, leaf blowers, leaf vaccum machines, and sign towers.

Municipal Profile

Population (OSBM 2014)	59,758
Land Area (Square Miles)	21.17
Persons per Square Mile	2,823

Service Profile

FTE Positions—Technician	6.00
FTE Positions—Other	1.75
Work Bays	10

Rolling Stock Maintained	No.	Average Age
Cars—Normal Usage	118	6.2 Years
Cars—Severe Usage	59	5.9 Years
Light Vehicles	35	6.5 Years
Medium Vehicles	88	7.1 Years
Heavy—Sanitation	21	6.8 Years
Heavy—Sewer	1	6.5 Years
Heavy—Fire Apparatus	11	9.5 Years
Heavy—Other	21	6.8 Years
Trailed Equipment	36	11.8 Years
Off-Road/Construction/Tractors	24	9.5 Years
Buses	0	NA
TOTAL	414	

Vehicle Equivalent Units (VEUs)	1,460
Average Rolling Stock Units Available per Day	348
Hours Billed	6,465
Work Orders	1,783
Repeat Repairs within 30 Days	49
Work Orders Completed within 24 hours	1,526
Preventive Maintenance Jobs (PMs)	962
PMs Completed as Scheduled	734

Full Cost Profile

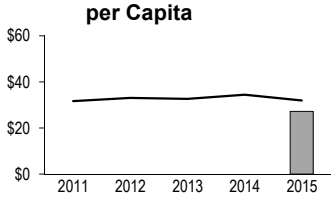
Cost Breakdown by Percentage	
Personal Services	31.5%
Operating Costs	54.4%
Capital Costs	14.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$512,642
Operating Costs	$884,759
Capital Costs	$227,754
TOTAL	$1,625,155

Chapel Hill — Fleet Maintenance

Key: Chapel Hill ■ Benchmarking Average — Fiscal Years 2011 through 2015

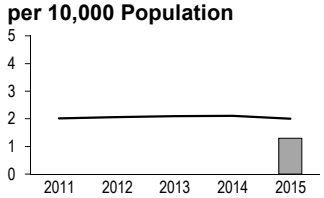
Resource Measures

Fleet Maintenance Services Cost per Capita



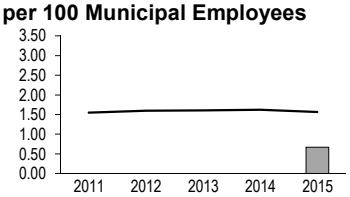
	2011	2012	2013	2014	2015
Chapel Hill					$27.20
Average	$31.75	$33.12	$32.61	$34.50	$31.91

Fleet Maintenance FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Chapel Hill					1.30
Average	2.02	2.07	2.10	2.11	2.01

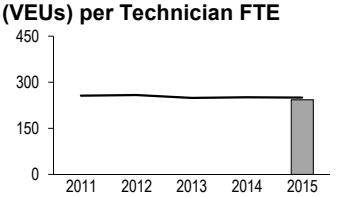
Fleet Maintenance FTEs per 100 Municipal Employees



	2011	2012	2013	2014	2015
Chapel Hill					0.67
Average	1.55	1.60	1.61	1.62	1.56

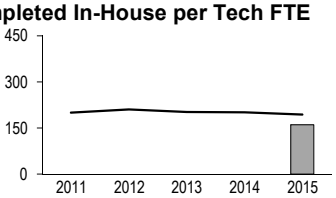
Workload Measures

Number of Vehicle Equivalent Units (VEUs) per Technician FTE



	2011	2012	2013	2014	2015
Chapel Hill					243
Average	257	258	249	251	250

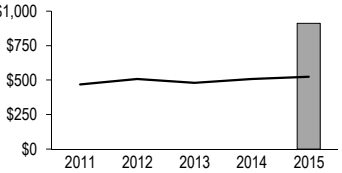
Preventive Maintenances (PMs) Completed In-House per Tech FTE



	2011	2012	2013	2014	2015
Chapel Hill					160
Average	200	210	202	201	194

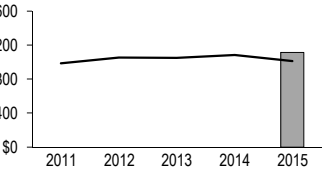
Efficiency Measures

Fleet Maintenance Cost per Work Order



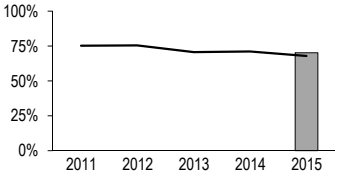
	2011	2012	2013	2014	2015
Chapel Hill					$911
Average	$470	$508	$481	$508	$525

Fleet Maintenance Cost per Vehicle Equivalent Unit (VEU)



	2011	2012	2013	2014	2015
Chapel Hill					$1,113
Average	$987	$1,052	$1,050	$1,084	$1,010

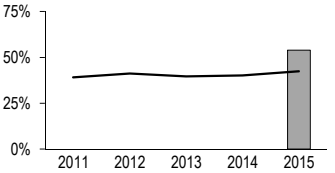
Hours Billed as a Percentage of Total Hours



	2011	2012	2013	2014	2015
Chapel Hill					70%
Average	75%	76%	70%	71%	68%

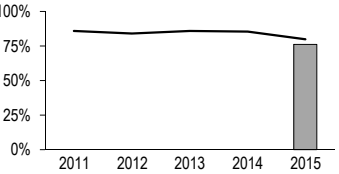
Effectiveness Measures

Preventive Maintenances (PMs) as a Percentage of All Work Orders



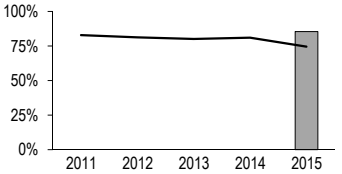
	2011	2012	2013	2014	2015
Chapel Hill					54%
Average	39%	41%	40%	40%	42%

Percentage of Preventive Maintenances (PMs) Completed as Scheduled



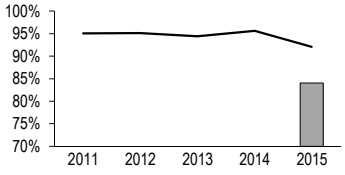
	2011	2012	2013	2014	2015
Chapel Hill					76%
Average	86%	84%	86%	86%	80%

Percentage of Work Orders Completed within 24 Hours



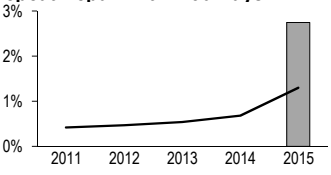
	2011	2012	2013	2014	2015
Chapel Hill					86%
Average	83%	81%	80%	81%	75%

Percentage of Rolling Stock Available per Day



	2011	2012	2013	2014	2015
Chapel Hill					84%
Average	95%	95%	94%	96%	92%

Percentage of Work Orders Requiring Repeat Repair within 30 Days



	2011	2012	2013	2014	2015
Chapel Hill					2.75%
Average	0.42%	0.47%	0.54%	0.68%	1.30%

Fiscal Year 2014–15

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 6.99 technician full-time equivalents (FTEs) were actually working during the fiscal year 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.

A drop in repeat repairs was driven by analysis which showed that a large portion of comebacks were due to A/C and charging system issues. Better equipment was purchased for these repairs and a Master Mechanic was hired to do most of the A/C repair work, leading to lower repeat repairs.

Municipal Profile

Population (OSBM 2014)	85,428
Land Area (Square Miles)	61.09
Persons per Square Mile	1,398

Service Profile

FTE Positions—Technician	7.50
FTE Positions—Other	5.5
Work Bays	8

Rolling Stock Maintained	No.	Average Age
Cars—Normal Usage	11	9.7 Years
Cars—Severe Usage	174	5.1 Years
Light Vehicles	230	7.4 Years
Medium Vehicles	47	8.6 Years
Heavy—Sanitation	12	6.7 Years
Heavy—Sewer	3	7.6 Years
Heavy—Fire Apparatus	22	11.0 Years
Heavy—Other	56	7.9 Years
Trailed Equipment	160	11.3 Years
Off-Road/Construction/Tractors	91	8.5 Years
Buses	16	5.9 Years
TOTAL	822	

Vehicle Equivalent Units (VEUs)	2,613
Average Rolling Stock Units Available per Day	809
Hours Billed	9,102
Work Orders	3,826
Repeat Repairs within 30 Days	17
Work Orders Completed within 24 hours	3,768
Preventive Maintenance Jobs (PMs)	1,728
PMs Completed as Scheduled	1,651

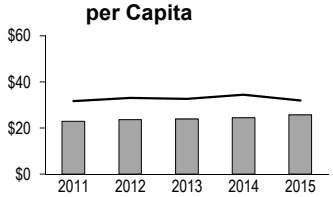
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	45.8%
Operating Costs	50.2%
Capital Costs	4.1%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,003,298
Operating Costs	$1,099,331
Capital Costs	$89,314
TOTAL	$2,191,943

Key: Concord ■ Benchmarking Average — Fiscal Years 2011 through 2015

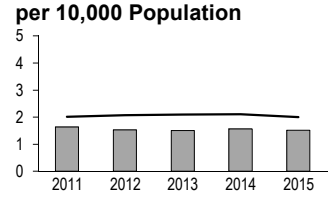
Resource Measures

Fleet Maintenance Services Cost per Capita



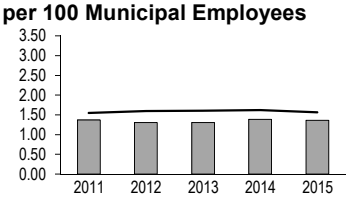
	2011	2012	2013	2014	2015
Concord	$22.91	$23.58	$23.94	$24.45	$25.66
Average	$31.75	$33.12	$32.61	$34.50	$31.91

Fleet Maintenance FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Concord	1.63	1.53	1.50	1.56	1.52
Average	2.02	2.07	2.10	2.11	2.01

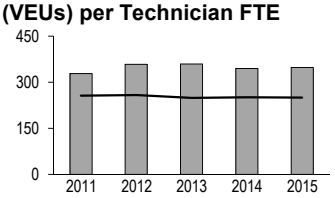
Fleet Maintenance FTEs per 100 Municipal Employees



	2011	2012	2013	2014	2015
Concord	1.37	1.31	1.31	1.38	1.37
Average	1.55	1.60	1.61	1.62	1.56

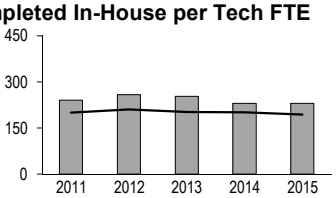
Workload Measures

Number of Vehicle Equivalent Units (VEUs) per Technician FTE



	2011	2012	2013	2014	2015
Concord	328	358	359	346	348
Average	257	258	249	251	250

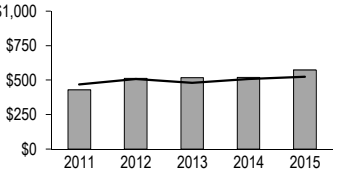
Preventive Maintenances (PMs) Completed In-House per Tech FTE



	2011	2012	2013	2014	2015
Concord	241	259	253	230	230
Average	200	210	202	201	194

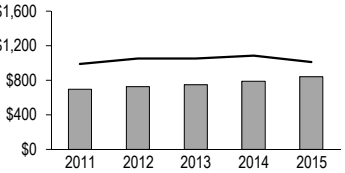
Efficiency Measures

Fleet Maintenance Cost per Work Order



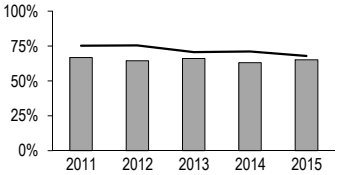
	2011	2012	2013	2014	2015
Concord	$430	$514	$516	$519	$573
Average	$470	$508	$481	$508	$525

Fleet Maintenance Cost per Vehicle Equivalent Unit (VEU)



	2011	2012	2013	2014	2015
Concord	$694	$725	$748	$786	$839
Average	$987	$1,052	$1,050	$1,084	$1,010

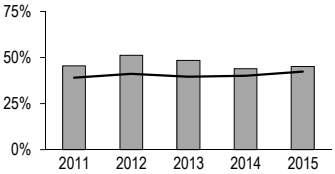
Hours Billed as a Percentage of Total Hours



	2011	2012	2013	2014	2015
Concord	67%	64%	66%	63%	65%
Average	75%	76%	70%	71%	68%

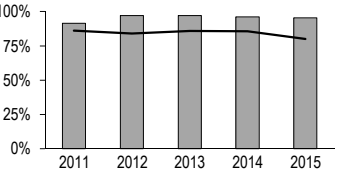
Effectiveness Measures

Preventive Maintenances (PMs) as a Percentage of All Work Orders



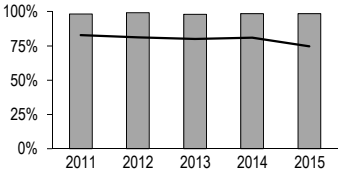
	2011	2012	2013	2014	2015
Concord	46%	51%	49%	44%	45%
Average	39%	41%	40%	40%	42%

Percentage of Preventive Maintenances (PMs) Completed as Scheduled



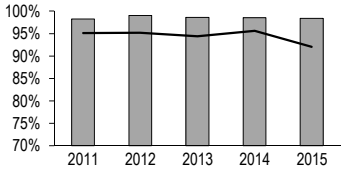
	2011	2012	2013	2014	2015
Concord	91%	97%	97%	96%	96%
Average	86%	84%	86%	86%	80%

Percentage of Work Orders Completed within 24 Hours



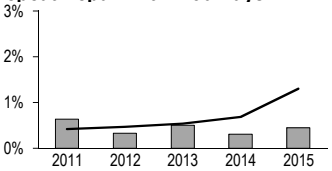
	2011	2012	2013	2014	2015
Concord	98%	99%	98%	99%	98%
Average	83%	81%	80%	81%	75%

Percentage of Rolling Stock Available per Day



	2011	2012	2013	2014	2015
Concord	98%	99%	99%	99%	98%
Average	95%	95%	94%	96%	92%

Percentage of Work Orders Requiring Repeat Repair within 30 Days



	2011	2012	2013	2014	2015
Concord	0.64%	0.33%	0.50%	0.31%	0.44%
Average	0.42%	0.47%	0.54%	0.68%	1.30%

Fiscal Year 2014–15

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 the fiscal year 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 starting 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 2014)	280,803
Land Area (Square Miles)	128.11
Persons per Square Mile	2,192

Service Profile

FTE Positions—Technician	32.0
FTE Positions—Other	17.0
Work Bays	34

Rolling Stock Maintained	No.	Average Age
Cars—Normal Usage	168	5.0 Years
Cars—Severe Usage	371	4.0 Years
Light Vehicles	387	8.0 Years
Medium Vehicles	110	10.0 Years
Heavy—Sanitation	99	5.0 Years
Heavy—Sewer	9	6.0 Years
Heavy—Fire Apparatus	0	NA
Heavy—Other	107	8.0 Years
Trailed Equipment	154	12.0 Years
Off-Road/Construction/Tractors	174	10.0 Years
Buses	3	16.0 Years
TOTAL	1,582	

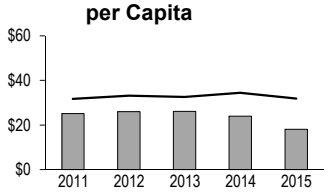
Vehicle Equivalent Units (VEUs)	5,436
Average Rolling Stock Units Available per Day	1,455
Hours Billed	52,227
Work Orders	12,089
Repeat Repairs within 30 Days	35
Work Orders Completed within 24 hours	11,122
Preventive Maintenance Jobs (PMs)	5,771
PMs Completed as Scheduled	5,771

Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	65.0%
Operating Costs	35.0%
Capital Costs	0.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$3,296,738
Operating Costs	$1,776,567
Capital Costs	$0
TOTAL	$5,073,305

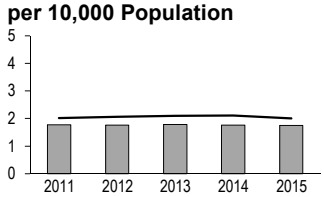
Resource Measures

Fleet Maintenance Services Cost per Capita



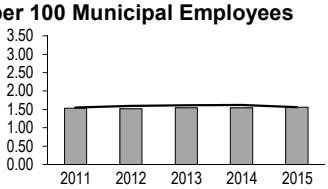
	2011	2012	2013	2014	2015
Greensboro	$25.16	$26.05	$26.18	$24.03	$18.07
Average	$31.75	$33.12	$32.61	$34.50	$31.91

Fleet Maintenance FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Greensboro	1.78	1.76	1.78	1.76	1.74
Average	2.02	2.07	2.10	2.11	2.01

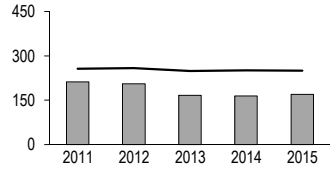
Fleet Maintenance FTEs per 100 Municipal Employees



	2011	2012	2013	2014	2015
Greensboro	1.54	1.51	1.54	1.54	1.56
Average	1.55	1.60	1.61	1.62	1.56

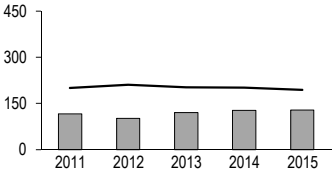
Workload Measures

Number of Vehicle Equivalent Units (VEUs) per Technician FTE



	2011	2012	2013	2014	2015
Greensboro	212	205	167	165	170
Average	257	258	249	251	250

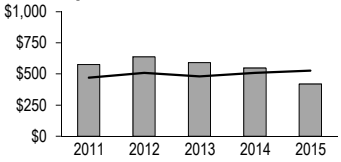
Preventive Maintenances (PMs) Completed In-House per Tech FTE



	2011	2012	2013	2014	2015
Greensboro	116	101	121	127	128
Average	200	210	202	201	194

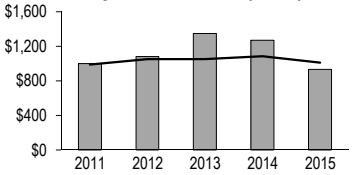
Efficiency Measures

Fleet Maintenance Cost per Work Order



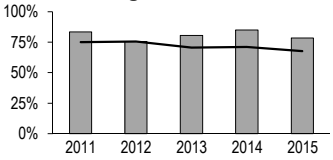
	2011	2012	2013	2014	2015
Greensboro	$574	$637	$591	$547	$420
Average	$470	$508	$481	$508	$525

Fleet Maintenance Cost per Vehicle Equivalent Unit (VEU)



	2011	2012	2013	2014	2015
Greensboro	$1,000	$1,080	$1,348	$1,268	$933
Average	$987	$1,052	$1,050	$1,084	$1,010

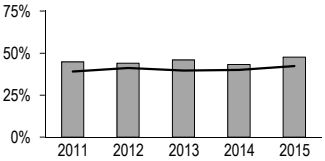
Hours Billed as a Percentage of Total Hours



	2011	2012	2013	2014	2015
Greensboro	83%	75%	80%	85%	78%
Average	75%	76%	70%	71%	68%

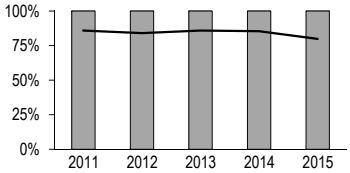
Effectiveness Measures

Preventive Maintenances (PMs) as a Percentage of All Work Orders



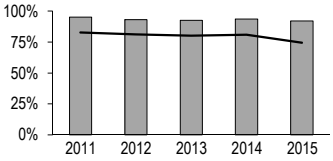
	2011	2012	2013	2014	2015
Greensboro	45%	44%	46%	43%	48%
Average	39%	41%	40%	40%	42%

Percentage of Preventive Maintenances (PMs) Completed as Scheduled



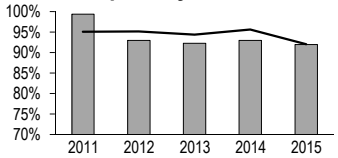
	2011	2012	2013	2014	2015
Greensboro	100%	100%	100%	100%	100%
Average	86%	84%	86%	86%	80%

Percentage of Work Orders Completed within 24 Hours



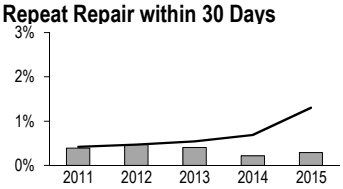
	2011	2012	2013	2014	2015
Greensboro	95%	93%	93%	94%	92%
Average	83%	81%	80%	81%	75%

Percentage of Rolling Stock Available per Day



	2011	2012	2013	2014	2015
Greensboro	99%	93%	92%	93%	92%
Average	95%	95%	94%	96%	92%

Percentage of Work Orders Requiring Repeat Repair within 30 Days



	2011	2012	2013	2014	2015
Greensboro	0.39%	0.47%	0.40%	0.21%	0.29%
Average	0.42%	0.47%	0.54%	0.68%	1.30%

Fiscal Year 2014–15

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 and a 15 percent markup on 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
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 2014)	87,436
Land Area (Square Miles)	34.90
Persons per Square Mile	2,505

Service Profile

FTE Positions—Technician	13.0
FTE Positions—Other	5.0
Work Bays	12

Rolling Stock Maintained	No.	Average Age
Cars—Normal Usage	25	8.5 Years
Cars—Severe Usage	163	5.0 Years
Light Vehicles	167	8.5 Years
Medium Vehicles	16	8.5 Years
Heavy—Sanitation	46	7.0 Years
Heavy—Sewer	1	14.0 Years
Heavy—Fire Apparatus	17	11.0 Years
Heavy—Other	24	7.0 Years
Trailed Equipment	45	13.0 Years
Off-Road/Construction/Tractors	94	19.0 Years
Buses	15	15.0 Years
TOTAL	613	

Vehicle Equivalent Units (VEUs)	2,486
Average Rolling Stock Units Available per Day	447
Hours Billed	14,053
Work Orders	5,221
Repeat Repairs within 30 Days	86
Work Orders Completed within 24 hours	886
Preventive Maintenance Jobs (PMs)	2,333
PMs Completed as Scheduled	419

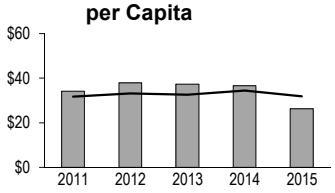
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	61.0%
Operating Costs	19.4%
Capital Costs	19.6%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,398,455
Operating Costs	$445,548
Capital Costs	$449,451
TOTAL	$2,293,454

Key: Greenville ■ Benchmarking Average — Fiscal Years 2011 through 2015

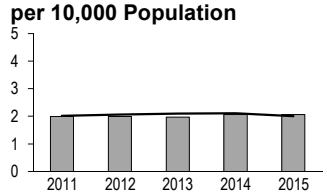
Resource Measures

Fleet Maintenance Services Cost per Capita



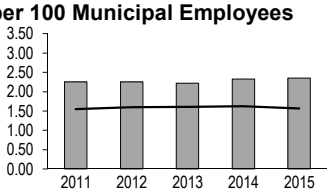
	2011	2012	2013	2014	2015
Greenville	$34.11	$37.85	$37.41	$36.55	$26.23
Average	$31.75	$33.12	$32.61	$34.50	$31.91

Fleet Maintenance FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Greenville	2.00	2.00	1.97	2.06	2.06
Average	2.02	2.07	2.10	2.11	2.01

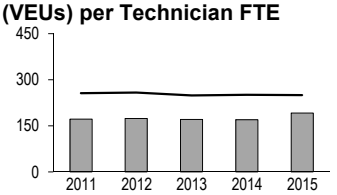
Fleet Maintenance FTEs per 100 Municipal Employees



	2011	2012	2013	2014	2015
Greenville	2.25	2.25	2.22	2.33	2.35
Average	1.55	1.60	1.61	1.62	1.56

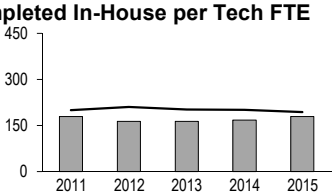
Workload Measures

Number of Vehicle Equivalent Units (VEUs) per Technician FTE



	2011	2012	2013	2014	2015
Greenville	172	174	171	170	191
Average	257	258	249	251	250

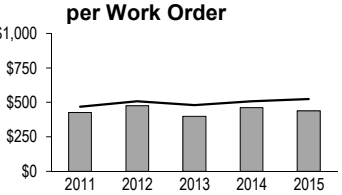
Preventive Maintenances (PMs) Completed In-House per Tech FTE



	2011	2012	2013	2014	2015
Greenville	179	164	164	168	179
Average	200	210	202	201	194

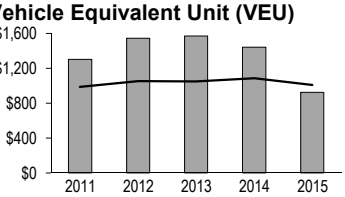
Efficiency Measures

Fleet Maintenance Cost per Work Order



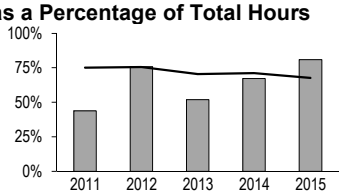
	2011	2012	2013	2014	2015
Greenville	$426	$476	$398	$461	$439
Average	$470	$508	$481	$508	$525

Fleet Maintenance Cost per Vehicle Equivalent Unit (VEU)



	2011	2012	2013	2014	2015
Greenville	$1,301	$1,544	$1,571	$1,440	$923
Average	$987	$1,052	$1,050	$1,084	$1,010

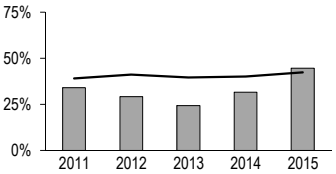
Hours Billed as a Percentage of Total Hours



	2011	2012	2013	2014	2015
Greenville	44%	76%	52%	67%	81%
Average	75%	76%	70%	71%	68%

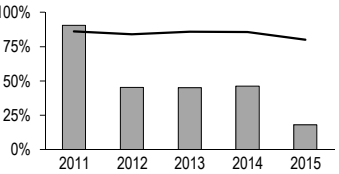
Effectiveness Measures

Preventive Maintenances (PMs) as a Percentage of All Work Orders



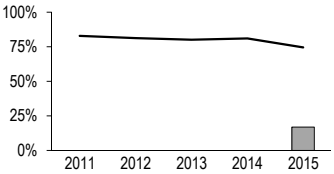
	2011	2012	2013	2014	2015
Greenville	34%	29%	24%	32%	45%
Average	39%	41%	40%	40%	42%

Percentage of Preventive Maintenances (PMs) Completed as Scheduled



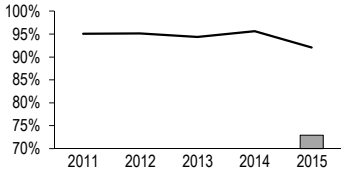
	2011	2012	2013	2014	2015
Greenville	91%	45%	45%	46%	18%
Average	86%	84%	86%	86%	80%

Percentage of Work Orders Completed within 24 Hours



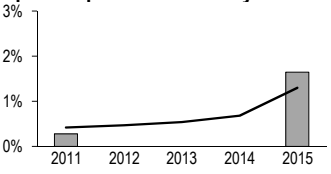
	2011	2012	2013	2014	2015
Greenville					17%
Average	83%	81%	80%	81%	75%

Percentage of Rolling Stock Available per Day



	2011	2012	2013	2014	2015
Greenville					73%
Average	95%	95%	94%	96%	92%

Percentage of Work Orders Requiring Repeat Repair within 30 Days



	2011	2012	2013	2014	2015
Greenville	0.28%				1.65%
Average	0.42%	0.47%	0.54%	0.68%	1.30%

Fiscal Year 2014–15

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 $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 compressed natural gas fuel station, a gasoline and diesel fuel station, and other equipment.

Municipal Profile

Population (OSBM 2014)	40,332
Land Area (Square Miles)	29.84
Persons per Square Mile	1,352

Service Profile

FTE Positions—Technician	7.0
FTE Positions—Other	4.0
Work Bays	14

Rolling Stock Maintained	No.	Average Age
Cars—Normal Usage	22	10.4 Years
Cars—Severe Usage	132	7.0 Years
Light Vehicles	104	NA
Medium Vehicles	35	13.3 Years
Heavy—Sanitation	29	8.5 Years
Heavy—Sewer	6	7.5 Years
Heavy—Fire Apparatus	0	NA
Heavy—Other	19	14.7 Years
Trailed Equipment	55	10.3 Years
Off-Road/Construction/Tractors	135	22.4 Years
Buses	0	NA
TOTAL	537	

Vehicle Equivalent Units (VEUs)	1,880
Average Rolling Stock Units Available per Day	520
Hours Billed	11,967
Work Orders	5,472
Repeat Repairs within 30 Days	NA
Work Orders Completed within 24 hours	NA
Preventive Maintenance Jobs (PMs)	NA
PMs Completed as Scheduled	NA

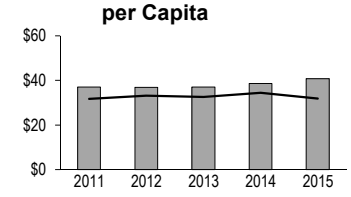
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	36.4%
Operating Costs	60.8%
Capital Costs	2.8%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$600,060
Operating Costs	$1,001,734
Capital Costs	$45,510
TOTAL	$1,647,304

Key: Hickory ■ Benchmarking Average — Fiscal Years 2011 through 2015

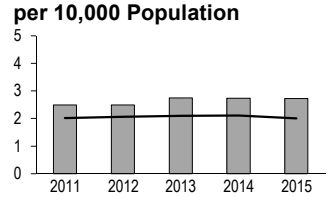
Resource Measures

Fleet Maintenance Services Cost per Capita



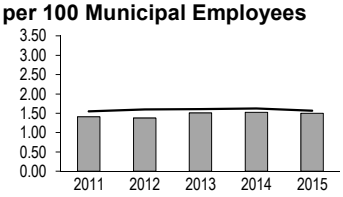
	2011	2012	2013	2014	2015
Hickory	$37.07	$36.88	$37.00	$38.64	$40.84
Average	$31.75	$33.12	$32.61	$34.50	$31.91

Fleet Maintenance FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Hickory	2.49	2.49	2.75	2.73	2.73
Average	2.02	2.07	2.10	2.11	2.01

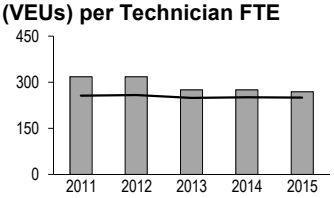
Fleet Maintenance FTEs per 100 Municipal Employees



	2011	2012	2013	2014	2015
Hickory	1.40	1.38	1.51	1.53	1.50
Average	1.55	1.60	1.61	1.62	1.56

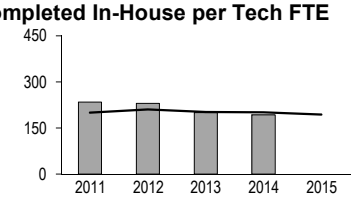
Workload Measures

Number of Vehicle Equivalent Units (VEUs) per Technician FTE



	2011	2012	2013	2014	2015
Hickory	318	318	275	275	269
Average	257	258	249	251	250

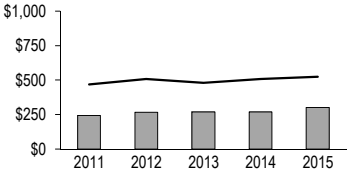
Preventive Maintenances (PMs) Completed In-House per Tech FTE



	2011	2012	2013	2014	2015
Hickory	234	230	201	193	
Average	200	210	202	201	194

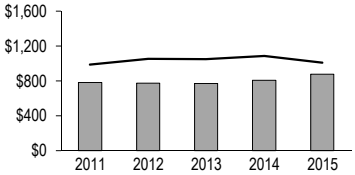
Efficiency Measures

Fleet Maintenance Cost per Work Order



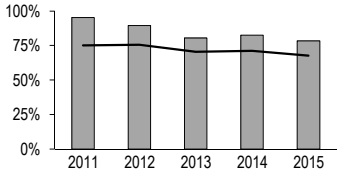
	2011	2012	2013	2014	2015
Hickory	$243	$266	$268	$270	$301
Average	$470	$508	$481	$508	$525

Fleet Maintenance Cost per Vehicle Equivalent Unit (VEU)



	2011	2012	2013	2014	2015
Hickory	$780	$774	$768	$806	$876
Average	$987	$1,052	$1,050	$1,084	$1,010

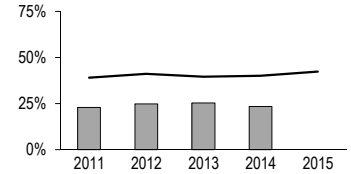
Hours Billed as a Percentage of Total Hours



	2011	2012	2013	2014	2015
Hickory	95%	90%	81%	83%	78%
Average	75%	76%	70%	71%	68%

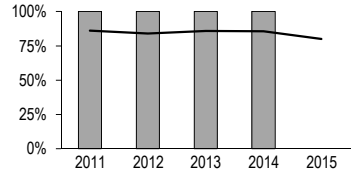
Effectiveness Measures

Preventive Maintenances (PMs) as a Percentage of All Work Orders



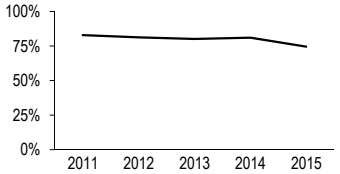
	2011	2012	2013	2014	2015
Hickory	23%	25%	25%	23%	
Average	39%	41%	40%	40%	42%

Percentage of Preventive Maintenances (PMs) Completed as Scheduled



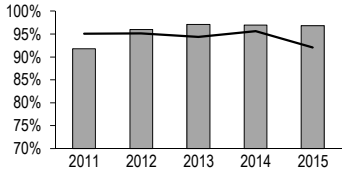
	2011	2012	2013	2014	2015
Hickory	100%	100%	100%	100%	
Average	86%	84%	86%	86%	80%

Percentage of Work Orders Completed within 24 Hours



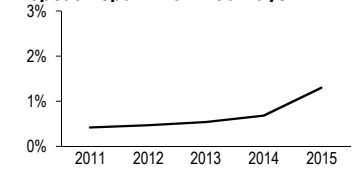
	2011	2012	2013	2014	2015
Hickory					
Average	83%	81%	80%	81%	75%

Percentage of Rolling Stock Available per Day



	2011	2012	2013	2014	2015
Hickory	92%	96%	97%	97%	97%
Average	95%	95%	94%	96%	92%

Percentage of Work Orders Requiring Repeat Repair within 30 Days



	2011	2012	2013	2014	2015
Hickory					
Average	0.42%	0.47%	0.54%	0.68%	1.30%

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery

High Point's Fleet Maintenance Department consists of a director, administrative staff, support staff, 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 six 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 2014)	108,556
Land Area (Square Miles)	55.05
Persons per Square Mile	1,972

Service Profile

FTE Positions—Technician	12.0
FTE Positions—Other	7.0
Work Bays	18

Rolling Stock Maintained	No.	Average Age
Cars—Normal Usage	28	8.0 Years
Cars—Severe Usage	241	8.0 Years
Light Vehicles	267	10.0 Years
Medium Vehicles	23	10.0 Years
Heavy—Sanitation	26	8.0 Years
Heavy—Sewer	3	8.0 Years
Heavy—Fire Apparatus	25	NA
Heavy—Other	65	10.0 Years
Trailed Equipment	128	10.0 Years
Off-Road/Construction/Tractors	161	10.0 Years
Buses	0	NA
TOTAL	967	

Vehicle Equivalent Units (VEUs)	3,209
Average Rolling Stock Units Available per Day	918
Hours Billed	11,383
Work Orders	4,675
Repeat Repairs within 30 Days	47
Work Orders Completed within 24 hours	NA
Preventive Maintenance Jobs (PMs)	2,213
PMs Completed as Scheduled	2,147

Full Cost Profile

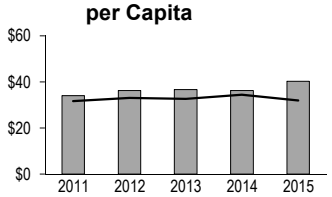
Cost Breakdown by Percentage	
Personal Services	28.6%
Operating Costs	61.1%
Capital Costs	10.3%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,253,209
Operating Costs	$2,676,816
Capital Costs	$450,052
TOTAL	$4,380,077

High Point — Fleet Maintenance

Key: High Point ■ Benchmarking Average — Fiscal Years 2011 through 2015

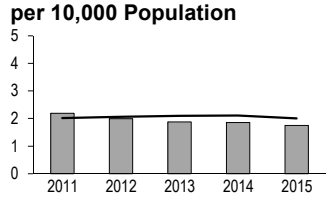
Resource Measures

Fleet Maintenance Services Cost per Capita



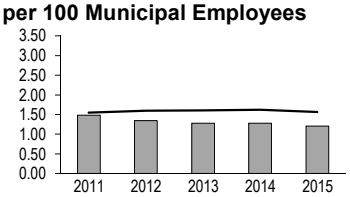
	2011	2012	2013	2014	2015
High Point	$34.05	$36.30	$36.75	$36.24	$40.35
Average	$31.75	$33.12	$32.61	$34.50	$31.91

Fleet Maintenance FTEs per 10,000 Population



	2011	2012	2013	2014	2015
High Point	2.19	1.99	1.88	1.86	1.75
Average	2.02	2.07	2.10	2.11	2.01

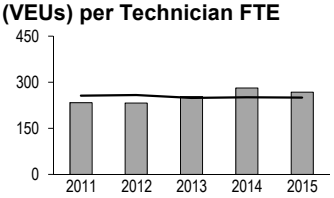
Fleet Maintenance FTEs per 100 Municipal Employees



	2011	2012	2013	2014	2015
High Point	1.48	1.35	1.28	1.28	1.20
Average	1.55	1.60	1.61	1.62	1.56

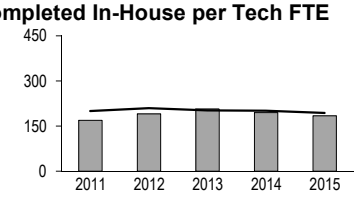
Workload Measures

Number of Vehicle Equivalent Units (VEUs) per Technician FTE



	2011	2012	2013	2014	2015
High Point	234	232	253	281	267
Average	257	258	249	251	250

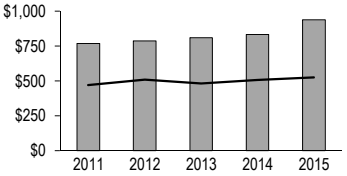
Preventive Maintenances (PMs) Completed In-House per Tech FTE



	2011	2012	2013	2014	2015
High Point	170	191	207	195	184
Average	200	210	202	201	194

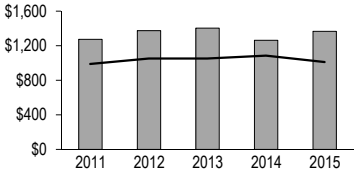
Efficiency Measures

Fleet Maintenance Cost per Work Order



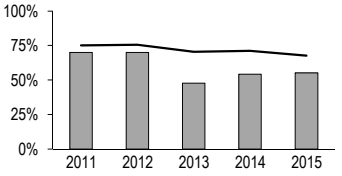
	2011	2012	2013	2014	2015
High Point	$767	$786	$809	$832	$937
Average	$470	$508	$481	$508	$525

Fleet Maintenance Cost per Vehicle Equivalent Unit (VEU)



	2011	2012	2013	2014	2015
High Point	$1,272	$1,374	$1,403	$1,260	$1,365
Average	$987	$1,052	$1,050	$1,084	$1,010

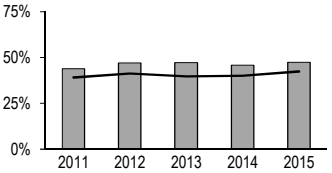
Hours Billed as a Percentage of Total Hours



	2011	2012	2013	2014	2015
High Point	70%	70%	48%	54%	55%
Average	75%	76%	70%	71%	68%

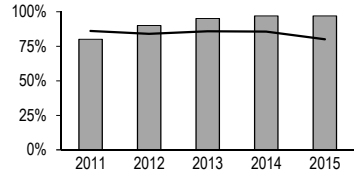
Effectiveness Measures

Preventive Maintenances (PMs) as a Percentage of All Work Orders



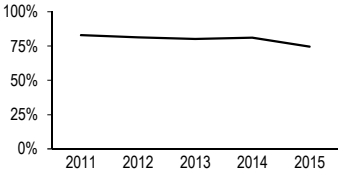
	2011	2012	2013	2014	2015
High Point	44%	47%	47%	46%	47%
Average	39%	41%	40%	40%	42%

Percentage of Preventive Maintenances (PMs) Completed as Scheduled



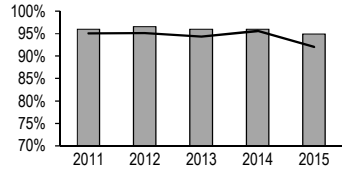
	2011	2012	2013	2014	2015
High Point	80%	90%	95%	97%	97%
Average	86%	84%	86%	86%	80%

Percentage of Work Orders Completed within 24 Hours



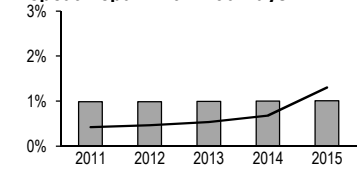
	2011	2012	2013	2014	2015
High Point					
Average	83%	81%	80%	81%	75%

Percentage of Rolling Stock Available per Day



	2011	2012	2013	2014	2015
High Point	96%	97%	96%	96%	95%
Average	95%	95%	94%	96%	92%

Percentage of Work Orders Requiring Repeat Repair within 30 Days



	2011	2012	2013	2014	2015
High Point	0.99%	0.98%	0.99%	1.00%	1.01%
Average	0.42%	0.47%	0.54%	0.68%	1.30%

Fiscal Year 2014–15

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.

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.

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, weedwhackers, jack hammers, rescue equipment, air compressors, sidewalk sweepers, thermo plastic equipment, hydraulic hammers, pavement saws, chain saws, and other city equipment.

Municipal Profile

Population (OSBM 2014)	33,955
Land Area (Square Miles)	22.22
Persons per Square Mile	1,528

Service Profile

FTE Positions—Technician	10.0
FTE Positions—Other	3.0
Work Bays	14

Rolling Stock Maintained	No.	Average Age
Cars—Normal Usage	6	14.7 Years
Cars—Severe Usage	92	5.8 Years
Light Vehicles	131	10.2 Years
Medium Vehicles	28	13.7 Years
Heavy—Sanitation	11	8.4 Years
Heavy—Sewer	3	11.3 Years
Heavy—Fire Apparatus	10	14.7 Years
Heavy—Other	26	12.8 Years
Trailed Equipment	93	15.4 Years
Off-Road/Construction/Tractors	85	11.0 Years
Buses	9	10.2 Years
TOTAL	494	

Vehicle Equivalent Units (VEUs)	1,597
Average Rolling Stock Units Available per Day	466
Hours Billed	NA
Work Orders	4,955
Repeat Repairs within 30 Days	8
Work Orders Completed within 24 hours	NA
Preventive Maintenance Jobs (PMs)	1,510
PMs Completed as Scheduled	1,451

Full Cost Profile

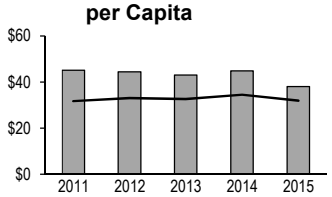
Cost Breakdown by Percentage	
Personal Services	50.8%
Operating Costs	44.8%
Capital Costs	4.4%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$656,114
Operating Costs	$577,619
Capital Costs	$57,031
TOTAL	$1,290,764

Salisbury — Fleet Maintenance

Key: Salisbury ■ Benchmarking Average — Fiscal Years 2011 through 2015

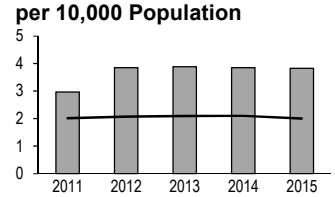
Resource Measures

Fleet Maintenance Services Cost per Capita



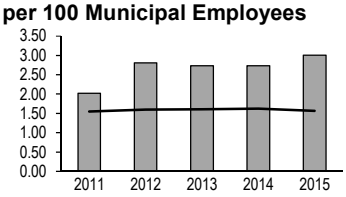
	2011	2012	2013	2014	2015
Salisbury	$45.16	$44.40	$43.13	$44.93	$38.01
Average	$31.75	$33.12	$32.61	$34.50	$31.91

Fleet Maintenance FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Salisbury	2.97	3.86	3.89	3.85	3.83
Average	2.02	2.07	2.10	2.11	2.01

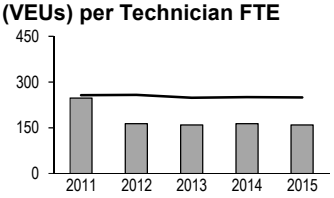
Fleet Maintenance FTEs per 100 Municipal Employees



	2011	2012	2013	2014	2015
Salisbury	2.02	2.81	2.73	2.73	3.00
Average	1.55	1.60	1.61	1.62	1.56

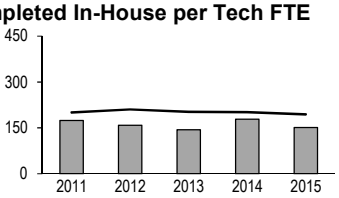
Workload Measures

Number of Vehicle Equivalent Units (VEUs) per Technician FTE



	2011	2012	2013	2014	2015
Salisbury	247	164	160	163	160
Average	257	258	249	251	250

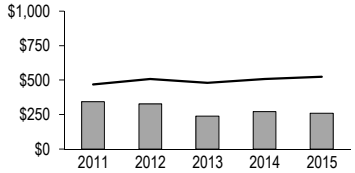
Preventive Maintenances (PMs) Completed In-House per Tech FTE



	2011	2012	2013	2014	2015
Salisbury	174	159	144	179	151
Average	200	210	202	201	194

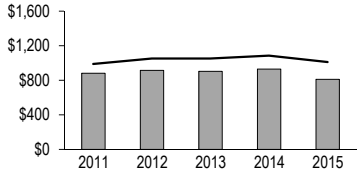
Efficiency Measures

Fleet Maintenance Cost per Work Order



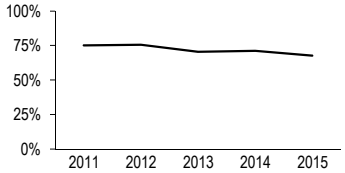
	2011	2012	2013	2014	2015
Salisbury	$343	$328	$240	$272	$260
Average	$470	$508	$481	$508	$525

Fleet Maintenance Cost per Vehicle Equivalent Unit (VEU)



	2011	2012	2013	2014	2015
Salisbury	$880	$913	$902	$928	$808
Average	$987	$1,052	$1,050	$1,084	$1,010

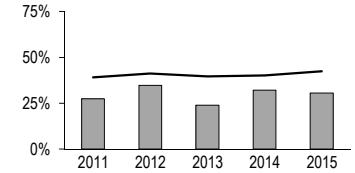
Hours Billed as a Percentage of Total Hours



	2011	2012	2013	2014	2015
Salisbury					
Average	75%	76%	70%	71%	68%

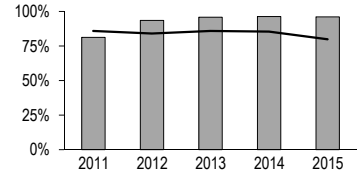
Effectiveness Measures

Preventive Maintenances (PMs) as a Percentage of All Work Orders



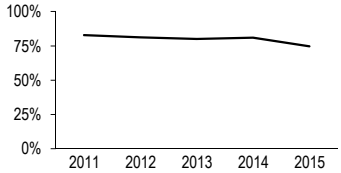
	2011	2012	2013	2014	2015
Salisbury	27%	35%	24%	32%	30%
Average	39%	41%	40%	40%	42%

Percentage of Preventive Maintenances (PMs) Completed as Scheduled



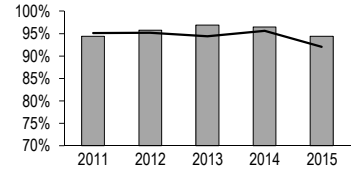
	2011	2012	2013	2014	2015
Salisbury	81%	94%	96%	96%	96%
Average	86%	84%	86%	86%	80%

Percentage of Work Orders Completed within 24 Hours



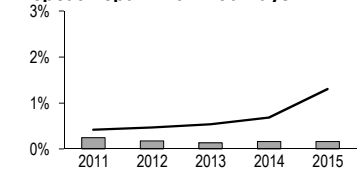
	2011	2012	2013	2014	2015
Salisbury					
Average	83%	81%	80%	81%	75%

Percentage of Rolling Stock Available per Day



	2011	2012	2013	2014	2015
Salisbury	94%	96%	97%	96%	94%
Average	95%	95%	94%	96%	92%

Percentage of Work Orders Requiring Repeat Repair within 30 Days



	2011	2012	2013	2014	2015
Salisbury	0.25%	0.18%	0.13%	0.16%	0.16%
Average	0.42%	0.47%	0.54%	0.68%	1.30%

Fiscal Year 2014–15

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.

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.

In addition to rolling stock, Wilson's fleet services has maintenance responsibilities for generators, mowers, tamps, leaf machines, water pumps, and other city equipment.

Municipal Profile

Population (OSBM 2014)	49,222
Land Area (Square Miles)	30.52
Persons per Square Mile	1,613

Service Profile

FTE Positions—Technician	11.0
FTE Positions—Other	5.0
Work Bays	15

Rolling Stock Maintained	No.	Average Age
Cars—Normal Usage	31	12.0 Years
Cars—Severe Usage	117	7.1 Years
Light Vehicles	183	10.0 Years
Medium Vehicles	39	14.0 Years
Heavy—Sanitation	34	8.7 Years
Heavy—Sewer	6	9.0 Years
Heavy—Fire Apparatus	10	13.0 Years
Heavy—Other	63	8.9 Years
Trailed Equipment	145	9.8 Years
Off-Road/Construction/Tractors	155	12.5 Years
Buses	6	10.0 Years
TOTAL	789	

Vehicle Equivalent Units (VEUs)	2,727
Average Rolling Stock Units Available per Day	749
Hours Billed	20,080
Work Orders	6,992
Repeat Repairs within 30 Days	35
Work Orders Completed within 24 hours	5,943
Preventive Maintenance Jobs (PMs)	1,265
PMs Completed as Scheduled	1,138

Full Cost Profile

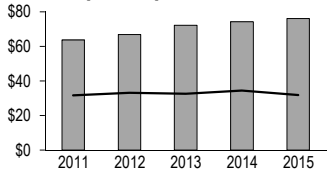
Cost Breakdown by Percentage	
Personal Services	31.9%
Operating Costs	63.6%
Capital Costs	4.5%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,195,548
Operating Costs	$2,384,856
Capital Costs	$167,328
TOTAL	$3,747,732

Wilson — Fleet Maintenance

Key: Wilson ■ Benchmarking Average — Fiscal Years 2011 through 2015

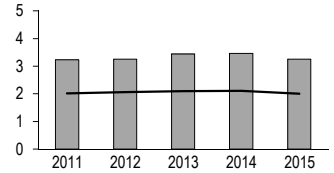
Resource Measures

Fleet Maintenance Services Cost per Capita



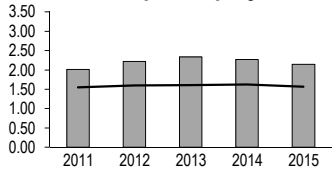
	2011	2012	2013	2014	2015
Wilson	$63.76	$66.83	$72.24	$74.31	$76.14
Average	$31.75	$33.12	$32.61	$34.50	$31.91

Fleet Maintenance FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Wilson	3.24	3.26	3.44	3.46	3.25
Average	2.02	2.07	2.10	2.11	2.01

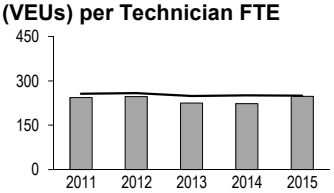
Fleet Maintenance FTEs per 100 Municipal Employees



	2011	2012	2013	2014	2015
Wilson	2.01	2.22	2.34	2.27	2.15
Average	1.55	1.60	1.61	1.62	1.56

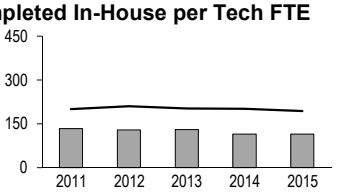
Workload Measures

Number of Vehicle Equivalent Units (VEUs) per Technician FTE



	2011	2012	2013	2014	2015
Wilson	244	246	226	223	248
Average	257	258	249	251	250

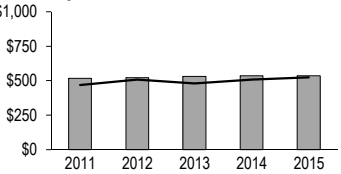
Preventive Maintenances (PMs) Completed In-House per Tech FTE



	2011	2012	2013	2014	2015
Wilson	134	130	130	115	115
Average	200	210	202	201	194

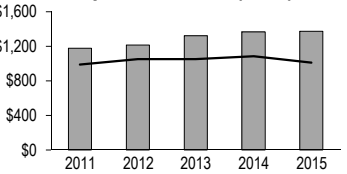
Efficiency Measures

Fleet Maintenance Cost per Work Order



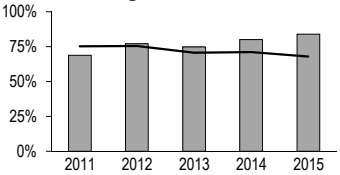
	2011	2012	2013	2014	2015
Wilson	$517	$522	$531	$536	$536
Average	$470	$508	$481	$508	$525

Fleet Maintenance Cost per Vehicle Equivalent Unit (VEU)



	2011	2012	2013	2014	2015
Wilson	$1,175	$1,212	$1,320	$1,364	$1,375
Average	$987	$1,052	$1,050	$1,084	$1,010

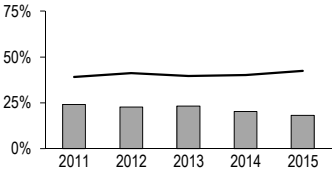
Hours Billed as a Percentage of Total Hours



	2011	2012	2013	2014	2015
Wilson	69%	77%	75%	80%	84%
Average	75%	76%	70%	71%	68%

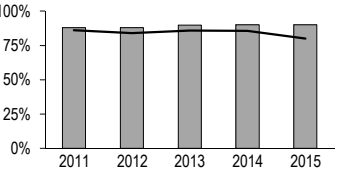
Effectiveness Measures

Preventive Maintenances (PMs) as a Percentage of All Work Orders



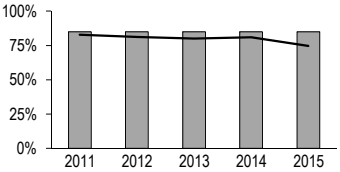
	2011	2012	2013	2014	2015
Wilson	24%	23%	23%	20%	18%
Average	39%	41%	40%	40%	42%

Percentage of Preventive Maintenances (PMs) Completed as Scheduled



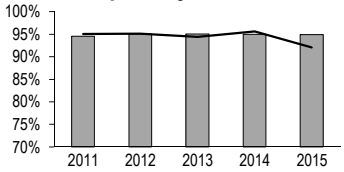
	2011	2012	2013	2014	2015
Wilson	88%	88%	90%	90%	90%
Average	86%	84%	86%	86%	80%

Percentage of Work Orders Completed within 24 Hours



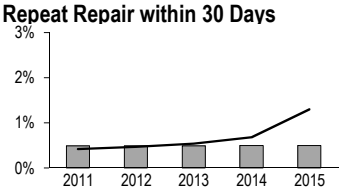
	2011	2012	2013	2014	2015
Wilson	85%	85%	85%	85%	85%
Average	83%	81%	80%	81%	75%

Percentage of Rolling Stock Available per Day



	2011	2012	2013	2014	2015
Wilson	95%	95%	95%	95%	95%
Average	95%	95%	94%	96%	92%

Percentage of Work Orders Requiring Repeat Repair within 30 Days



	2011	2012	2013	2014	2015
Wilson	0.49%	0.49%	0.49%	0.50%	0.50%
Average	0.42%	0.47%	0.54%	0.68%	1.30%

Fiscal Year 2014–15

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.

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. Winston-Salem indicated that seventeen technician FTEs were actually working during the fiscal year for this calculation.

Results for the measures "percentage of PMs completed as scheduled" and "percentage of work orders requiring repeat repairs within 30 days" were not available.

In addition to rolling stock, Winston-Salem's Fleet Services has maintenance responsibilities for mowers, weedeaters, water pumps, chain saws, whacker tamps, pavement stripers, tractor implements, leaf blowers, power trimmers, salt spreaders, snow plows, and other city equipment.

Municipal Profile

Population (OSBM 2014)	237,905
Land Area (Square Miles)	132.45
Persons per Square Mile	1,796

Service Profile

FTE Positions—Technician	19.0
FTE Positions—Other	12.0
Work Bays	31

Rolling Stock Maintained	No.	Average Age
Cars—Normal Usage	276	6.4 Years
Cars—Severe Usage	457	5.1 Years
Light Vehicles	407	8.3 Years
Medium Vehicles	146	9.3 Years
Heavy—Sanitation	59	7.6 Years
Heavy—Sewer	8	11.3 Years
Heavy—Fire Apparatus	0	NA
Heavy—Other	54	9.2 Years
Trailed Equipment	153	18.1 Years
Off-Road/Construction/Tractors	256	15.7 Years
Buses	0	NA
TOTAL	1,816	

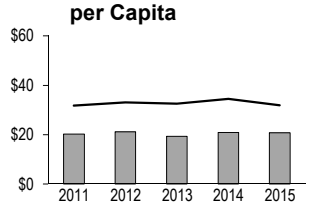
Vehicle Equivalent Units (VEUs)	5,289
Average Rolling Stock Units Available per Day	1,759
Hours Billed	22,473
Work Orders	8,784
Repeat Repairs within 30 Days	414
Work Orders Completed within 24 hours	5,889
Preventive Maintenance Jobs (PMs)	1,896
PMs Completed as Scheduled	1,763

Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	28.0%
Operating Costs	70.2%
Capital Costs	1.8%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,383,383
Operating Costs	$3,472,587
Capital Costs	$88,112
TOTAL	$4,944,082

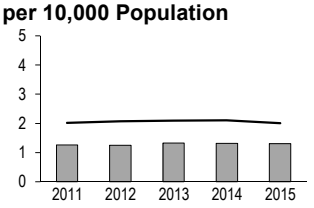
Resource Measures

Fleet Maintenance Services Cost per Capita



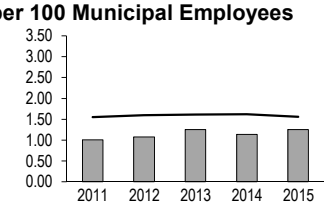
	2011	2012	2013	2014	2015
Winston-Salem	$20.27	$21.10	$19.35	$20.85	$20.78
Average	$31.75	$33.12	$32.61	$34.50	$31.91

Fleet Maintenance FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Winston-Salem	1.26	1.25	1.33	1.32	1.30
Average	2.02	2.07	2.10	2.11	2.01

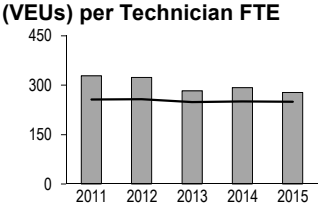
Fleet Maintenance FTEs per 100 Municipal Employees



	2011	2012	2013	2014	2015
Winston-Salem	1.01	1.08	1.25	1.14	1.25
Average	1.55	1.60	1.61	1.62	1.56

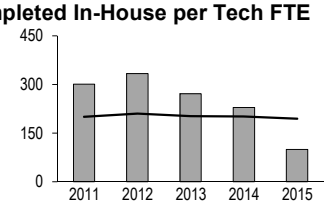
Workload Measures

Number of Vehicle Equivalent Units (VEUs) per Technician FTE



	2011	2012	2013	2014	2015
Winston-Salem	328	324	283	293	278
Average	257	258	249	251	250

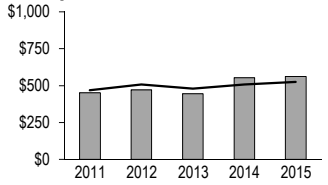
Preventive Maintenances (PMs) Completed In-House per Tech FTE



	2011	2012	2013	2014	2015
Winston-Salem	302	334	271	229	100
Average	200	210	202	201	194

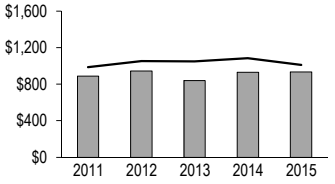
Efficiency Measures

Fleet Maintenance Cost per Work Order



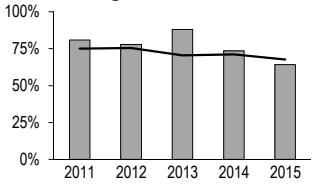
	2011	2012	2013	2014	2015
Winston-Salem	$452	$470	$446	$552	$563
Average	$470	$508	$481	$508	$525

Fleet Maintenance Cost per Vehicle Equivalent Unit (VEU)



	2011	2012	2013	2014	2015
Winston-Salem	$889	$946	$839	$931	$935
Average	$987	$1,052	$1,050	$1,084	$1,010

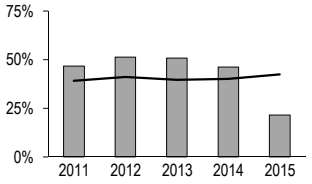
Hours Billed as a Percentage of Total Hours



	2011	2012	2013	2014	2015
Winston-Salem	81%	78%	88%	73%	64%
Average	75%	76%	70%	71%	68%

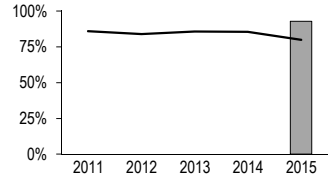
Effectiveness Measures

Preventive Maintenances (PMs) as a Percentage of All Work Orders



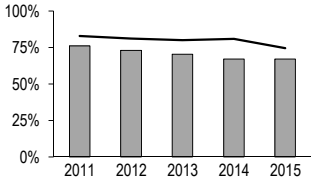
	2011	2012	2013	2014	2015
Winston-Salem	47%	51%	51%	46%	22%
Average	39%	41%	40%	40%	42%

Percentage of Preventive Maintenances (PMs) Completed as Scheduled



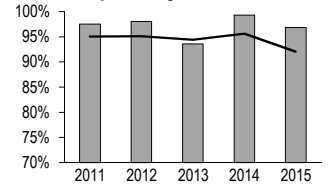
	2011	2012	2013	2014	2015
Winston-Salem					93%
Average	86%	84%	86%	86%	80%

Percentage of Work Orders Completed within 24 Hours



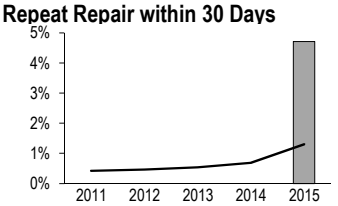
	2011	2012	2013	2014	2015
Winston-Salem	76%	73%	70%	67%	67%
Average	83%	81%	80%	81%	75%

Percentage of Rolling Stock Available per Day



	2011	2012	2013	2014	2015
Winston-Salem	98%	98%	94%	99%	97%
Average	95%	95%	94%	96%	92%

Percentage of Work Orders Requiring Repeat Repair within 30 Days



	2011	2012	2013	2014	2015
Winston-Salem					4.71%
Average	0.42%	0.47%	0.54%	0.68%	1.30%

UNC
SCHOOL OF
GOVERNMENT

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	361	8.9	68	3,923	27	6 & 12 months	8.5%	2.8
Asheville	1,167	9.4	277	12,388	201	6 months	11.2%	17.3
Burlington	555	11.6	40	2,614	15	6 & 12 months	16.2%	3.5
Cary	1,204	10.7	336	12,369	203	6 & 12 months	6.0%	13.6
Chapel Hill	723	10.7	139	10,263	na	6 & 12 months	6.3%	8.0
Concord	924	10.9	141	9,668	64	6 & 12 months	5.9%	7.6
Greensboro	3,052	11.1	205	9,033	1,193	6 & 12 months	8.0%	31.0
Greenville	751	10.3	73	6,507	245	6 & 12 months	8.0%	9.0
Hickory	654	11.1	60	3,584	25	12 months	11.2%	5.0
High Point	1,368	28.1	448	6,380	89	12 months	8.6%	13.0
Salisbury	389	9.0	83	1,586	20	6 & 12 months	17.3%	7.0
Wilson	735	10.3	54	1,759	150	12 months	15.2%	4.5
Winston-Salem	2,475	11.4	545	24,470	395	None	10.4%	15.0

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 2014–15

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 forty-one 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 is 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 2014)	42,689
Land Area (Square Miles)	17.25
Persons per Square Mile	2,475
Median Family Income U.S. Census 2010	$97,201
County Unemployment Rate (2013) N.C. Employment Security Commission	6.6%

Service Profile

Central HR FTE Positions	
Administration	1.0
Generalist/Specialist	1.0
Staff Support/Clerical	0.75
Total Authorized Workforce	364.0
Authorized FTEs	363.2
Average Length of Service (Months)	106.29
Number of Position Requisitions	68
Employment Applications Processed	3,923
Length of Probationary Employment Period	6 or 12 months
Compensation Studies Completed	1
Positions Studied	41
Employee Turnover	
Voluntary Separations	24
Involuntary Separations	7
TOTAL SEPARATIONS	31
Formal Grievances Filed by Employees	2
Equal Employment Opportunity Commission (EEOC) Complaints Filed	0

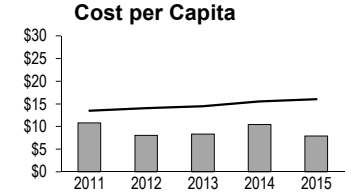
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	62.2%
Operating Costs	35.0%
Capital Costs	2.8%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$210,923
Operating Costs	$118,548
Capital Costs	$9,620
TOTAL	$339,091

Key: Apex ■ Benchmarking Average — Fiscal Years 2011 through 2015

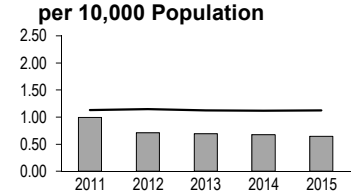
Resource Measures

Human Resources Services Cost per Capita



	2011	2012	2013	2014	2015
Apex	$10.83	$8.05	$8.36	$10.46	$7.94
Average	$13.47	$14.04	$14.50	$15.54	$16.05

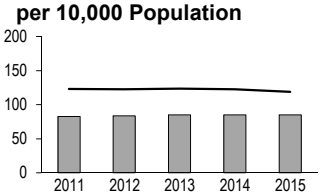
Human Resources FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Apex	0.99	0.71	0.69	0.67	0.64
Average	1.13	1.15	1.12	1.12	1.12

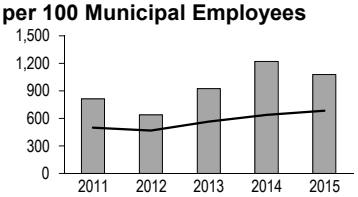
Workload Measures

Total Municipal FTEs per 10,000 Population



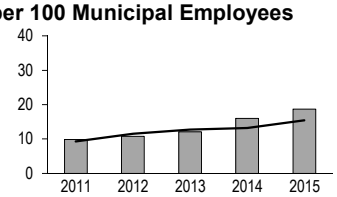
	2011	2012	2013	2014	2015
Apex	83	84	85	85	85
Average	123	123	123	123	119

Applications Processed per 100 Municipal Employees



	2011	2012	2013	2014	2015
Apex	814	638	925	1,221	1,078
Average	499	467	564	639	685

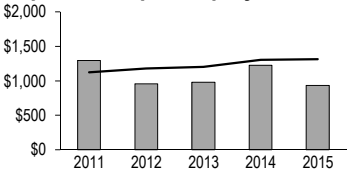
Position Requisitions per 100 Municipal Employees



	2011	2012	2013	2014	2015
Apex	9.8	10.8	12.1	16.0	18.7
Average	9.3	11.5	12.7	13.2	15.5

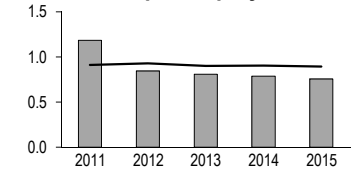
Efficiency Measures

Human Resources Cost per Municipal Employee



	2011	2012	2013	2014	2015
Apex	$1,293	$958	$978	$1,226	$932
Average	$1,122	$1,178	$1,204	$1,304	$1,313

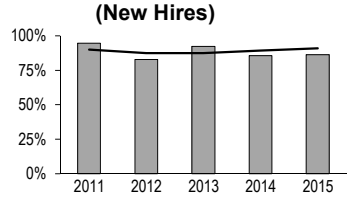
Ratio of Human Resources Staff to 100 Municipal Employees



	2011	2012	2013	2014	2015
Apex	1.19	0.85	0.81	0.79	0.76
Average	0.91	0.93	0.90	0.90	0.90

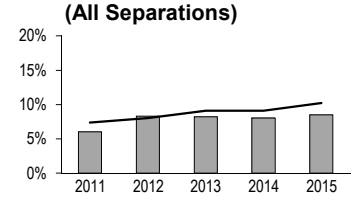
Effectiveness Measures

Probationary Period Completion Rate (New Hires)



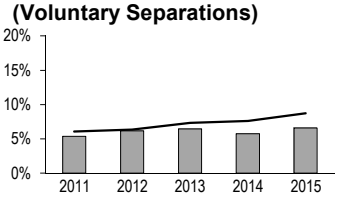
	2011	2012	2013	2014	2015
Apex	95%	83%	93%	86%	86%
Average	90%	87%	88%	89%	91%

Employee Turnover Rate (All Separations)



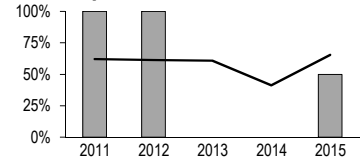
	2011	2012	2013	2014	2015
Apex	6.0%	8.3%	8.2%	8.0%	8.5%
Average	7.4%	8.0%	9.1%	9.1%	10.2%

Employee Turnover Rate (Voluntary Separations)



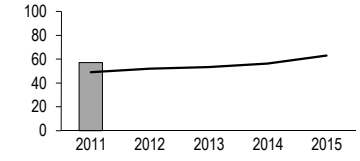
	2011	2012	2013	2014	2015
Apex	5.4%	6.2%	6.5%	5.7%	6.6%
Average	6.1%	6.4%	7.3%	7.6%	8.7%

Percentage of Grievances Resolved at Department Level



	2011	2012	2013	2014	2015
Apex	100%	100%			50%
Average	62%	61%	61%	41%	65%

Average Days from Post Date to Hire Date (First Day of Employment)



	2011	2012	2013	2014	2015
Apex	57				
Average	49	52	53	56	63

Fiscal Year 2014–15

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.

Municipal Profile

Population (OSBM 2014)	89,248
Land Area (Square Miles)	45.52
Persons per Square Mile	1,961
Median Family Income U.S. Census 2010	$53,350
County Unemployment Rate (2013) N.C. Employment Security Commission	6.4%

Service Profile

Central HR FTE Positions	
Administration	5.15
Generalist/Specialist	8.15
Staff Support/Clerical	4.00
Total Authorized Workforce	1,188.9
Authorized FTEs	1,077.8
Average Length of Service (Months)	112
Number of Position Requisitions	277
Employment Applications Processed	12,388
Length of Probationary Employment Period	6 months
Compensation Studies Completed	1
Positions Studied	250
Employee Turnover	
Voluntary Separations	122
Involuntary Separations	11
TOTAL SEPARATIONS	133
Formal Grievances Filed by Employees	8
Equal Employment Opportunity Commission (EEOC) Complaints Filed	0

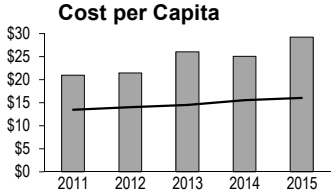
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	53.4%
Operating Costs	45.6%
Capital Costs	1.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,395,768
Operating Costs	$1,190,704
Capital Costs	$26,575
TOTAL	$2,613,047

Key: Asheville ■ Benchmarking Average — Fiscal Years 2011 through 2015

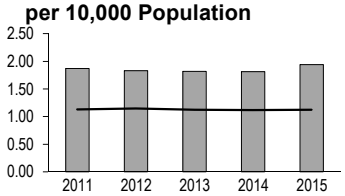
Resource Measures

Human Resources Services Cost per Capita



	2011	2012	2013	2014	2015
Asheville	$20.99	$21.48	$26.04	$25.12	$29.28
Average	$13.47	$14.04	$14.50	$15.54	$16.05

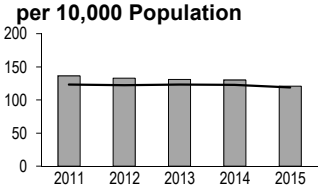
Human Resources FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Asheville	1.87	1.83	1.82	1.82	1.94
Average	1.13	1.15	1.12	1.12	1.12

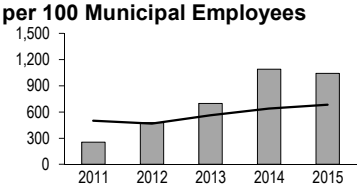
Workload Measures

Total Municipal FTEs per 10,000 Population



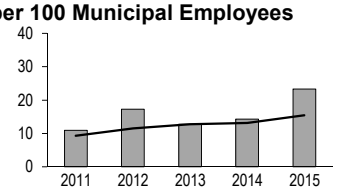
	2011	2012	2013	2014	2015
Asheville	136	133	131	130	121
Average	123	123	123	123	119

Applications Processed per 100 Municipal Employees



	2011	2012	2013	2014	2015
Asheville	255	478	697	1,090	1,042
Average	499	467	564	639	685

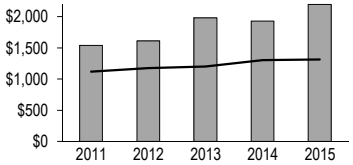
Position Requisitions per 100 Municipal Employees



	2011	2012	2013	2014	2015
Asheville	10.9	17.3	12.7	14.3	23.3
Average	9.3	11.5	12.7	13.2	15.5

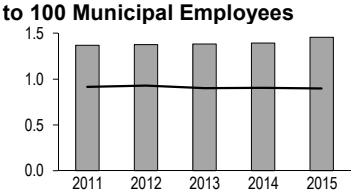
Efficiency Measures

Human Resources Cost per Municipal Employee



	2011	2012	2013	2014	2015
Asheville	$1,539	$1,614	$1,981	$1,929	$2,198
Average	$1,122	$1,178	$1,204	$1,304	$1,313

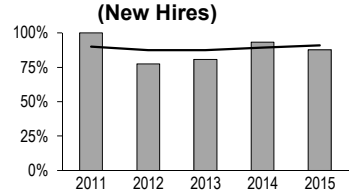
Ratio of Human Resources Staff to 100 Municipal Employees



	2011	2012	2013	2014	2015
Asheville	1.37	1.38	1.38	1.39	1.46
Average	0.91	0.93	0.90	0.90	0.90

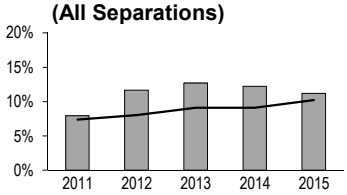
Effectiveness Measures

Probationary Period Completion Rate (New Hires)



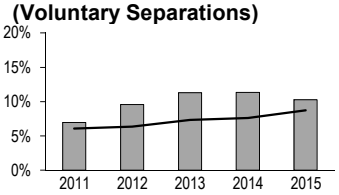
	2011	2012	2013	2014	2015
Asheville	100%	77%	81%	93%	88%
Average	90%	87%	88%	89%	91%

Employee Turnover Rate (All Separations)



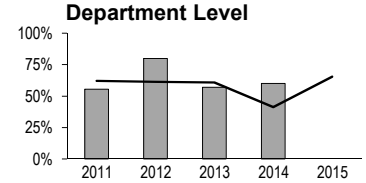
	2011	2012	2013	2014	2015
Asheville	7.9%	11.7%	12.7%	12.2%	11.2%
Average	7.4%	8.0%	9.1%	9.1%	10.2%

Employee Turnover Rate (Voluntary Separations)



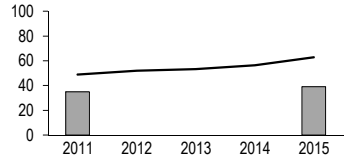
	2011	2012	2013	2014	2015
Asheville	7.0%	9.6%	11.3%	11.3%	10.3%
Average	6.1%	6.4%	7.3%	7.6%	8.7%

Percentage of Grievances Resolved at Department Level



	2011	2012	2013	2014	2015
Asheville	56%	80%	57%	60%	0%
Average	62%	61%	61%	41%	65%

Average Days from Post Date to Hire Date (First Day of Employment)



	2011	2012	2013	2014	2015
Asheville	35				39
Average	49	52	53	56	63

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery

The City of Burlington's Human Resources (HR) Department is a separate department consisting of four positions: an HR director, two HR specialists, and a half-time 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 2014)	51,932
Land Area (Square Miles)	30.52
Persons per Square Mile	1,702
Median Family Income U.S. Census 2010	$46,461
County Unemployment Rate (2013) N.C. Employment Security Commission	8.4%

Service Profile

Central HR FTE Positions	
Administration	1.0
Generalist/Specialist	2.0
Staff Support/Clerical	0.5
Total Authorized Workforce	1,031.0
Authorized FTEs	793.0
Average Length of Service (Months)	139
Number of Position Requisitions	40
Employment Applications Processed	2,614
Length of Probationary Employment Period	6 or 12 months
Compensation Studies Completed	0
Positions Studied	0
Employee Turnover	
Voluntary Separations	148
Involuntary Separations	19
TOTAL SEPARATIONS	167
Formal Grievances Filed by Employees	2
Equal Employment Opportunity Commission (EEOC) Complaints Filed	0

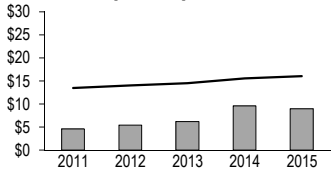
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	55.4%
Operating Costs	41.5%
Capital Costs	3.1%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$257,950
Operating Costs	$193,192
Capital Costs	$14,238
TOTAL	$465,380

Key: Burlington ■ Benchmarking Average — Fiscal Years 2011 through 2015

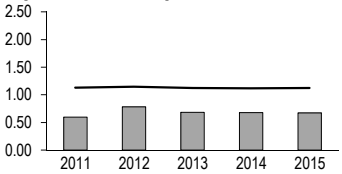
Resource Measures

Human Resources Services Cost per Capita



	2011	2012	2013	2014	2015
Burlington	$4.59	$5.45	$6.17	$9.57	$8.96
Average	$13.47	$14.04	$14.50	$15.54	$16.05

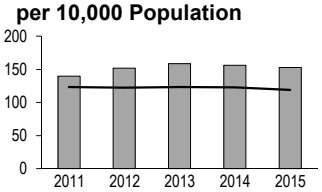
Human Resources FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Burlington	0.59	0.78	0.68	0.68	0.67
Average	1.13	1.15	1.12	1.12	1.12

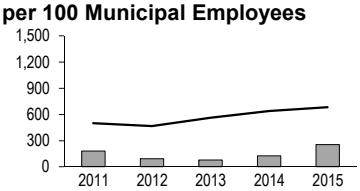
Workload Measures

Total Municipal FTEs per 10,000 Population



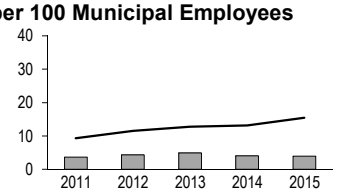
	2011	2012	2013	2014	2015
Burlington	140	152	158	156	153
Average	123	123	123	123	119

Applications Processed per 100 Municipal Employees



	2011	2012	2013	2014	2015
Burlington	179	94	77	125	254
Average	499	467	564	639	685

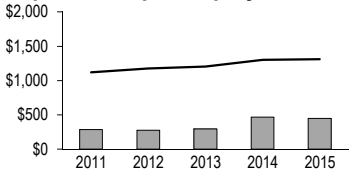
Position Requisitions per 100 Municipal Employees



	2011	2012	2013	2014	2015
Burlington	3.6	4.3	4.8	4.0	3.9
Average	9.3	11.5	12.7	13.2	15.5

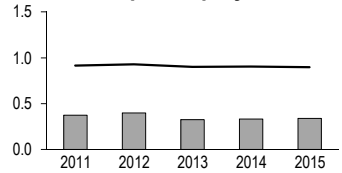
Efficiency Measures

Human Resources Cost per Municipal Employee



	2011	2012	2013	2014	2015
Burlington	$288	$276	$293	$466	$451
Average	$1,122	$1,178	$1,204	$1,304	$1,313

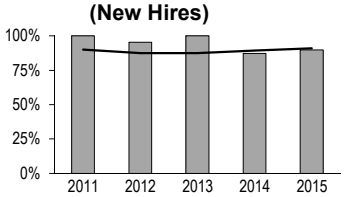
Ratio of Human Resources Staff to 100 Municipal Employees



	2011	2012	2013	2014	2015
Burlington	0.37	0.40	0.33	0.33	0.34
Average	0.91	0.93	0.90	0.90	0.90

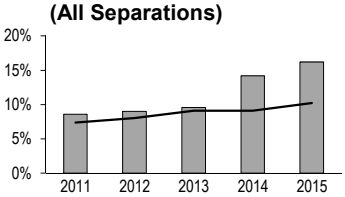
Effectiveness Measures

Probationary Period Completion Rate (New Hires)



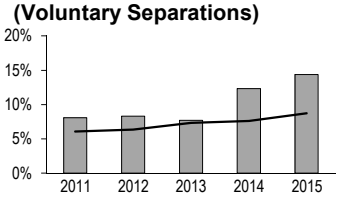
	2011	2012	2013	2014	2015
Burlington	100%	95%	100%	87%	90%
Average	90%	87%	88%	89%	91%

Employee Turnover Rate (All Separations)



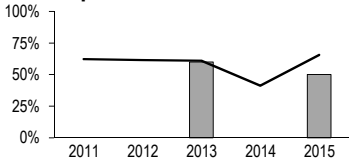
	2011	2012	2013	2014	2015
Burlington	8.6%	9.0%	9.6%	14.2%	16.2%
Average	7.4%	8.0%	9.1%	9.1%	10.2%

Employee Turnover Rate (Voluntary Separations)



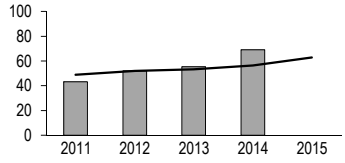
	2011	2012	2013	2014	2015
Burlington	8.1%	8.3%	7.7%	12.3%	14.4%
Average	6.1%	6.4%	7.3%	7.6%	8.7%

Percentage of Grievances Resolved at Department Level



	2011	2012	2013	2014	2015
Burlington	0%		60%		50%
Average	62%	61%	61%	41%	65%

Average Days from Post Date to Hire Date (First Day of Employment)



	2011	2012	2013	2014	2015
Burlington	43	52	55	69	
Average	49	52	53	56	63

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery

The Town of Cary's Human Resources (HR) Department includes the following: a director, an employee relations manager, an employee benefits manager, an employee compensation and recruitment manager, and an employee safety coordinator as part of the HR management team. A number of other consultants, assistants, and specialists provide support and services in carrying out the work performed by HR.

The town conducted one compensation study during the most recent year that involved the study of 255 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 2014)	148,333
Land Area (Square Miles)	56.47
Persons per Square Mile	2,627
Median Family Income U.S. Census 2010	$108,956
County Unemployment Rate (2013) N.C. Employment Security Commission	6.6%

Service Profile

Central HR FTE Positions	
Administration	5.0
Generalist/Specialist	5.0
Staff Support/Clerical	3.63
Total Authorized Workforce	1,226.0
Authorized FTEs	1,222.1
Average Length of Service (Months)	128
Number of Position Requisitions	336
Employment Applications Processed	12,369
Length of Probationary Employment Period	6 or 12 months
Compensation Studies Completed	1
Positions Studied	255
Employee Turnover	
Voluntary Separations	71
Involuntary Separations	3
TOTAL SEPARATIONS	74
Formal Grievances Filed by Employees	2
Equal Employment Opportunity Commission (EEOC) Complaints Filed	0

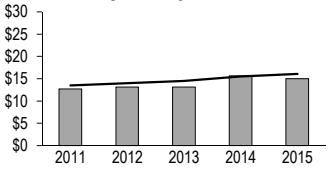
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	63.4%
Operating Costs	34.8%
Capital Costs	1.8%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,408,523
Operating Costs	$773,435
Capital Costs	$40,134
TOTAL	$2,222,092

Key: Cary ■ Benchmarking Average — Fiscal Years 2011 through 2015

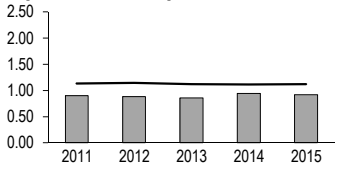
Resource Measures

Human Resources Services Cost per Capita



	2011	2012	2013	2014	2015
Cary	$12.71	$13.13	$13.12	$15.66	$14.98
Average	$13.47	$14.04	$14.50	$15.54	$16.05

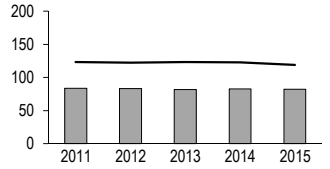
Human Resources FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Cary	0.90	0.88	0.86	0.94	0.92
Average	1.13	1.15	1.12	1.12	1.12

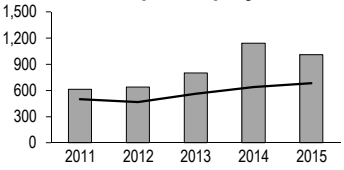
Workload Measures

Total Municipal FTEs per 10,000 Population



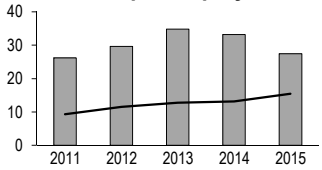
	2011	2012	2013	2014	2015
Cary	84	83	82	83	82
Average	123	123	123	123	119

Applications Processed per 100 Municipal Employees



	2011	2012	2013	2014	2015
Cary	613	640	801	1,141	1,009
Average	499	467	564	639	685

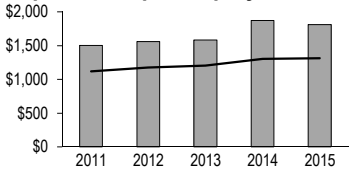
Position Requisitions per 100 Municipal Employees



	2011	2012	2013	2014	2015
Cary	26.2	29.7	34.9	33.3	27.4
Average	9.3	11.5	12.7	13.2	15.5

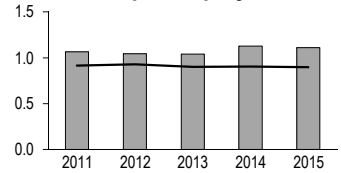
Efficiency Measures

Human Resources Cost per Municipal Employee



	2011	2012	2013	2014	2015
Cary	$1,505	$1,559	$1,586	$1,874	$1,812
Average	$1,122	$1,178	$1,204	$1,304	$1,313

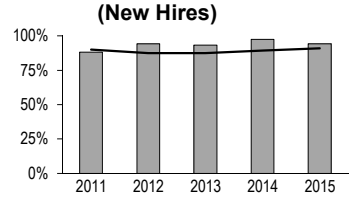
Ratio of Human Resources Staff to 100 Municipal Employees



	2011	2012	2013	2014	2015
Cary	1.07	1.05	1.04	1.13	1.11
Average	0.91	0.93	0.90	0.90	0.90

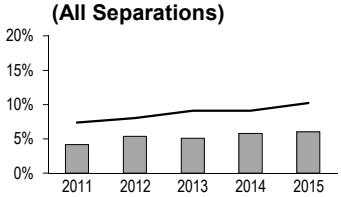
Effectiveness Measures

Probationary Period Completion Rate (New Hires)



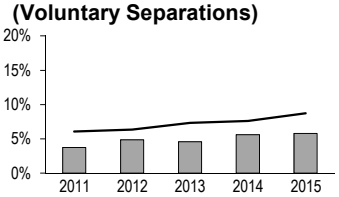
	2011	2012	2013	2014	2015
Cary	88%	94%	93%	98%	94%
Average	90%	87%	88%	89%	91%

Employee Turnover Rate (All Separations)



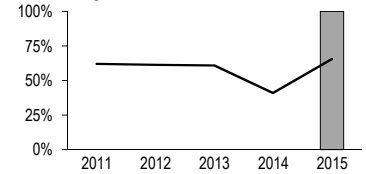
	2011	2012	2013	2014	2015
Cary	4.2%	5.4%	5.1%	5.8%	6.0%
Average	7.4%	8.0%	9.1%	9.1%	10.2%

Employee Turnover Rate (Voluntary Separations)



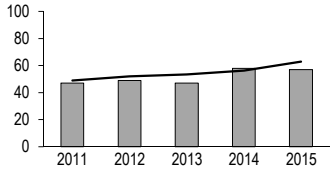
	2011	2012	2013	2014	2015
Cary	3.7%	4.9%	4.6%	5.6%	5.8%
Average	6.1%	6.4%	7.3%	7.6%	8.7%

Percentage of Grievances Resolved at Department Level



	2011	2012	2013	2014	2015
Cary	0%				100%
Average	62%	61%	61%	41%	65%

Average Days from Post Date to Hire Date (First Day of Employment)



	2011	2012	2013	2014	2015
Cary	47	49	47	58	57
Average	49	52	53	56	63

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery
The Town of Chapel Hill's Human Resource Development Department is organized into one centralized HR department using a specialist structure with several departmental HR liasons who facilitate communication of Town processes and procedures, benefits paperwork, and predisciplinary conferences. The department ensures standard operating procedures are followed and coordinates departmental interviews for job openings.

During the fiscal year, nine compensation studies were conducted covering 23 positions. There were 10,263 applications processed electronically or online.

The town's probationary period for most new employees is six months. Department heads and police personnel serve a twelve month period.

Conditions Affecting Service, Performance, and Costs
The Town of Chapel Hill began participation in the benchmarking project in July 2015, with FY 2014–15 being the first reporting year.

Municipal Profile

Population (OSBM 2014)	59,758
Land Area (Square Miles)	21.17
Persons per Square Mile	2,823
Median Family Income U.S. Census 2010	$61,405
County Unemployment Rate (2013) N.C. Employment Security Commission	8.5%

Service Profile

Central HR FTE Positions	
Administration	2.0
Generalist/Specialist	4.0
Staff Support/Clerical	2.0
Total Authorized Workforce	1,155.0
Authorized FTEs	723.12
Average Length of Service (Months)	128
Number of Position Requisitions	139
Employment Applications Processed	10,263
Length of Probationary Employment Period	6 or 12 months
Compensation Studies Completed	9
Positions Studied	23
Employee Turnover	
Voluntary Separations	71
Involuntary Separations	2
TOTAL SEPARATIONS	73
Formal Grievances Filed by Employees	4
Equal Employment Opportunity Commission (EEOC) Complaints Filed	2

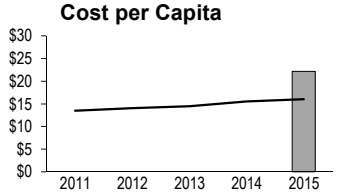
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	44.2%
Operating Costs	55.3%
Capital Costs	0.5%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$586,025
Operating Costs	$733,420
Capital Costs	$7,104
TOTAL	$1,326,549

Key: Chapel Hill ■ Benchmarking Average — Fiscal Years 2011 through 2015

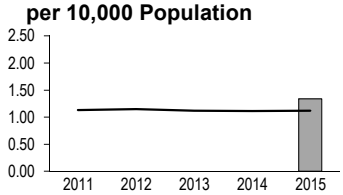
Resource Measures

Human Resources Services Cost per Capita



	2011	2012	2013	2014	2015
Chapel Hill					$22.20
Average	$13.47	$14.04	$14.50	$15.54	$16.05

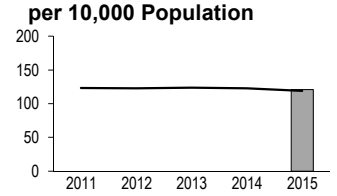
Human Resources FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Chapel Hill					1.34
Average	1.13	1.15	1.12	1.12	1.12

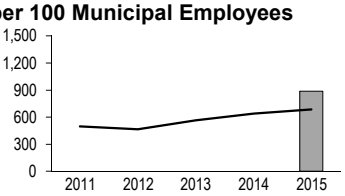
Workload Measures

Total Municipal FTEs per 10,000 Population



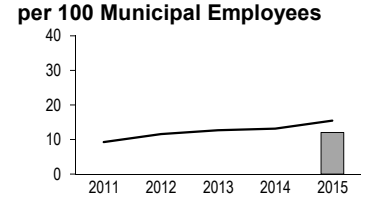
	2011	2012	2013	2014	2015
Chapel Hill					121
Average	123	123	123	123	119

Applications Processed per 100 Municipal Employees



	2011	2012	2013	2014	2015
Chapel Hill					889
Average	499	467	564	639	685

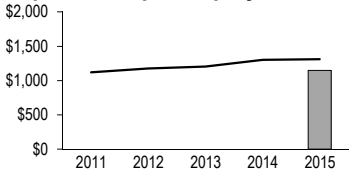
Position Requisitions per 100 Municipal Employees



	2011	2012	2013	2014	2015
Chapel Hill					12.0
Average	9.3	11.5	12.7	13.2	15.5

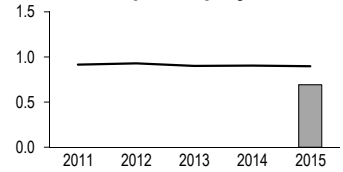
Efficiency Measures

Human Resources Cost per Municipal Employee



	2011	2012	2013	2014	2015
Chapel Hill					$1,149
Average	$1,122	$1,178	$1,204	$1,304	$1,313

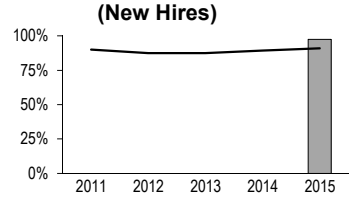
Ratio of Human Resources Staff to 100 Municipal Employees



	2011	2012	2013	2014	2015
Chapel Hill					0.69
Average	0.91	0.93	0.90	0.90	0.90

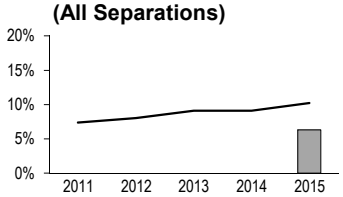
Effectiveness Measures

Probationary Period Completion Rate (New Hires)



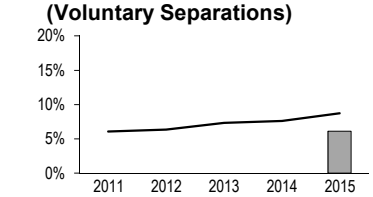
	2011	2012	2013	2014	2015
Chapel Hill					98%
Average	90%	87%	88%	89%	91%

Employee Turnover Rate (All Separations)



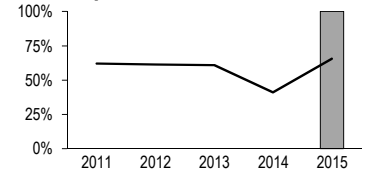
	2011	2012	2013	2014	2015
Chapel Hill					6.3%
Average	7.4%	8.0%	9.1%	9.1%	10.2%

Employee Turnover Rate (Voluntary Separations)



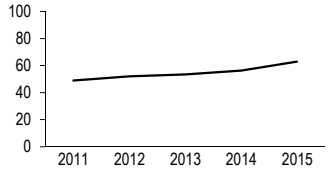
	2011	2012	2013	2014	2015
Chapel Hill					6.1%
Average	6.1%	6.4%	7.3%	7.6%	8.7%

Percentage of Grievances Resolved at Department Level



	2011	2012	2013	2014	2015
Chapel Hill					100%
Average	62%	61%	61%	41%	65%

Average Days from Post Date to Hire Date (First Day of Employment)



	2011	2012	2013	2014	2015
Chapel Hill					
Average	49	52	53	56	63

Fiscal Year 2014–15

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 one compensation study during the most recent year covering 239 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 2014)	85,428
Land Area (Square Miles)	61.09
Persons per Square Mile	1,398
Median Family Income U.S. Census 2010	$63,643
County Unemployment Rate (2013) N.C. Employment Security Commission	7.8%

Service Profile

Central HR FTE Positions	
Administration	6.2
Generalist/Specialist	3.4
Staff Support/Clerical	1.0
Total Authorized Workforce	951.0
Authorized FTEs	934.7
Average Length of Service (Months)	131
Number of Position Requisitions	141
Employment Applications Processed	9,668
Length of Probationary Employment Period	6 or 12 months
Compensation Studies Completed	1
Positions Studied	239
Employee Turnover	
Voluntary Separations	53
Involuntary Separations	3
TOTAL SEPARATIONS	56
Formal Grievances Filed by Employees	5
Equal Employment Opportunity Commission (EEOC) Complaints Filed	1

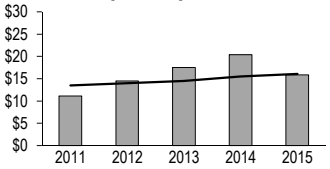
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	33.4%
Operating Costs	65.2%
Capital Costs	1.4%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$452,352
Operating Costs	$882,527
Capital Costs	$19,275
TOTAL	$1,354,154

Key: Concord ■ Benchmarking Average — Fiscal Years 2011 through 2015

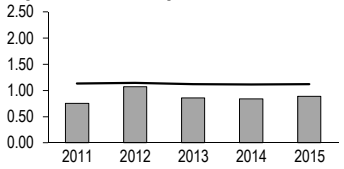
Resource Measures

Human Resources Services Cost per Capita



	2011	2012	2013	2014	2015
Concord	$11.10	$14.51	$17.54	$20.42	$15.85
Average	$13.47	$14.04	$14.50	$15.54	$16.05

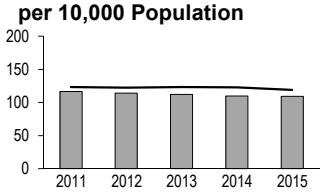
Human Resources FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Concord	0.75	1.07	0.86	0.84	0.89
Average	1.13	1.15	1.12	1.12	1.12

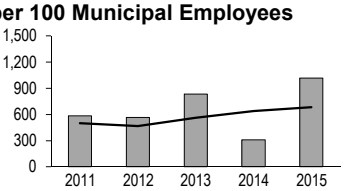
Workload Measures

Total Municipal FTEs per 10,000 Population



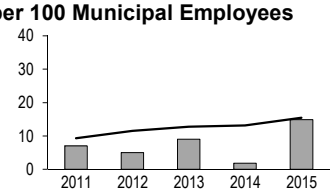
	2011	2012	2013	2014	2015
Concord	116	114	112	110	109
Average	123	123	123	123	119

Applications Processed per 100 Municipal Employees



	2011	2012	2013	2014	2015
Concord	584	565	835	311	1,017
Average	499	467	564	639	685

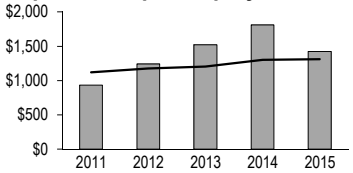
Position Requisitions per 100 Municipal Employees



	2011	2012	2013	2014	2015
Concord	7.0	5.0	9.0	1.8	14.8
Average	9.3	11.5	12.7	13.2	15.5

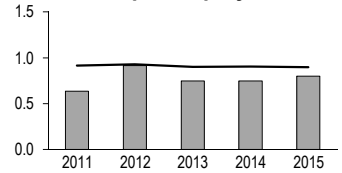
Efficiency Measures

Human Resources Cost per Municipal Employee



	2011	2012	2013	2014	2015
Concord	$932	$1,241	$1,523	$1,811	$1,424
Average	$1,122	$1,178	$1,204	$1,304	$1,313

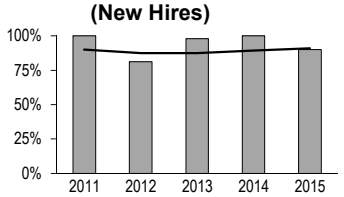
Ratio of Human Resources Staff to 100 Municipal Employees



	2011	2012	2013	2014	2015
Concord	0.63	0.91	0.75	0.75	0.80
Average	0.91	0.93	0.90	0.90	0.90

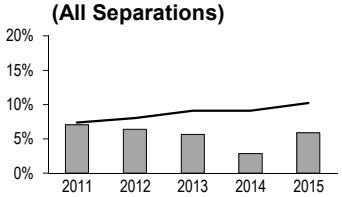
Effectiveness Measures

Probationary Period Completion Rate (New Hires)



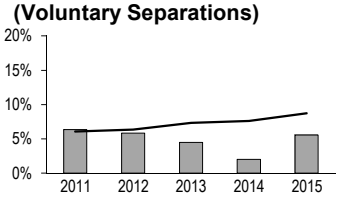
	2011	2012	2013	2014	2015
Concord	100%	81%	98%	100%	90%
Average	90%	87%	88%	89%	91%

Employee Turnover Rate (All Separations)



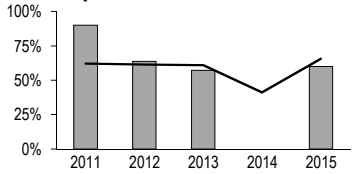
	2011	2012	2013	2014	2015
Concord	7.1%	6.4%	5.7%	2.9%	5.9%
Average	7.4%	8.0%	9.1%	9.1%	10.2%

Employee Turnover Rate (Voluntary Separations)



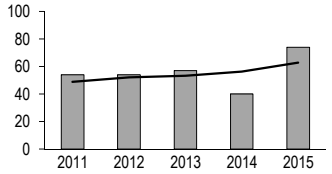
	2011	2012	2013	2014	2015
Concord	6.3%	5.9%	4.5%	2.0%	5.6%
Average	6.1%	6.4%	7.3%	7.6%	8.7%

Percentage of Grievances Resolved at Department Level



	2011	2012	2013	2014	2015
Concord	90%	64%	57%		60%
Average	62%	61%	61%	41%	65%

Average Days from Post Date to Hire Date (First Day of Employment)



	2011	2012	2013	2014	2015
Concord	54	54	57	40	74
Average	49	52	53	56	63

Fiscal Year 2014–15

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 full-time equivalent (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 city conducted one compensation study during the year covering 118 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 2014)	280,803
Land Area (Square Miles)	128.11
Persons per Square Mile	2,192
Median Family Income U.S. Census 2010	$52,752
County Unemployment Rate (2013) N.C. Employment Security Commission	8.7%

Service Profile

Central HR FTE Positions	
Administration	9.0
Generalist/Specialist	18.0
Staff Support/Clerical	4.0
Total Authorized Workforce	3,140.0
Authorized FTEs	3,045.0
Average Length of Service (Months)	133
Number of Position Requisitions	205
Employment Applications Processed	9,033
Length of Probationary Employment Period	6 or 12 months
Compensation Studies Completed	1
Positions Studied	118
Employee Turnover	
Voluntary Separations	198
Involuntary Separations	52
TOTAL SEPARATIONS	250
Formal Grievances Filed by Employees	22
Equal Employment Opportunity Commission (EEOC) Complaints Filed	5

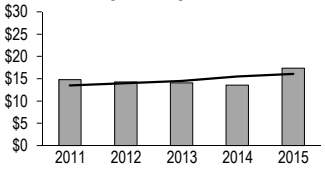
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	63.3%
Operating Costs	36.7%
Capital Costs	0.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$3,093,409
Operating Costs	$1,790,749
Capital Costs	$0
TOTAL	$4,884,158

Key: Greensboro ■ Benchmarking Average — Fiscal Years 2011 through 2015

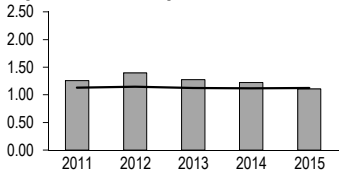
Resource Measures

Human Resources Services Cost per Capita



	2011	2012	2013	2014	2015
Greensboro	$14.82	$14.31	$14.11	$13.58	$17.39
Average	$13.47	$14.04	$14.50	$15.54	$16.05

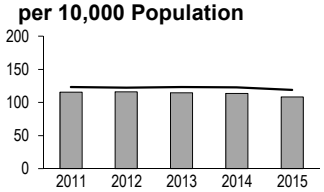
Human Resources FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Greensboro	1.26	1.40	1.27	1.22	1.10
Average	1.13	1.15	1.12	1.12	1.12

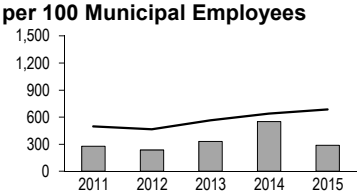
Workload Measures

Total Municipal FTEs per 10,000 Population



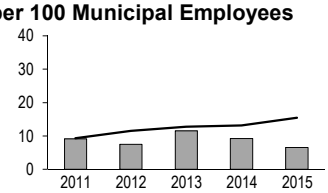
	2011	2012	2013	2014	2015
Greensboro	115	116	115	114	108
Average	123	123	123	123	119

Applications Processed per 100 Municipal Employees



	2011	2012	2013	2014	2015
Greensboro	280	237	332	553	288
Average	499	467	564	639	685

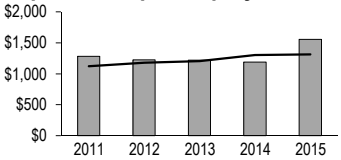
Position Requisitions per 100 Municipal Employees



	2011	2012	2013	2014	2015
Greensboro	9.1	7.5	11.5	9.2	6.5
Average	9.3	11.5	12.7	13.2	15.5

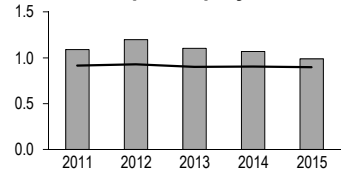
Efficiency Measures

Human Resources Cost per Municipal Employee



	2011	2012	2013	2014	2015
Greensboro	$1,281	$1,229	$1,222	$1,188	$1,555
Average	$1,122	$1,178	$1,204	$1,304	$1,313

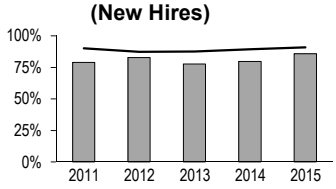
Ratio of Human Resources Staff to 100 Municipal Employees



	2011	2012	2013	2014	2015
Greensboro	1.09	1.20	1.10	1.07	0.99
Average	0.91	0.93	0.90	0.90	0.90

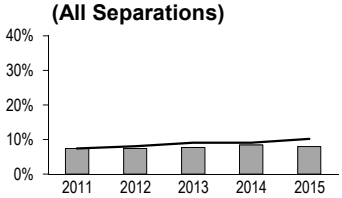
Effectiveness Measures

Probationary Period Completion Rate (New Hires)



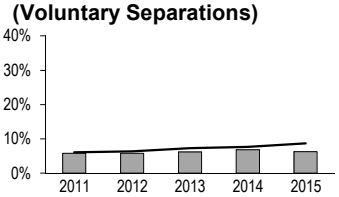
	2011	2012	2013	2014	2015
Greensboro	79%	83%	78%	80%	86%
Average	90%	87%	88%	89%	91%

Employee Turnover Rate (All Separations)



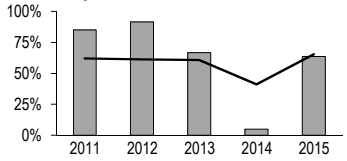
	2011	2012	2013	2014	2015
Greensboro	7.5%	7.4%	7.7%	8.5%	8.0%
Average	7.4%	8.0%	9.1%	9.1%	10.2%

Employee Turnover Rate (Voluntary Separations)



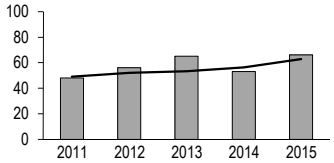
	2011	2012	2013	2014	2015
Greensboro	5.9%	5.8%	6.2%	6.8%	6.3%
Average	6.1%	6.4%	7.3%	7.6%	8.7%

Percentage of Grievances Resolved at Department Level



	2011	2012	2013	2014	2015
Greensboro	85%	92%	67%	5%	64%
Average	62%	61%	61%	41%	65%

Average Days from Post Date to Hire Date (First Day of Employment)



	2011	2012	2013	2014	2015
Greensboro	48	56	65	53	66
Average	49	52	53	56	63

Fiscal Year 2014–15

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 processed 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 by an employee 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

Municipal Profile

Population (OSBM 2014)	87,436
Land Area (Square Miles)	34.90
Persons per Square Mile	2,505
Median Family Income U.S. Census 2010	$50,395
County Unemployment Rate (2013) N.C. Employment Security Commission	8.5%

Service Profile

Central HR FTE Positions	
Administration	3.0
Generalist/Specialist	3.0
Staff Support/Clerical	3.0
Total Authorized Workforce	765.0
Authorized FTEs	760.25
Average Length of Service (Months)	123
Number of Position Requisitions	73
Employment Applications Processed	6,507
Length of Probationary Employment Period	6 or 12 months
Compensation Studies Completed	1
Positions Studied	92
Employee Turnover	
Voluntary Separations	54
Involuntary Separations	7
TOTAL SEPARATIONS	61
Formal Grievances Filed by Employees	9
Equal Employment Opportunity Commission (EEOC) Complaints Filed	2

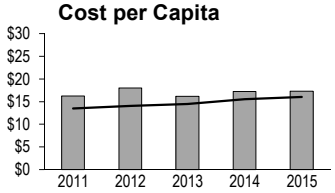
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	63.5%
Operating Costs	36.2%
Capital Costs	0.3%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$960,476
Operating Costs	$546,702
Capital Costs	$4,498
TOTAL	$1,511,676

Key: Greenville ■ Benchmarking Average — Fiscal Years 2011 through 2015

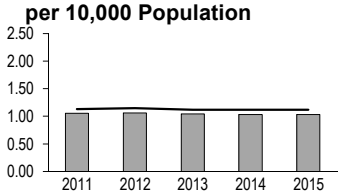
Resource Measures

Human Resources Services Cost per Capita



	2011	2012	2013	2014	2015
Greenville	$16.27	$17.98	$16.19	$17.24	$17.29
Average	$13.47	$14.04	$14.50	$15.54	$16.05

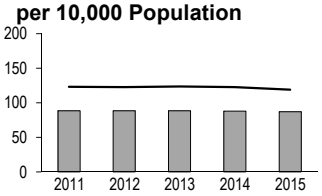
Human Resources FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Greenville	1.06	1.06	1.04	1.03	1.03
Average	1.13	1.15	1.12	1.12	1.12

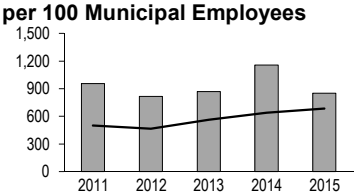
Workload Measures

Total Municipal FTEs per 10,000 Population



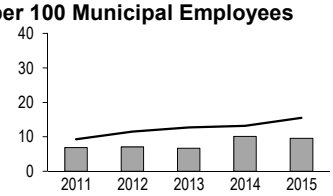
	2011	2012	2013	2014	2015
Greenville	88	88	88	88	87
Average	123	123	123	123	119

Applications Processed per 100 Municipal Employees



	2011	2012	2013	2014	2015
Greenville	957	816	869	1,157	851
Average	499	467	564	639	685

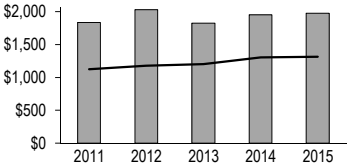
Position Requisitions per 100 Municipal Employees



	2011	2012	2013	2014	2015
Greenville	6.9	7.0	6.7	10.1	9.5
Average	9.3	11.5	12.7	13.2	15.5

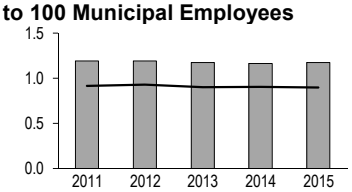
Efficiency Measures

Human Resources Cost per Municipal Employee



	2011	2012	2013	2014	2015
Greenville	$1,835	$2,026	$1,823	$1,948	$1,976
Average	$1,122	$1,178	$1,204	$1,304	$1,313

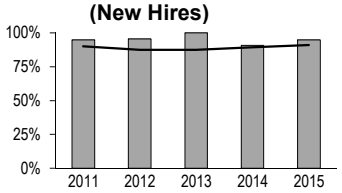
Ratio of Human Resources Staff to 100 Municipal Employees



	2011	2012	2013	2014	2015
Greenville	1.19	1.19	1.18	1.17	1.18
Average	0.91	0.93	0.90	0.90	0.90

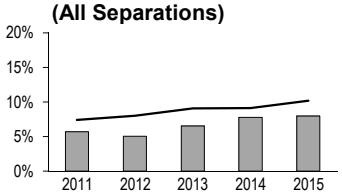
Effectiveness Measures

Probationary Period Completion Rate (New Hires)



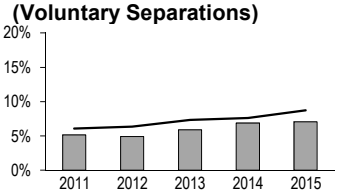
	2011	2012	2013	2014	2015
Greenville	95%	96%	100%	91%	95%
Average	90%	87%	88%	89%	91%

Employee Turnover Rate (All Separations)



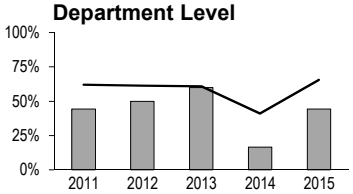
	2011	2012	2013	2014	2015
Greenville	5.7%	5.0%	6.5%	7.8%	8.0%
Average	7.4%	8.0%	9.1%	9.1%	10.2%

Employee Turnover Rate (Voluntary Separations)



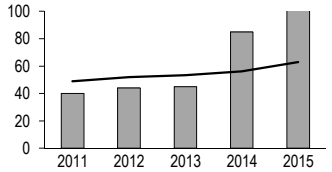
	2011	2012	2013	2014	2015
Greenville	5.2%	4.9%	5.9%	6.9%	7.1%
Average	6.1%	6.4%	7.3%	7.6%	8.7%

Percentage of Grievances Resolved at Department Level



	2011	2012	2013	2014	2015
Greenville	44%	50%	60%	17%	44%
Average	62%	61%	61%	41%	65%

Average Days from Post Date to Hire Date (First Day of Employment)



	2011	2012	2013	2014	2015
Greenville	40	44	45	85	101
Average	49	52	53	56	63

Fiscal Year 2014–15

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 one compensation study during the year for twenty-five different positions.

Conditions Affecting Service, Performance, and Costs

Municipal Profile

Population (OSBM 2014)	40,332
Land Area (Square Miles)	29.84
Persons per Square Mile	1,352
Median Family Income U.S. Census 2010	$54,093
County Unemployment Rate (2013) N.C. Employment Security Commission	9.6%

Service Profile

Central HR FTE Positions	
Administration	1.00
Generalist/Specialist	3.0
Staff Support/Clerical	1.00
Total Authorized Workforce	733.0
Authorized FTEs	693.5
Average Length of Service (Months)	133
Number of Position Requisitions	60
Employment Applications Processed	3,584
Length of Probationary Employment Period	12 months
Compensation Studies Completed	1
Positions Studied	25
Employee Turnover	
Voluntary Separations	80
Involuntary Separations	2
TOTAL SEPARATIONS	82
Formal Grievances Filed by Employees	8
Equal Employment Opportunity Commission (EEOC) Complaints Filed	0

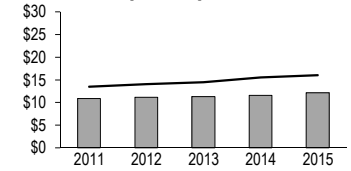
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	70.6%
Operating Costs	28.0%
Capital Costs	1.4%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$344,905
Operating Costs	$136,770
Capital Costs	$6,982
TOTAL	$488,657

Key: Hickory ■ Benchmarking Average — Fiscal Years 2011 through 2015

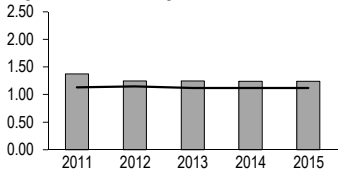
Resource Measures

Human Resources Services Cost per Capita



	2011	2012	2013	2014	2015
Hickory	$10.86	$11.18	$11.29	$11.56	$12.12
Average	$13.47	$14.04	$14.50	$15.54	$16.05

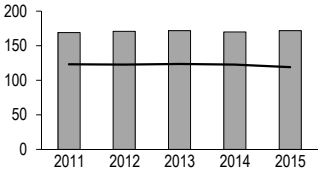
Human Resources FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Hickory	1.37	1.25	1.25	1.24	1.24
Average	1.13	1.15	1.12	1.12	1.12

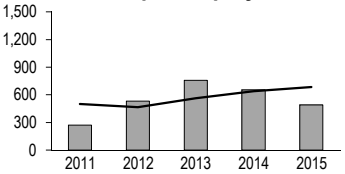
Workload Measures

Total Municipal FTEs per 10,000 Population



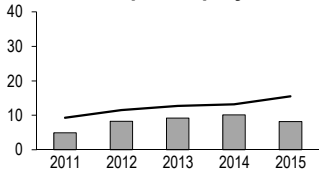
	2011	2012	2013	2014	2015
Hickory	169	171	172	170	172
Average	123	123	123	123	119

Applications Processed per 100 Municipal Employees



	2011	2012	2013	2014	2015
Hickory	271	532	759	654	489
Average	499	467	564	639	685

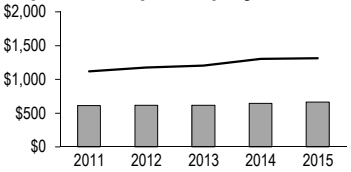
Position Requisitions per 100 Municipal Employees



	2011	2012	2013	2014	2015
Hickory	4.9	8.3	9.2	10.1	8.2
Average	9.3	11.5	12.7	13.2	15.5

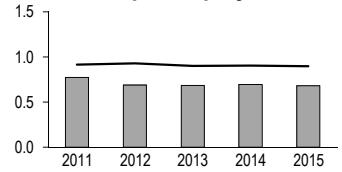
Efficiency Measures

Human Resources Cost per Municipal Employee



	2011	2012	2013	2014	2015
Hickory	$611	$618	$620	$645	$667
Average	$1,122	$1,178	$1,204	$1,304	$1,313

Ratio of Human Resources Staff to 100 Municipal Employees



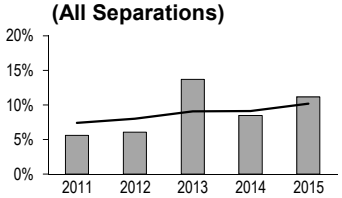
	2011	2012	2013	2014	2015
Hickory	0.77	0.69	0.69	0.69	0.68
Average	0.91	0.93	0.90	0.90	0.90

Effectiveness Measures

Probationary Period Completion Rate (New Hires)

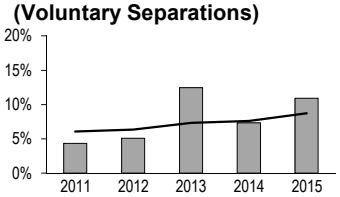
	2011	2012	2013	2014	2015
Hickory	88%	95%	68%	88%	93%
Average	90%	87%	88%	89%	91%

Employee Turnover Rate (All Separations)



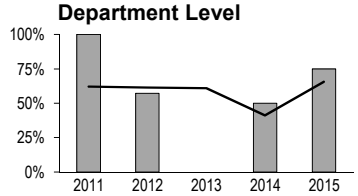
	2011	2012	2013	2014	2015
Hickory	5.6%	6.1%	13.7%	8.5%	11.2%
Average	7.4%	8.0%	9.1%	9.1%	10.2%

Employee Turnover Rate (Voluntary Separations)



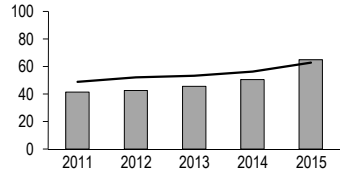
	2011	2012	2013	2014	2015
Hickory	4.4%	5.1%	12.5%	7.4%	10.9%
Average	6.1%	6.4%	7.3%	7.6%	8.7%

Percentage of Grievances Resolved at Department Level



	2011	2012	2013	2014	2015
Hickory	100%	57%		50%	75%
Average	62%	61%	61%	41%	65%

Average Days from Post Date to Hire Date (First Day of Employment)



	2011	2012	2013	2014	2015
Hickory	41	43	46	50	65
Average	49	52	53	56	63

Fiscal Year 2014–15

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, and 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 regulations; and compliance with North Carolina workers' compensation regulations.

One compensation study was conducted during the most recent fiscal year covering 433 positions.

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 2014)	108,556
Land Area (Square Miles)	55.05
Persons per Square Mile	1,972
Median Family Income U.S. Census 2010	$49,720
County Unemployment Rate (2013) N.C. Employment Security Commission	8.7%

Service Profile

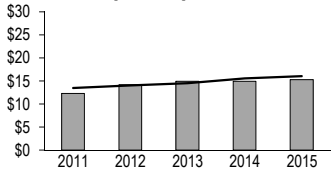
Central HR FTE Positions	
Administration	5.0
Generalist/Specialist	7.0
Staff Support/Clerical	1.0
Total Authorized Workforce	1,577.0
Authorized FTEs	1,447.0
Average Length of Service (Months)	337
Number of Position Requisitions	448
Employment Applications Processed	6,380
Length of Probationary Employment Period	12 months
Compensation Studies Completed	1
Positions Studied	433
Employee Turnover	
Voluntary Separations	106
Involuntary Separations	30
TOTAL SEPARATIONS	136
Formal Grievances Filed by Employees	2
Equal Employment Opportunity Commission (EEOC) Complaints Filed	6

Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	70.9%
Operating Costs	28.1%
Capital Costs	1.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,174,829
Operating Costs	$464,974
Capital Costs	$17,262
TOTAL	$1,657,065

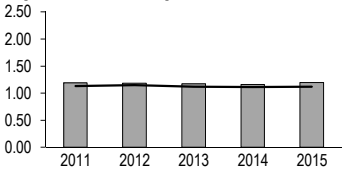
Resource Measures

Human Resources Services Cost per Capita



	2011	2012	2013	2014	2015
High Point	$12.27	$14.19	$14.97	$14.94	$15.26
Average	$13.47	$14.04	$14.50	$15.54	$16.05

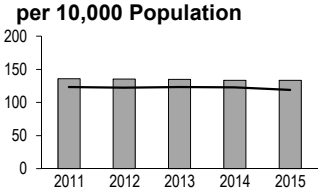
Human Resources FTEs per 10,000 Population



	2011	2012	2013	2014	2015
High Point	1.19	1.18	1.17	1.16	1.20
Average	1.13	1.15	1.12	1.12	1.12

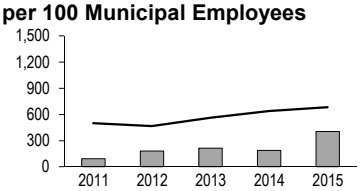
Workload Measures

Total Municipal FTEs per 10,000 Population



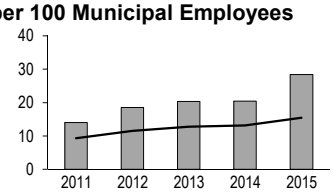
	2011	2012	2013	2014	2015
High Point	136	135	135	133	133
Average	123	123	123	123	119

Applications Processed per 100 Municipal Employees



	2011	2012	2013	2014	2015
High Point	91	182	214	189	405
Average	499	467	564	639	685

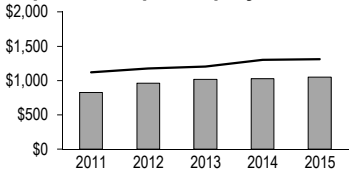
Position Requisitions per 100 Municipal Employees



	2011	2012	2013	2014	2015
High Point	14.0	18.5	20.3	20.5	28.4
Average	9.3	11.5	12.7	13.2	15.5

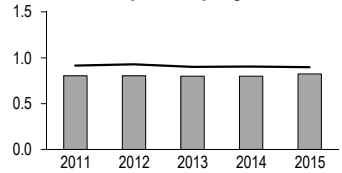
Efficiency Measures

Human Resources Cost per Municipal Employee



	2011	2012	2013	2014	2015
High Point	$828	$961	$1,019	$1,029	$1,051
Average	$1,122	$1,178	$1,204	$1,304	$1,313

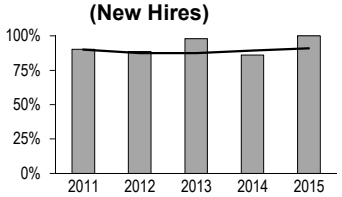
Ratio of Human Resources Staff to 100 Municipal Employees



	2011	2012	2013	2014	2015
High Point	0.80	0.80	0.80	0.80	0.82
Average	0.91	0.93	0.90	0.90	0.90

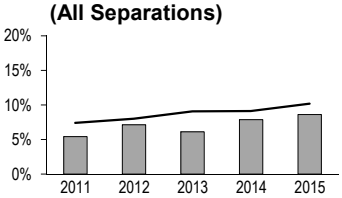
Effectiveness Measures

Probationary Period Completion Rate (New Hires)



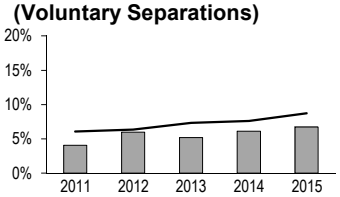
	2011	2012	2013	2014	2015
High Point	90%	89%	98%	86%	100%
Average	90%	87%	88%	89%	91%

Employee Turnover Rate (All Separations)



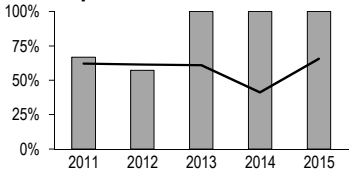
	2011	2012	2013	2014	2015
High Point	5.4%	7.1%	6.1%	7.9%	8.6%
Average	7.4%	8.0%	9.1%	9.1%	10.2%

Employee Turnover Rate (Voluntary Separations)



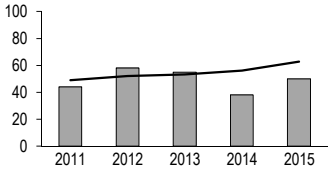
	2011	2012	2013	2014	2015
High Point	4.1%	6.0%	5.2%	6.1%	6.7%
Average	6.1%	6.4%	7.3%	7.6%	8.7%

Percentage of Grievances Resolved at Department Level



	2011	2012	2013	2014	2015
High Point	67%	57%	100%	100%	100%
Average	62%	61%	61%	41%	65%

Average Days from Post Date to Hire Date (First Day of Employment)



	2011	2012	2013	2014	2015
High Point	44	58	55	38	50
Average	49	52	53	56	63

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery

The City of Salisbury's Human Resource Department operates as an internal support service reporting directly to the Assistant City Manager for Human Resources. Human Resources handles the daily management of human capital while also helping to supoort community functions as teh Human Relations Council and the Salisbury Youth Council. The human resources function in Salisbury is a centralized unit with seven staff members

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 for the city.

The city's probationary period for new general employees is six months and twelve months for police and fire employees.

Compensation studies covering five positions were conducted during the fiscal year.

Conditions Affecting Service, Performance, and Costs

Municipal Profile

Population (OSBM 2014)	33,955
Land Area (Square Miles)	22.22
Persons per Square Mile	1,528
Median Family Income U.S. Census 2010	$40,192
County Unemployment Rate (2013) N.C. Employment Security Commission	8.6%

Service Profile

Central HR FTE Positions	
Administration	2.0
Generalist/Specialist	4.0
Staff Support/Clerical	1.0
Total Authorized Workforce	433.0
Authorized FTEs	433.0
Average Length of Service (Months)	108
Number of Position Requisitions	83
Employment Applications Processed	1,586
Length of Probationary Employment Period	6 or 12 months
Compensation Studies Completed	0
Positions Studied	5
Employee Turnover	
Voluntary Separations	57
Involuntary Separations	18
TOTAL SEPARATIONS	75
Formal Grievances Filed by Employees	4
Equal Employment Opportunity Commission (EEOC) Complaints Filed	0

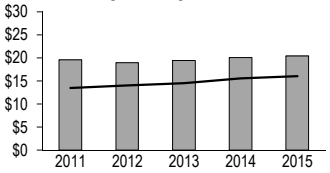
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	78.1%
Operating Costs	21.9%
Capital Costs	0.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$542,965
Operating Costs	$151,831
Capital Costs	$0
TOTAL	$694,796

Key: Salisbury ■ Benchmarking Average — Fiscal Years 2011 through 2015

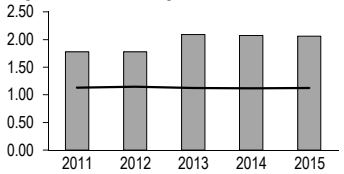
Resource Measures

Human Resources Services Cost per Capita



	2011	2012	2013	2014	2015
Salisbury	$19.58	$19.00	$19.45	$20.09	$20.46
Average	$13.47	$14.04	$14.50	$15.54	$16.05

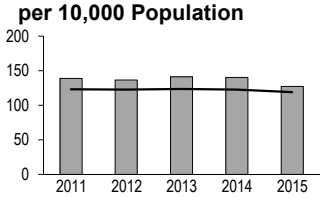
Human Resources FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Salisbury	1.78	1.78	2.09	2.08	2.06
Average	1.13	1.15	1.12	1.12	1.12

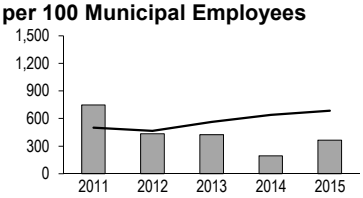
Workload Measures

Total Municipal FTEs per 10,000 Population



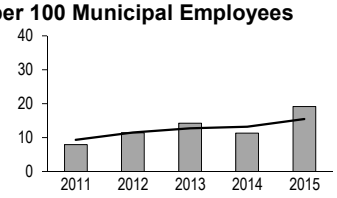
	2011	2012	2013	2014	2015
Salisbury	139	136	141	140	128
Average	123	123	123	123	119

Applications Processed per 100 Municipal Employees



	2011	2012	2013	2014	2015
Salisbury	747	435	424	194	366
Average	499	467	564	639	685

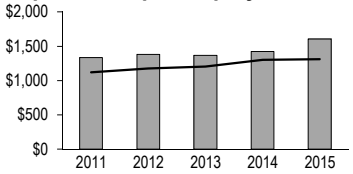
Position Requisitions per 100 Municipal Employees



	2011	2012	2013	2014	2015
Salisbury	7.9	11.4	14.3	11.3	19.2
Average	9.3	11.5	12.7	13.2	15.5

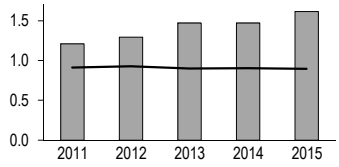
Efficiency Measures

Human Resources Cost per Municipal Employee



	2011	2012	2013	2014	2015
Salisbury	$1,334	$1,383	$1,366	$1,423	$1,605
Average	$1,122	$1,178	$1,204	$1,304	$1,313

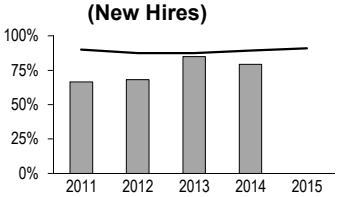
Ratio of Human Resources Staff to 100 Municipal Employees



	2011	2012	2013	2014	2015
Salisbury	1.21	1.30	1.47	1.47	1.62
Average	0.91	0.93	0.90	0.90	0.90

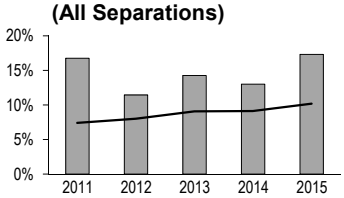
Effectiveness Measures

Probationary Period Completion Rate (New Hires)



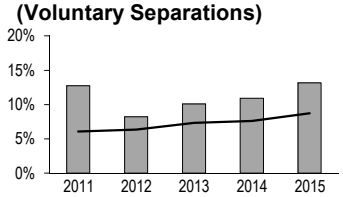
	2011	2012	2013	2014	2015
Salisbury	67%	68%	85%	79%	
Average	90%	87%	88%	89%	91%

Employee Turnover Rate (All Separations)



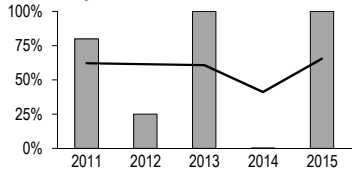
	2011	2012	2013	2014	2015
Salisbury	16.8%	11.4%	14.3%	13.0%	17.3%
Average	7.4%	8.0%	9.1%	9.1%	10.2%

Employee Turnover Rate (Voluntary Separations)



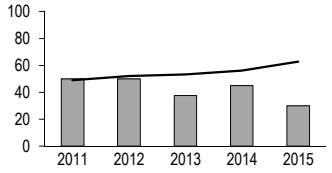
	2011	2012	2013	2014	2015
Salisbury	12.7%	8.2%	10.1%	10.9%	13.2%
Average	6.1%	6.4%	7.3%	7.6%	8.7%

Percentage of Grievances Resolved at Department Level



	2011	2012	2013	2014	2015
Salisbury	80%	25%	100%	0%	100%
Average	62%	61%	61%	41%	65%

Average Days from Post Date to Hire Date (First Day of Employment)



	2011	2012	2013	2014	2015
Salisbury	50	50	38	45	30
Average	49	52	53	56	63

Fiscal Year 2014–15

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 two compensation studies during the fiscla year covering twenty-one positioins.

The city's probationary period is twelve months for new city employees.

Conditions Affecting Service, Performance, and Costs
Wilson switched several contract positions working in HR to become city employees in FY 2013–14 causing a modest rise in service costs.

Municipal Profile

Population (OSBM 2014)	49,222
Land Area (Square Miles)	30.52
Persons per Square Mile	1,613
Median Family Income U.S. Census 2010	$43,442
County Unemployment Rate (2013) N.C. Employment Security Commission	11.7%

Service Profile

Central HR FTE Positions	
Administration	0.5
Generalist/Specialist	3.0
Staff Support/Clerical	1.0
Total Authorized Workforce	745.0
Authorized FTEs	713.0
Average Length of Service (Months)	124
Number of Position Requisitions	54
Employment Applications Processed	1,759
Length of Probationary Employment Period	12 months
Compensation Studies Completed	2
Positions Studied	21
Employee Turnover	
Voluntary Separations	93
Involuntary Separations	20
TOTAL SEPARATIONS	113
Formal Grievances Filed by Employees	0
Equal Employment Opportunity Commission (EEOC) Complaints Filed	1

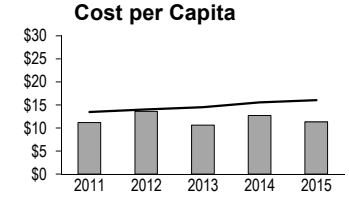
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	74.7%
Operating Costs	22.6%
Capital Costs	2.7%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$417,182
Operating Costs	$126,430
Capital Costs	$14,804
TOTAL	$558,416

Key: Wilson ■ Benchmarking Average — Fiscal Years 2011 through 2015

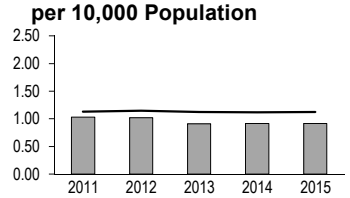
Resource Measures

Human Resources Services Cost per Capita



	2011	2012	2013	2014	2015
Wilson	$11.22	$13.60	$10.64	$12.71	$11.34
Average	$13.47	$14.04	$14.50	$15.54	$16.05

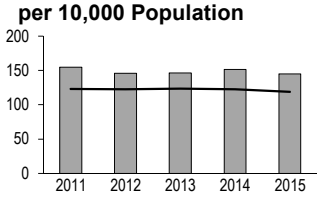
Human Resources FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Wilson	1.03	1.02	0.91	0.92	0.91
Average	1.13	1.15	1.12	1.12	1.12

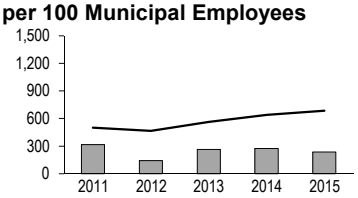
Workload Measures

Total Municipal FTEs per 10,000 Population



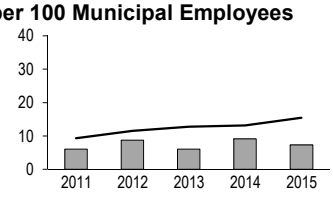
	2011	2012	2013	2014	2015
Wilson	155	146	146	152	145
Average	123	123	123	123	119

Applications Processed per 100 Municipal Employees



	2011	2012	2013	2014	2015
Wilson	315	142	264	274	236
Average	499	467	564	639	685

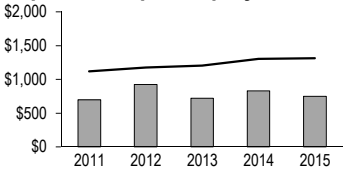
Position Requisitions per 100 Municipal Employees



	2011	2012	2013	2014	2015
Wilson	6.0	8.7	6.1	9.1	7.2
Average	9.3	11.5	12.7	13.2	15.5

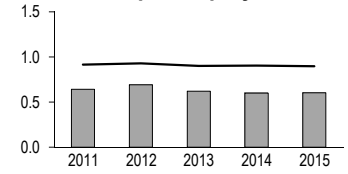
Efficiency Measures

Human Resources Cost per Municipal Employee



	2011	2012	2013	2014	2015
Wilson	$696	$926	$724	$832	$750
Average	$1,122	$1,178	$1,204	$1,304	$1,313

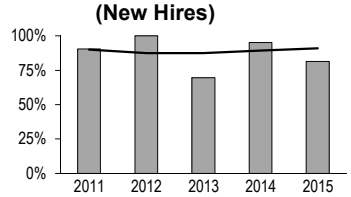
Ratio of Human Resources Staff to 100 Municipal Employees



	2011	2012	2013	2014	2015
Wilson	0.64	0.69	0.62	0.60	0.60
Average	0.91	0.93	0.90	0.90	0.90

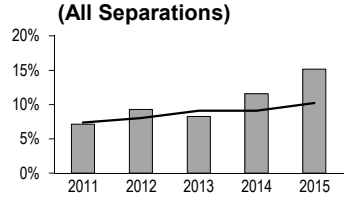
Effectiveness Measures

Probationary Period Completion Rate (New Hires)



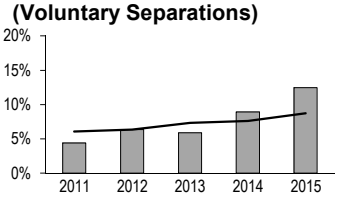
	2011	2012	2013	2014	2015
Wilson	91%	100%	70%	95%	82%
Average	90%	87%	88%	89%	91%

Employee Turnover Rate (All Separations)



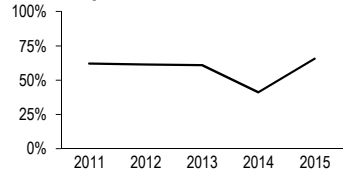
	2011	2012	2013	2014	2015
Wilson	7.2%	9.3%	8.3%	11.6%	15.2%
Average	7.4%	8.0%	9.1%	9.1%	10.2%

Employee Turnover Rate (Voluntary Separations)



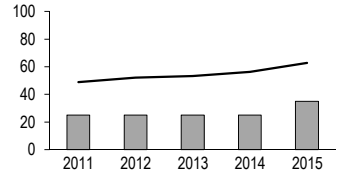
	2011	2012	2013	2014	2015
Wilson	4.4%	6.4%	5.9%	8.9%	12.5%
Average	6.1%	6.4%	7.3%	7.6%	8.7%

Percentage of Grievances Resolved at Department Level



	2011	2012	2013	2014	2015
Wilson			0%		
Average	62%	61%	61%	41%	65%

Average Days from Post Date to Hire Date (First Day of Employment)



	2011	2012	2013	2014	2015
Wilson	25	25	25	25	35
Average	49	52	53	56	63

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery

The human resources function is housed under two separate departments: Human Resources (HR) 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 one compensation study during the fiscal year covering 121 positions.

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 now requires all job applications to be submitted online. This process has made it substantially easier to apply for jobs, pushing up the number of applications.

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.

Winston-Salem's HR department manually calculates the time from post date to hire by subtracting the "approved for posting date" from the actual hire date as noted in the department's system. Certain current policies can effectively stretch this time period, which accounts for the long time reported in the length of time to hire new employees. For example, graduates from the fire academy may sometimes require five months before all evaluations are completed. There were also a number of positions that were posted but then held vacant for administrative reasons before being allowed to be filled.

Municipal Profile

Population (OSBM 2014)	237,905
Land Area (Square Miles)	132.45
Persons per Square Mile	1,796
Median Family Income U.S. Census 2010	$51,491
County Unemployment Rate (2013) N.C. Employment Security Commission	8.0%

Service Profile

Central HR FTE Positions	
Administration	3.0
Generalist/Specialist	9.0
Staff Support/Clerical	3.0
Total Authorized Workforce	2,475.0
Authorized FTEs	2,409.0
Average Length of Service (Months)	136
Number of Position Requisitions	545
Employment Applications Processed	24,470
Length of Probationary Employment Period	No probation
Compensation Studies Completed	1
Positions Studied	121
Employee Turnover	
Voluntary Separations	200
Involuntary Separations	58
TOTAL SEPARATIONS	258
Formal Grievances Filed by Employees	77
Equal Employment Opportunity Commission (EEOC) Complaints Filed	0

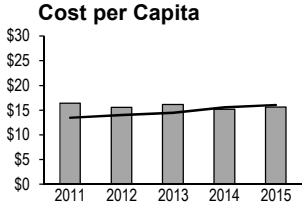
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	35.8%
Operating Costs	60.3%
Capital Costs	3.9%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,329,877
Operating Costs	$2,242,437
Capital Costs	$144,663
TOTAL	$3,716,977

Key: Winston-Salem ■ Benchmarking Average — Fiscal Years 2011 through 2015

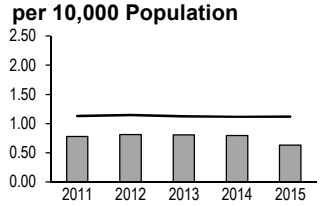
Resource Measures

Human Resources Services Cost per Capita



	2011	2012	2013	2014	2015
Winston-Salem	$16.42	$15.59	$16.13	$15.20	$15.62
Average	$13.47	$14.04	$14.50	$15.54	$16.05

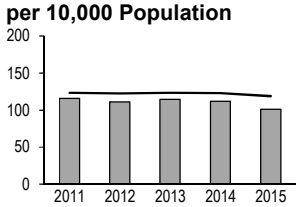
Human Resources FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Winston-Salem	0.78	0.81	0.81	0.80	0.63
Average	1.13	1.15	1.12	1.12	1.12

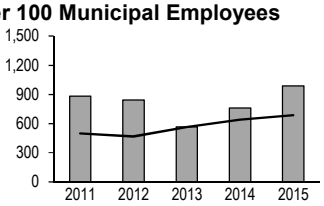
Workload Measures

Total Municipal FTEs per 10,000 Population



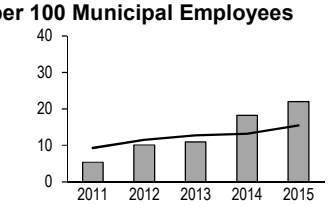
	2011	2012	2013	2014	2015
Winston-Salem	116	111	115	112	101
Average	123	123	123	123	119

Applications Processed per 100 Municipal Employees



	2011	2012	2013	2014	2015
Winston-Salem	883	843	567	763	989
Average	499	467	564	639	685

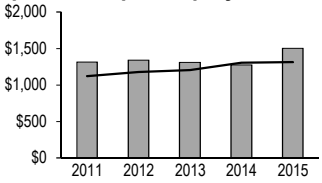
Position Requisitions per 100 Municipal Employees



	2011	2012	2013	2014	2015
Winston-Salem	5.4	10.1	11.0	18.3	22.0
Average	9.3	11.5	12.7	13.2	15.5

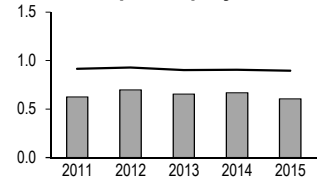
Efficiency Measures

Human Resources Cost per Municipal Employee



	2011	2012	2013	2014	2015
Winston-Salem	$1,316	$1,342	$1,308	$1,274	$1,502
Average	$1,122	$1,178	$1,204	$1,304	$1,313

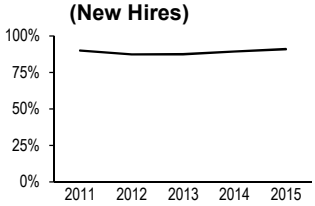
Ratio of Human Resources Staff to 100 Municipal Employees



	2011	2012	2013	2014	2015
Winston-Salem	0.63	0.70	0.65	0.67	0.61
Average	0.91	0.93	0.90	0.90	0.90

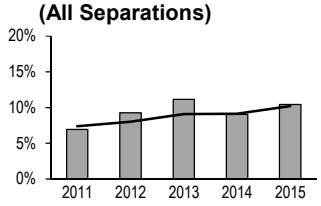
Effectiveness Measures

Probationary Period Completion Rate (New Hires)



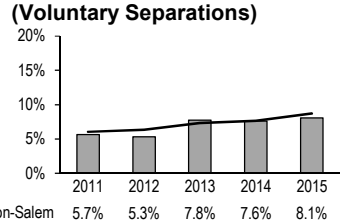
	2011	2012	2013	2014	2015
Winston-Salem					
Average	90%	87%	88%	89%	91%

Employee Turnover Rate (All Separations)



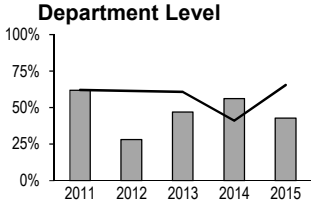
	2011	2012	2013	2014	2015
Winston-Salem	6.9%	9.3%	11.2%	9.0%	10.4%
Average	7.4%	8.0%	9.1%	9.1%	10.2%

Employee Turnover Rate (Voluntary Separations)



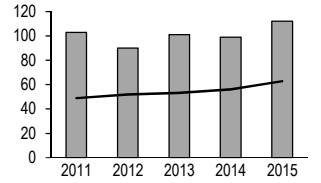
	2011	2012	2013	2014	2015
Winston-Salem	5.7%	5.3%	7.8%	7.6%	8.1%
Average	6.1%	6.4%	7.3%	7.6%	8.7%

Percentage of Grievances Resolved at Department Level



	2011	2012	2013	2014	2015
Winston-Salem	62%	28%	47%	56%	43%
Average	62%	61%	61%	41%	65%

Average Days from Post Date to Hire Date (First Day of Employment)



	2011	2012	2013	2014	2015
Winston-Salem	103	90	101	99	112
Average	49	52	53	56	63

UNC
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Performance and Cost Data

WATER SERVICES

UNC
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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 1,000 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	44,895	23.0	3.3	Shared with Cary	NA	215.2	15,588	24.0
Asheville	124,300	183.0	19.8	3	43.5	1,681.5	58,198	148.6
Burlington	51,923	43.9	10.3	2	34.0	419.6	23,275	48.5
Cary	172,762	75.5	14.3	1	40.0	1,028.0	56,627	78.4
Concord	87,654	169.0	9.8	2	24.0	691.6	37,027	79.5
Greensboro	279,651	148.0	33.0	2	54.0	1,489.8	103,882	152.5
Hickory	92,000	326.0	11.6	1	32.0	926.2	28,886	57.5
High Point	108,552	64.0	12.4	1	24.0	613.0	42,235	58.0
Salisbury	53,325	47.4	9.2	1	25.0	419.7	19,003	43.0
Wilson	51,600	39.0	8.6	2	22.0	420.0	21,637	40.0
Winston-Salem	366,243	366.0	36.1	3	91.0	2,273.0	125,562	166.0

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 2014–15

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 89 percent of water meters are read by various automatic means. Replacement of meters is based on a combination of factors, as is 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	44,895
Service Land Area (Square Miles)	23.0
Persons per Square Mile	1,952
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	14.0
Meter Readers	4.0
Billing/Collection	4.0
Other	2.0
Total	24.0
Number of Treatment Plants	NA
Total Treatment Capacity	NA
Average Daily Demand	3.3 MG
Miles of Main Line Pipe	215
Average Age of Main Line Pipe	35 years
Number of Breaks/Leaks	82
Number of Water Meters	15,588
Percent of Meters Read Automatically	89.7%
Total Revenues Collected	$8,234,307

Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	26.4%
Operating Costs	44.8%
Capital Costs	28.7%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,383,526
Operating Costs	$2,347,399
Capital Costs	$1,504,479
TOTAL	$5,235,404

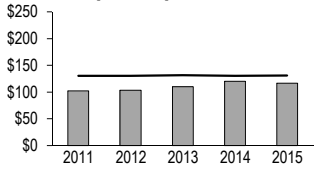
Apex

Water Services

Key: Apex ■ Benchmarking Average — Fiscal Years 2011 through 2015

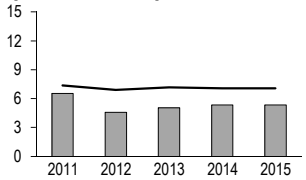
Resource Measures

Water Services Cost per Capita



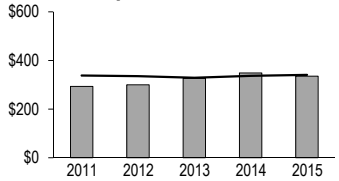
	2011	2012	2013	2014	2015
Apex	$102	$103	$110	$120	$117
Average	$131	$130	$132	$130	$131

Water Services FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Apex	6.5	4.6	5.0	5.4	5.3
Average	7.4	6.9	7.2	7.1	7.1

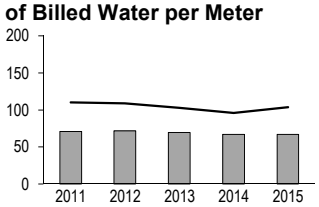
Water Services Cost per Meter



	2011	2012	2013	2014	2015
Apex	$294	$300	$327	$349	$336
Average	$338	$335	$329	$337	$340

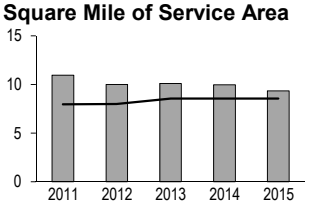
Workload Measures

Thousands of Gallons of Billed Water per Meter



	2011	2012	2013	2014	2015
Apex	70.7	71.9	69.4	67.0	67.0
Average	110.0	109.1	102.9	96.1	103.8

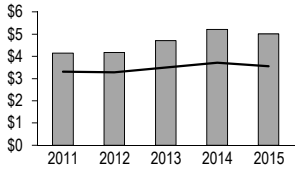
Miles of Main Line Pipe per Square Mile of Service Area



	2011	2012	2013	2014	2015
Apex	11.0	10.0	10.1	10.0	9.4
Average	8.0	8.0	8.5	8.6	8.6

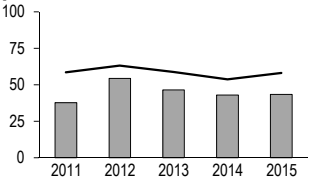
Efficiency Measures

Total Cost per Thousand Gallons of Billed Water



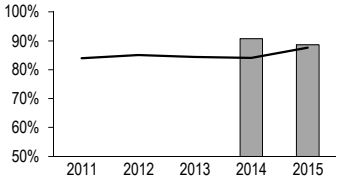
	2011	2012	2013	2014	2015
Apex	$4.15	$4.17	$4.70	$5.21	$5.01
Average	$3.31	$3.28	$3.49	$3.71	$3.56

Million Gallons of Billed Water per Water Services FTEs



	2011	2012	2013	2014	2015
Apex	37.8	54.3	46.6	43.1	43.5
Average	58.6	63.2	58.8	53.7	58.2

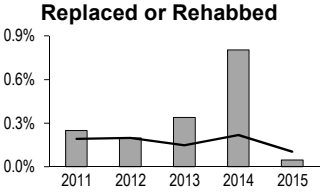
Billed Water as a Percentage of Finished Water



	2011	2012	2013	2014	2015
Apex				91%	89%
Average	84%	85%	84%	84%	88%

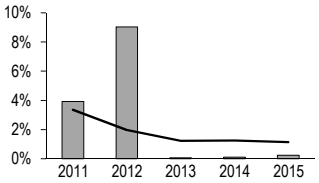
Effectiveness Measures

Percentage of Existing Pipeline Replaced or Rehabbed



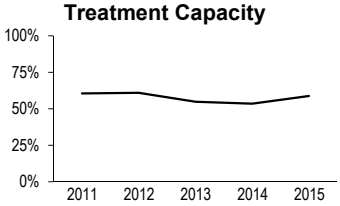
	2011	2012	2013	2014	2015
Apex	0.25%	0.20%	0.34%	0.80%	0.05%
Average	0.19%	0.20%	0.15%	0.22%	0.10%

Percentage of Water Bills Not Collected



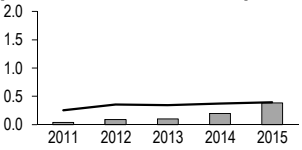
	2011	2012	2013	2014	2015
Apex	3.92%	9.04%	0.06%	0.10%	0.24%
Average	3.34%	1.98%	1.23%	1.26%	1.14%

Peak Daily Demand as a Percentage of Treatment Capacity



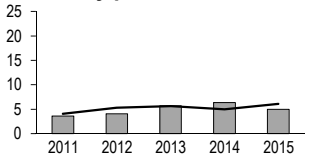
	2011	2012	2013	2014	2015
Apex					
Average	61%	61%	55%	54%	59%

Breaks and Leaks per Mile of Main Line Pipe



	2011	2012	2013	2014	2015
Apex	0.03	0.09	0.10	0.20	0.38
Average	0.25	0.35	0.35	0.37	0.39

Customer Complaints about Water Quality per 1,000 Meters



	2011	2012	2013	2014	2015
Apex	3.59	4.05	5.67	6.35	5.00
Average	4.06	5.32	5.62	4.96	6.11

Fiscal Year 2014–15

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.

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 97 percent of water meters are read by various 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 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 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 to 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

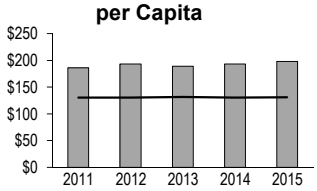
FTE Staff Positions	
Treatment Plant	41.6
Line Crews	49.0
Meter Readers	2.0
Billing/Collection	23.0
Other	33.0
Total	148.6
Number of Treatment Plants	3
Total Treatment Capacity	43.5 MG
Average Daily Demand	19.8 MG
Miles of Main Line Pipe	1,682
Average Age of Main Line Pipe	55 years
Number of Breaks/Leaks	890
Number of Water Meters	58,198
Percent of Meters Read Automatically	97.1%
Total Revenues Collected	$35,760,771

Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	34.9%
Operating Costs	34.2%
Capital Costs	30.8%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$8,605,631
Operating Costs	$8,431,490
Capital Costs	$7,589,868
TOTAL	$24,626,989

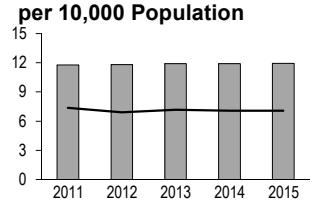
Resource Measures

Water Services Cost per Capita



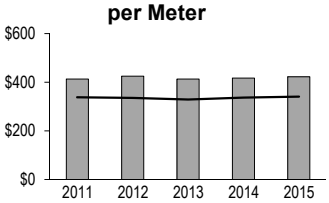
	2011	2012	2013	2014	2015
Asheville	$186	$193	$189	$193	$198
Average	$131	$130	$132	$130	$131

Water Services FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Asheville	11.8	11.8	11.9	11.9	12.0
Average	7.4	6.9	7.2	7.1	7.1

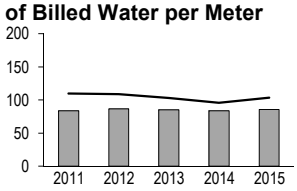
Water Services Cost per Meter



	2011	2012	2013	2014	2015
Asheville	$413	$426	$413	$417	$423
Average	$338	$335	$329	$337	$340

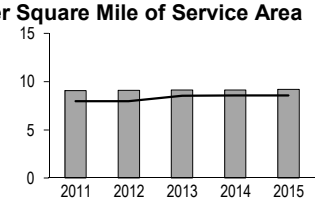
Workload Measures

Thousands of Gallons of Billed Water per Meter



	2011	2012	2013	2014	2015
Asheville	83.7	86.5	85.0	84.0	85.6
Average	110.0	109.1	102.9	96.1	103.8

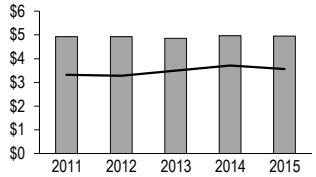
Miles of Main Line Pipe per Square Mile of Service Area



	2011	2012	2013	2014	2015
Asheville	9.1	9.1	9.1	9.1	9.2
Average	8.0	8.0	8.5	8.6	8.6

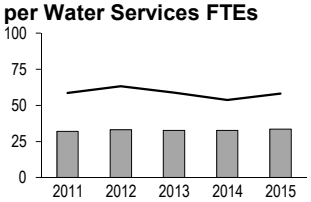
Efficiency Measures

Total Cost per Thousand Gallons of Billed Water



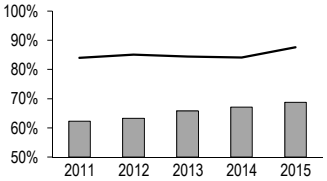
	2011	2012	2013	2014	2015
Asheville	$4.93	$4.92	$4.86	$4.97	$4.95
Average	$3.31	$3.28	$3.49	$3.71	$3.56

Million Gallons of Billed Water per Water Services FTEs



	2011	2012	2013	2014	2015
Asheville	32.1	33.2	32.7	32.6	33.5
Average	58.6	63.2	58.8	53.7	58.2

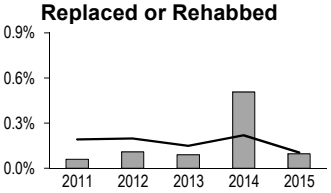
Billed Water as a Percentage of Finished Water



	2011	2012	2013	2014	2015
Asheville	62%	63%	66%	67%	69%
Average	84%	85%	84%	84%	88%

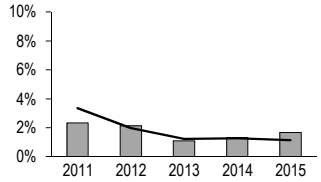
Effectiveness Measures

Percentage of Existing Pipeline Replaced or Rehabbed



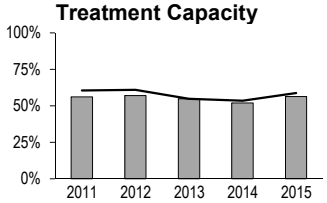
	2011	2012	2013	2014	2015
Asheville	0.06%	0.11%	0.09%	0.51%	0.10%
Average	0.19%	0.20%	0.15%	0.22%	0.10%

Percentage of Water Bills Not Collected



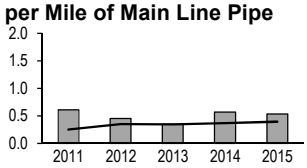
	2011	2012	2013	2014	2015
Asheville	2.34%	2.14%	1.08%	1.32%	1.67%
Average	3.34%	1.98%	1.23%	1.26%	1.14%

Peak Daily Demand as a Percentage of Treatment Capacity



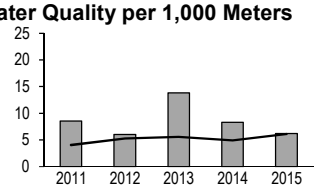
	2011	2012	2013	2014	2015
Asheville	56%	57%	55%	52%	56%
Average	61%	61%	55%	54%	59%

Breaks and Leaks per Mile of Main Line Pipe



	2011	2012	2013	2014	2015
Asheville	0.61	0.45	0.35	0.57	0.53
Average	0.25	0.35	0.35	0.37	0.39

Customer Complaints about Water Quality per 1,000 Meters



	2011	2012	2013	2014	2015
Asheville	8.53	5.99	13.81	8.33	6.20
Average	4.06	5.32	5.62	4.96	6.11

Fiscal Year 2014–15

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 52,000 people are served by the system over a 44-square-mile area.

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 about 10 percent of 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	51,923
Service Land Area (Square Miles)	43.9
Persons per Square Mile	1,183
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	10.0
Other	7.5
Total	48.5
Number of Treatment Plants	2
Total Treatment Capacity	34.0 MG
Average Daily Demand	10.3 MG
Miles of Main Line Pipe	420
Average Age of Main Line Pipe	47 years
Number of Breaks/Leaks	55
Number of Water Meters	23,275
Percent of Meters Read Automatically	10.2%
Total Revenues Collected	$10,034,795

Full Cost Profile

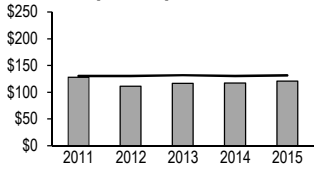
Cost Breakdown by Percentage	
Personal Services	21.4%
Operating Costs	40.3%
Capital Costs	38.3%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,452,479
Operating Costs	$2,375,581
Capital Costs	$2,388,480
TOTAL	$6,216,540

Burlington Water Services

Key: Burlington ■ Benchmarking Average — Fiscal Years 2011 through 2015

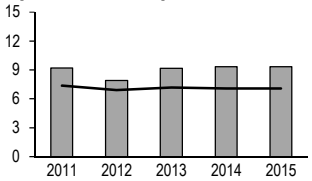
Resource Measures

Water Services Cost per Capita



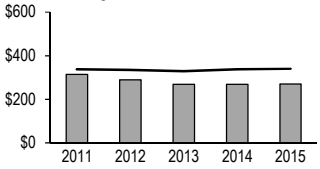
	2011	2012	2013	2014	2015
Burlington	$128	$111	$117	$117	$121
Average	$131	$130	$132	$130	$131

Water Services FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Burlington	9.2	7.9	9.2	9.3	9.3
Average	7.4	6.9	7.2	7.1	7.1

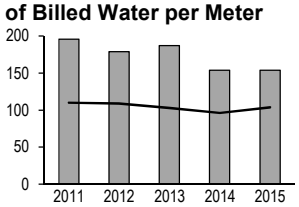
Water Services Cost per Meter



	2011	2012	2013	2014	2015
Burlington	$314	$290	$269	$269	$270
Average	$338	$335	$329	$337	$340

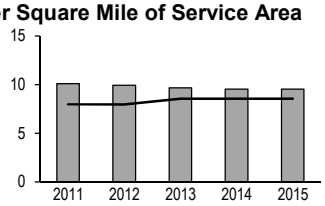
Workload Measures

Thousands of Gallons of Billed Water per Meter



	2011	2012	2013	2014	2015
Burlington	195.7	179.0	187.2	154.0	154.0
Average	110.0	109.1	102.9	96.1	103.8

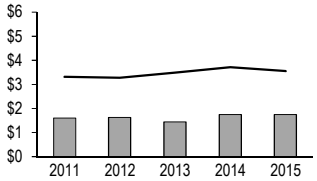
Miles of Main Line Pipe per Square Mile of Service Area



	2011	2012	2013	2014	2015
Burlington	10.1	10.0	9.7	9.5	9.6
Average	8.0	8.0	8.5	8.6	8.6

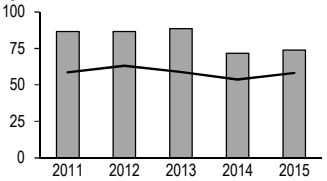
Efficiency Measures

Total Cost per Thousand Gallons of Billed Water



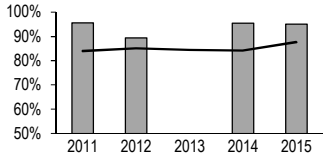
	2011	2012	2013	2014	2015
Burlington	$1.60	$1.62	$1.43	$1.75	$1.75
Average	$3.31	$3.28	$3.49	$3.71	$3.56

Million Gallons of Billed Water per Water Services FTEs



	2011	2012	2013	2014	2015
Burlington	86.7	86.7	88.7	71.7	73.9
Average	58.6	63.2	58.8	53.7	58.2

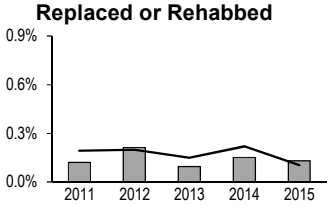
Billed Water as a Percentage of Finished Water



	2011	2012	2013	2014	2015
Burlington	96%	89%		96%	95%
Average	84%	85%	84%	84%	88%

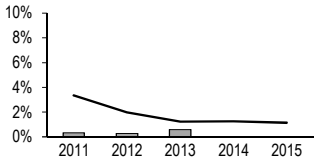
Effectiveness Measures

Percentage of Existing Pipeline Replaced or Rehabbed



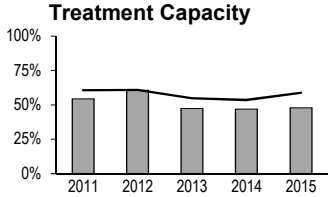
	2011	2012	2013	2014	2015
Burlington	0.12%	0.21%	0.09%	0.15%	0.13%
Average	0.19%	0.20%	0.15%	0.22%	0.10%

Percentage of Water Bills Not Collected



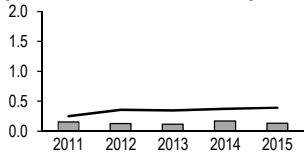
	2011	2012	2013	2014	2015
Burlington	0.31%	0.27%	0.58%		
Average	3.34%	1.98%	1.23%	1.26%	1.14%

Peak Daily Demand as a Percentage of Treatment Capacity



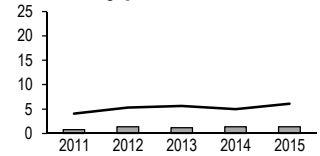
	2011	2012	2013	2014	2015
Burlington	54%	61%	47%	47%	48%
Average	61%	61%	55%	54%	59%

Breaks and Leaks per Mile of Main Line Pipe



	2011	2012	2013	2014	2015
Burlington	0.15	0.12	0.12	0.17	0.13
Average	0.25	0.35	0.35	0.37	0.39

Customer Complaints about Water Quality per 1,000 Meters



	2011	2012	2013	2014	2015
Burlington	0.78	1.39	1.16	1.33	1.33
Average	4.06	5.32	5.62	4.96	6.11

Fiscal Year 2014–15

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 173,000 people are served by the system, covering an area of seventy-five 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 100 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 system in 2006. As part of the merger agreement, merger-related costs were recovered through rate differentials that were in effect through the end of FY 2012. In FY 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	172,762
Service Land Area (Square Miles)	75.0
Persons per Square Mile	2,303
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	26.0
Line Crews	35.9
Meter Readers	0.0
Billing/Collection	9.3
Other	7.3
Total	78.4
Number of Treatment Plants	1
Total Treatment Capacity	40.0 MG
Average Daily Demand	14.3 MG
Miles of Main Line Pipe	1,028
Average Age of Main Line Pipe	NA
Number of Breaks/Leaks	120
Number of Water Meters	56,627
Percent of Meters Read Automatically	100.0%
Total Revenues Collected	$26,211,815

Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	26.3%
Operating Costs	41.0%
Capital Costs	32.7%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$5,685,164
Operating Costs	$8,862,810
Capital Costs	$7,053,616
TOTAL	$21,601,590

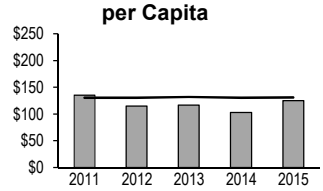
Cary

Water Services

Key: Cary ■ Benchmarking Average — Fiscal Years 2011 through 2015

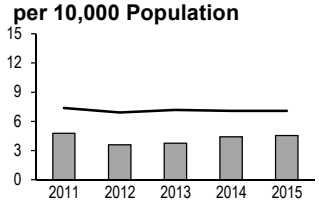
Resource Measures

Water Services Cost per Capita



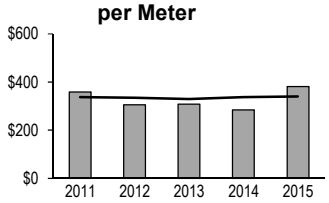
	2011	2012	2013	2014	2015
Cary	$135	$115	$117	$103	$125
Average	$131	$130	$132	$130	$131

Water Services FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Cary	4.8	3.6	3.7	4.4	4.5
Average	7.4	6.9	7.2	7.1	7.1

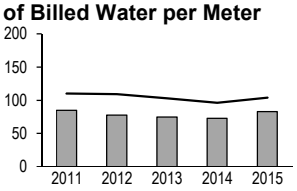
Water Services Cost per Meter



	2011	2012	2013	2014	2015
Cary	$358	$306	$308	$284	$381
Average	$338	$335	$329	$337	$340

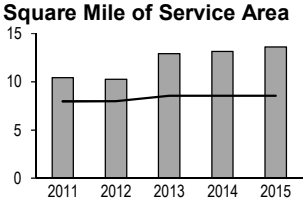
Workload Measures

Thousands of Gallons of Billed Water per Meter



	2011	2012	2013	2014	2015
Cary	84.6	77.8	74.5	72.9	82.8
Average	110.0	109.1	102.9	96.1	103.8

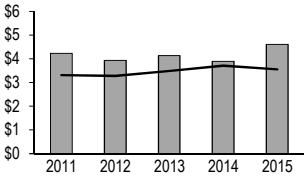
Miles of Main Line Pipe per Square Mile of Service Area



	2011	2012	2013	2014	2015
Cary	10.5	10.3	12.9	13.2	13.6
Average	8.0	8.0	8.5	8.6	8.6

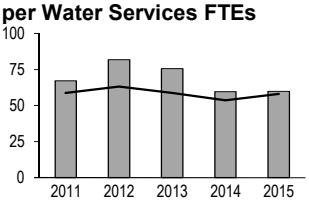
Efficiency Measures

Total Cost per Thousand Gallons of Billed Water



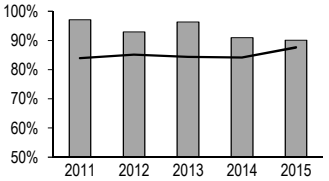
	2011	2012	2013	2014	2015
Cary	$4.23	$3.93	$4.13	$3.90	$4.61
Average	$3.31	$3.28	$3.49	$3.71	$3.56

Million Gallons of Billed Water per Water Services FTEs



	2011	2012	2013	2014	2015
Cary	67.1	81.8	75.5	59.7	59.8
Average	58.6	63.2	58.8	53.7	58.2

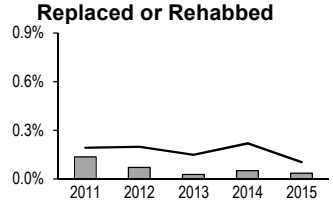
Billed Water as a Percentage of Finished Water



	2011	2012	2013	2014	2015
Cary	97%	93%	96%	91%	90%
Average	84%	85%	84%	84%	88%

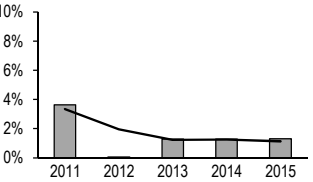
Effectiveness Measures

Percentage of Existing Pipeline Replaced or Rehabbed



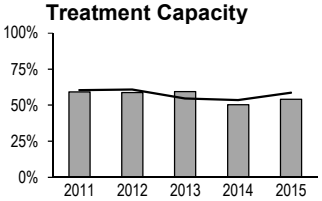
	2011	2012	2013	2014	2015
Cary	0.14%	0.07%	0.03%	0.05%	0.04%
Average	0.19%	0.20%	0.15%	0.22%	0.10%

Percentage of Water Bills Not Collected



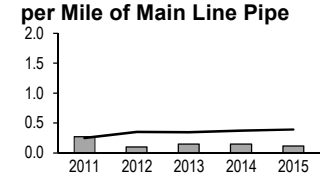
	2011	2012	2013	2014	2015
Cary	3.63%	0.06%	1.28%	1.28%	1.31%
Average	3.34%	1.98%	1.23%	1.26%	1.14%

Peak Daily Demand as a Percentage of Treatment Capacity



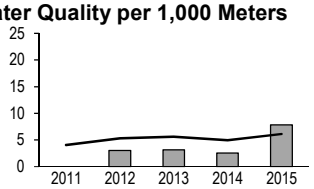
	2011	2012	2013	2014	2015
Cary	59%	59%	59%	50%	54%
Average	61%	61%	55%	54%	59%

Breaks and Leaks per Mile of Main Line Pipe



	2011	2012	2013	2014	2015
Cary	0.27	0.10	0.15	0.15	0.12
Average	0.25	0.35	0.35	0.37	0.39

Customer Complaints about Water Quality per 1,000 Meters



	2011	2012	2013	2014	2015
Cary		3.00	3.12	2.56	7.84
Average	4.06	5.32	5.62	4.96	6.11

Fiscal Year 2014–15

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-three 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.

Municipal Profile

Estimated Service Population	87,654
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	29.0
Line Crews	25.0
Meter Readers	4.0
Billing/Collection	10.5
Other	11.0
Total	79.5
Number of Treatment Plants	2
Total Treatment Capacity	24.0 MG
Average Daily Demand	9.8 MG
Miles of Main Line Pipe	692
Average Age of Main Line Pipe	33 years
Number of Breaks/Leaks	1,051
Number of Water Meters	37,027
Percent of Meters Read Automatically	99.8%
Total Revenues Collected	$21,550,371

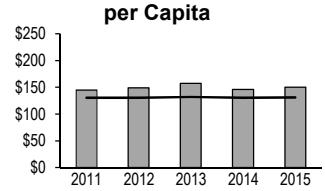
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	32.1%
Operating Costs	41.8%
Capital Costs	26.1%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$4,233,712
Operating Costs	$5,504,079
Capital Costs	$3,438,548
TOTAL	$13,176,339

Key: Concord ■ Benchmarking Average — Fiscal Years 2011 through 2015

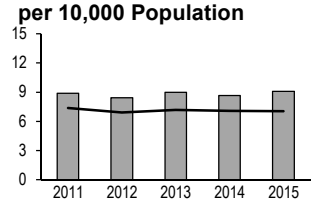
Resource Measures

Water Services Cost per Capita



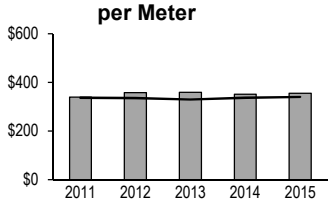
	2011	2012	2013	2014	2015
Concord	$145	$149	$158	$146	$150
Average	$131	$130	$132	$130	$131

Water Services FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Concord	8.9	8.4	9.0	8.7	9.1
Average	7.4	6.9	7.2	7.1	7.1

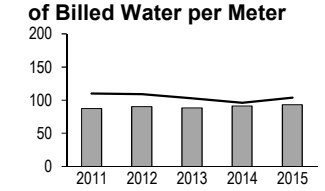
Water Services Cost per Meter



	2011	2012	2013	2014	2015
Concord	$340	$358	$360	$351	$356
Average	$338	$335	$329	$337	$340

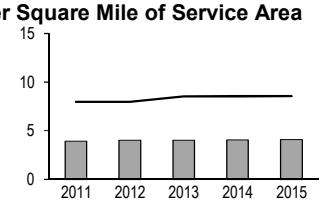
Workload Measures

Thousands of Gallons of Billed Water per Meter



	2011	2012	2013	2014	2015
Concord	87.6	90.2	88.4	91.2	93.2
Average	110.0	109.1	102.9	96.1	103.8

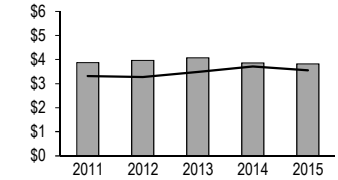
Miles of Main Line Pipe per Square Mile of Service Area



	2011	2012	2013	2014	2015
Concord	3.9	4.0	4.0	4.1	4.1
Average	8.0	8.0	8.5	8.6	8.6

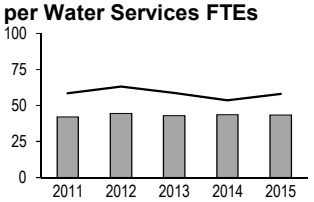
Efficiency Measures

Total Cost per Thousand Gallons of Billed Water



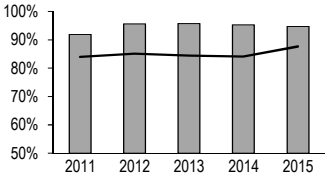
	2011	2012	2013	2014	2015
Concord	$3.88	$3.97	$4.07	$3.86	$3.82
Average	$3.31	$3.28	$3.49	$3.71	$3.56

Million Gallons of Billed Water per Water Services FTEs



	2011	2012	2013	2014	2015
Concord	42.1	44.6	43.1	43.7	43.4
Average	58.6	63.2	58.8	53.7	58.2

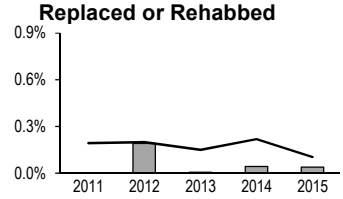
Billed Water as a Percentage of Finished Water



	2011	2012	2013	2014	2015
Concord	92%	96%	96%	95%	95%
Average	84%	85%	84%	84%	88%

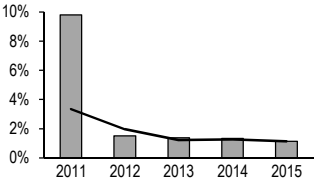
Effectiveness Measures

Percentage of Existing Pipeline Replaced or Rehabbed



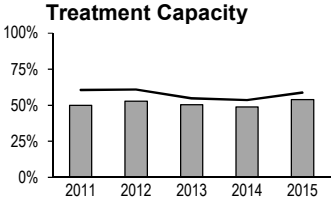
	2011	2012	2013	2014	2015
Concord	0.00%	0.19%	0.01%	0.04%	0.04%
Average	0.19%	0.20%	0.15%	0.22%	0.10%

Percentage of Water Bills Not Collected



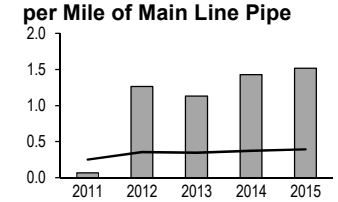
	2011	2012	2013	2014	2015
Concord	9.81%	1.50%	1.37%	1.34%	1.13%
Average	3.34%	1.98%	1.23%	1.26%	1.14%

Peak Daily Demand as a Percentage of Treatment Capacity



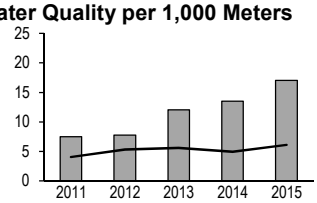
	2011	2012	2013	2014	2015
Concord	50%	53%	50%	49%	54%
Average	61%	61%	55%	54%	59%

Breaks and Leaks per Mile of Main Line Pipe



	2011	2012	2013	2014	2015
Concord	0.07	1.26	1.13	1.43	1.52
Average	0.25	0.35	0.35	0.37	0.39

Customer Complaints about Water Quality per 1,000 Meters



	2011	2012	2013	2014	2015
Concord	7.52	7.76	12.07	13.50	17.01
Average	4.06	5.32	5.62	4.96	6.11

Fiscal Year 2014–15

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 280,000 people in an area covering about 148 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 42 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-eight 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 large 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 in FY 2013–14. The change in the disinfection method also led to additional flushing of water lines and, consequently, some water could not be billed.

Municipal Profile

Estimated Service Population	279,651
Service Land Area (Square Miles)	148.0
Persons per Square Mile	1,890
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	62.5
Meter Readers	16.0
Billing/Collection	8.0
Other	15.0
Total	152.5
Number of Treatment Plants	2
Total Treatment Capacity	54.0 MG
Average Daily Demand	33.0 MG
Miles of Main Line Pipe	1,490
Average Age of Main Line Pipe	38 years
Number of Breaks/Leaks	327
Number of Water Meters	103,882
Percent of Meters Read Automatically	100.0%
Total Revenues Collected	$48,001,763

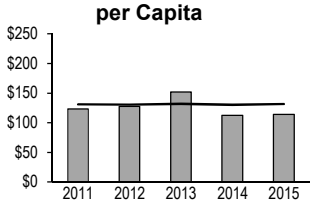
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	17.8%
Operating Costs	65.5%
Capital Costs	16.6%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$5,700,609
Operating Costs	$20,926,492
Capital Costs	$5,312,494
TOTAL	$31,939,595

Key: Greensboro ■ Benchmarking Average — Fiscal Years 2011 through 2015

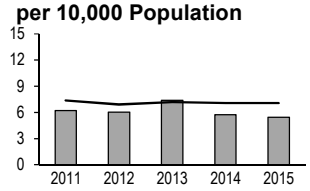
Resource Measures

Water Services Cost per Capita



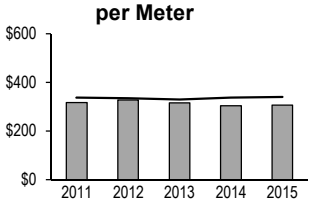
	2011	2012	2013	2014	2015
Greensboro	$123	$128	$152	$113	$114
Average	$131	$130	$132	$130	$131

Water Services FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Greensboro	6.2	6.0	7.4	5.8	5.5
Average	7.4	6.9	7.2	7.1	7.1

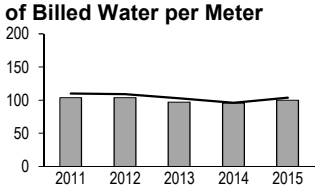
Water Services Cost per Meter



	2011	2012	2013	2014	2015
Greensboro	$318	$328	$317	$304	$307
Average	$338	$335	$329	$337	$340

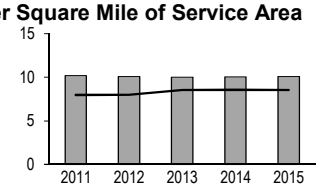
Workload Measures

Thousands of Gallons of Billed Water per Meter



	2011	2012	2013	2014	2015
Greensboro	103.8	103.8	97.1	95.8	99.9
Average	110.0	109.1	102.9	96.1	103.8

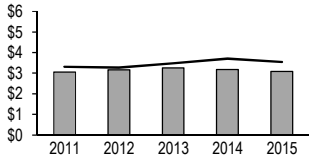
Miles of Main Line Pipe per Square Mile of Service Area



	2011	2012	2013	2014	2015
Greensboro	10.2	10.1	10.0	10.0	10.1
Average	8.0	8.0	8.5	8.6	8.6

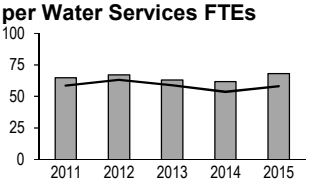
Efficiency Measures

Total Cost per Thousand Gallons of Billed Water



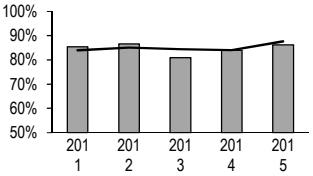
	2011	2012	2013	2014	2015
Greensboro	$3.06	$3.16	$3.26	$3.18	$3.08
Average	$3.31	$3.28	$3.49	$3.71	$3.56

Million Gallons of Billed Water per Water Services FTEs



	2011	2012	2013	2014	2015
Greensboro	64.7	67.1	63.0	61.7	68.0
Average	58.6	63.2	58.8	53.7	58.2

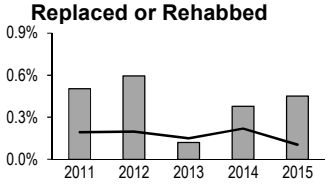
Billed Water as a Percentage of Finished Water



	2011	2012	2013	2014	2015
Greensboro	85%	87%	81%	84%	86%
Average	84%	85%	84%	84%	88%

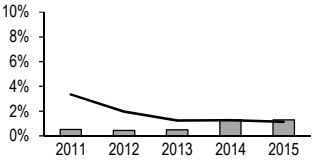
Effectiveness Measures

Percentage of Existing Pipeline Replaced or Rehabbed



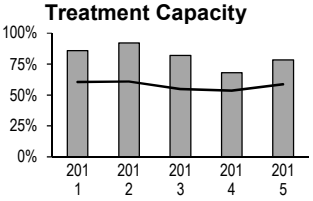
	2011	2012	2013	2014	2015
Greensboro	0.50%	0.59%	0.12%	0.38%	0.45%
Average	0.19%	0.20%	0.15%	0.22%	0.10%

Percentage of Water Bills Not Collected



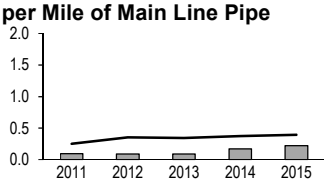
	2011	2012	2013	2014	2015
Greensboro	0.51%	0.43%	0.50%	1.28%	1.28%
Average	3.34%	1.98%	1.23%	1.26%	1.14%

Peak Daily Demand as a Percentage of Treatment Capacity



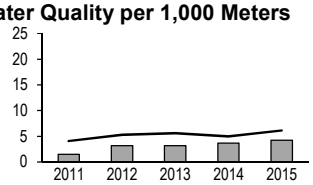
	2011	2012	2013	2014	2015
Greensboro	86%	92%	82%	68%	78%
Average	61%	61%	55%	54%	59%

Breaks and Leaks per Mile of Main Line Pipe



	2011	2012	2013	2014	2015
Greensboro	0.09	0.09	0.09	0.17	0.22
Average	0.25	0.35	0.35	0.37	0.39

Customer Complaints about Water Quality per 1,000 Meters



	2011	2012	2013	2014	2015
Greensboro	1.50	3.19	3.15	3.67	4.24
Average	4.06	5.32	5.62	4.96	6.11

Fiscal Year 2014–15

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 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 11.5 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 in FY 2011–2012 was due to an abnormal increase in iron and manganese in the water source during the first quarter of the year. Approximately 600 "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	2.5
Other	2.0
Total	57.5
Number of Treatment Plants	1
Total Treatment Capacity	32.0 MG
Average Daily Demand	11.6 MG
Miles of Main Line Pipe	926
Average Age of Main Line Pipe	226 years
Number of Breaks/Leaks	201
Number of Water Meters	28,886
Percent of Meters Read Automatically	11.5%
Total Revenues Collected	$8,293,635

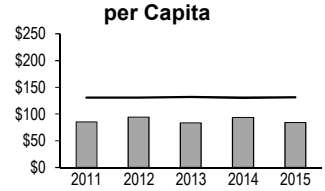
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	31.2%
Operating Costs	53.5%
Capital Costs	15.4%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$2,412,839
Operating Costs	$4,137,518
Capital Costs	$1,189,163
TOTAL	$7,739,520

Key: Hickory ■ Benchmarking Average — Fiscal Years 2011 through 2015

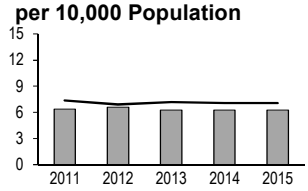
Resource Measures

Water Services Cost per Capita



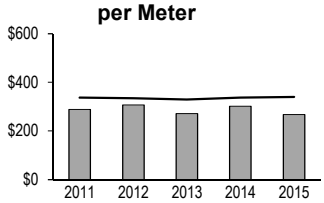
	2011	2012	2013	2014	2015
Hickory	$85	$94	$84	$94	$84
Average	$131	$130	$132	$130	$131

Water Services FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Hickory	6.4	6.6	6.3	6.3	6.3
Average	7.4	6.9	7.2	7.1	7.1

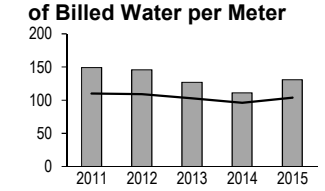
Water Services Cost per Meter



	2011	2012	2013	2014	2015
Hickory	$289	$307	$271	$302	$268
Average	$338	$335	$329	$337	$340

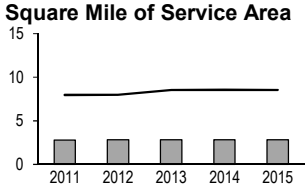
Workload Measures

Thousands of Gallons of Billed Water per Meter



	2011	2012	2013	2014	2015
Hickory	149.2	146.0	127.0	111.0	130.8
Average	110.0	109.1	102.9	96.1	103.8

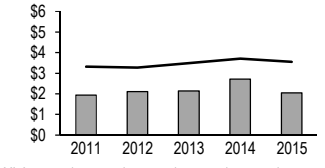
Miles of Main Line Pipe per Square Mile of Service Area



	2011	2012	2013	2014	2015
Hickory	2.8	2.8	2.8	2.8	2.8
Average	8.0	8.0	8.5	8.6	8.6

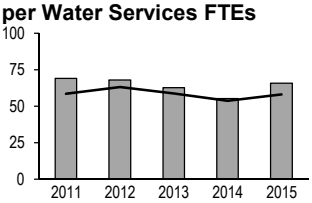
Efficiency Measures

Total Cost per Thousand Gallons of Billed Water



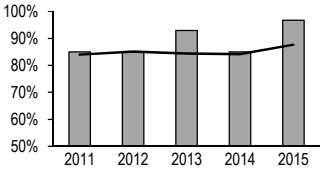
	2011	2012	2013	2014	2015
Hickory	$1.94	$2.10	$2.14	$2.72	$2.05
Average	$3.31	$3.28	$3.49	$3.71	$3.56

Million Gallons of Billed Water per Water Services FTEs



	2011	2012	2013	2014	2015
Hickory	69.0	68.0	62.6	55.2	65.7
Average	58.6	63.2	58.8	53.7	58.2

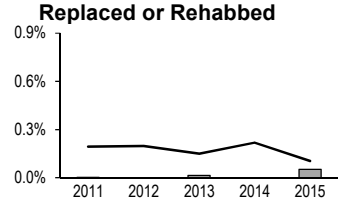
Billed Water as a Percentage of Finished Water



	2011	2012	2013	2014	2015
Hickory	85%	85%	93%	85%	97%
Average	84%	85%	84%	84%	88%

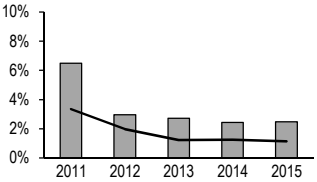
Effectiveness Measures

Percentage of Existing Pipeline Replaced or Rehabbed



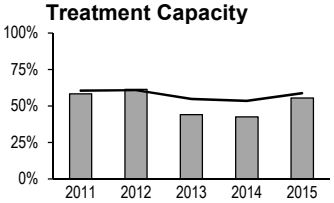
	2011	2012	2013	2014	2015
Hickory	0.00%	0.00%	0.02%	0.00%	0.05%
Average	0.19%	0.20%	0.15%	0.22%	0.10%

Percentage of Water Bills Not Collected



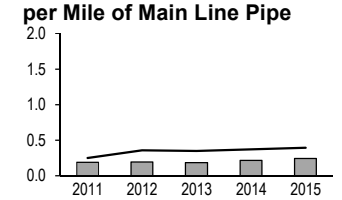
	2011	2012	2013	2014	2015
Hickory	6.50%	2.96%	2.73%	2.44%	2.47%
Average	3.34%	1.98%	1.23%	1.26%	1.14%

Peak Daily Demand as a Percentage of Treatment Capacity



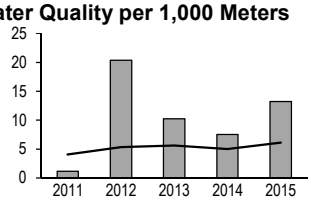
	2011	2012	2013	2014	2015
Hickory	58%	61%	44%	43%	55%
Average	61%	61%	55%	54%	59%

Breaks and Leaks per Mile of Main Line Pipe



	2011	2012	2013	2014	2015
Hickory	0.19	0.19	0.19	0.22	0.24
Average	0.25	0.35	0.35	0.37	0.39

Customer Complaints about Water Quality per 1,000 Meters



	2011	2012	2013	2014	2015
Hickory	1.14	20.35	10.26	7.53	13.22
Average	4.06	5.32	5.62	4.96	6.11

Fiscal Year 2014–15

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 109,000 people.

Water sources for the system are two city-owned reservoirs located in the Deep River basin and the Piedmont Triad Regional Water Authority. 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 19 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 with Equifax based on the customer's payment history.

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 several millions gallons per day through the partnership. This has changed the High Point system from a single-pressure zone system to a double-pressure zone system.

Municipal Profile

Estimated Service Population	108,552
Service Land Area (Square Miles)	64.0
Persons per Square Mile	1,696
Topography	Flat; gently rolling
Climate	Temperate; little ice and snow
Median Family Income U.S. Census 2010	$49,720

Service Profile

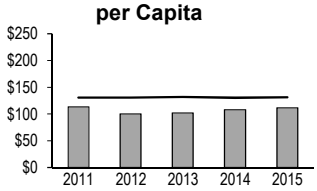
FTE Staff Positions	
Treatment Plant	14.0
Line Crews	20.5
Meter Readers	5.0
Billing/Collection	4.0
Other	14.5
Total	58.0
Number of Treatment Plants	1
Total Treatment Capacity	24.0 MG
Average Daily Demand	12.4 MG
Miles of Main Line Pipe	613
Average Age of Main Line Pipe	41 years
Number of Breaks/Leaks	235
Number of Water Meters	42,235
Percent of Meters Read Automatically	18.9%
Total Revenues Collected	$16,976,995

Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	28.0%
Operating Costs	40.0%
Capital Costs	32.1%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$3,383,445
Operating Costs	$4,831,551
Capital Costs	$3,878,470
TOTAL	$12,093,466

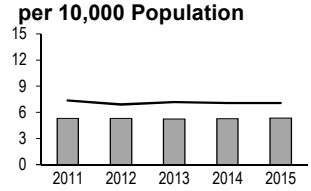
Resource Measures

Water Services Cost per Capita



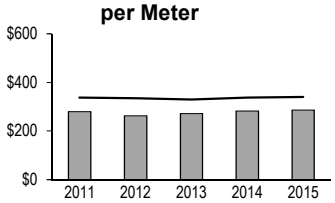
	2011	2012	2013	2014	2015
High Point	$113	$100	$102	$108	$111
Average	$131	$130	$132	$130	$131

Water Services FTEs per 10,000 Population



	2011	2012	2013	2014	2015
High Point	5.3	5.3	5.2	5.3	5.3
Average	7.4	6.9	7.2	7.1	7.1

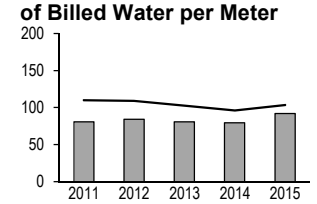
Water Services Cost per Meter



	2011	2012	2013	2014	2015
High Point	$280	$263	$271	$282	$286
Average	$338	$335	$329	$337	$340

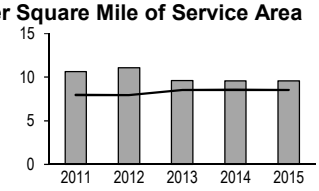
Workload Measures

Thousands of Gallons of Billed Water per Meter



	2011	2012	2013	2014	2015
High Point	80.6	84.3	80.5	79.2	92.0
Average	110.0	109.1	102.9	96.1	103.8

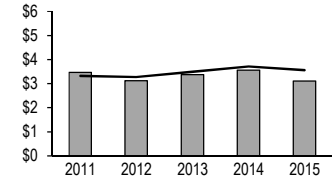
Miles of Main Line Pipe per Square Mile of Service Area



	2011	2012	2013	2014	2015
High Point	10.6	11.1	9.6	9.6	9.6
Average	8.0	8.0	8.5	8.6	8.6

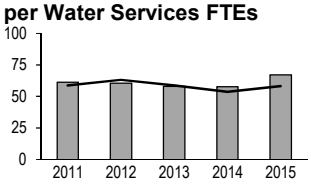
Efficiency Measures

Total Cost per Thousand Gallons of Billed Water



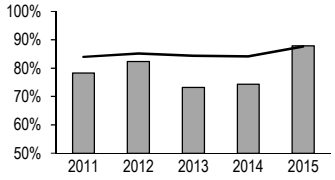
	2011	2012	2013	2014	2015
High Point	$3.47	$3.12	$3.37	$3.56	$3.11
Average	$3.31	$3.28	$3.49	$3.71	$3.56

Million Gallons of Billed Water per Water Services FTEs



	2011	2012	2013	2014	2015
High Point	61.2	60.5	57.9	57.7	67.0
Average	58.6	63.2	58.8	53.7	58.2

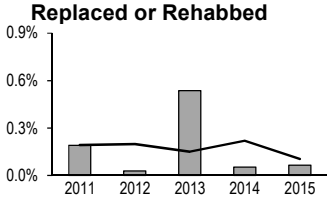
Billed Water as a Percentage of Finished Water



	2011	2012	2013	2014	2015
High Point	78%	82%	73%	74%	88%
Average	84%	85%	84%	84%	88%

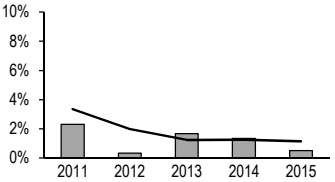
Effectiveness Measures

Percentage of Existing Pipeline Replaced or Rehabbed



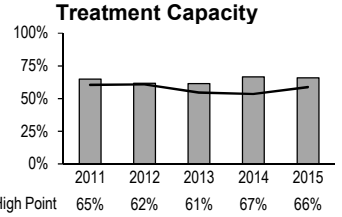
	2011	2012	2013	2014	2015
High Point	0.19%	0.03%	0.54%	0.05%	0.07%
Average	0.19%	0.20%	0.15%	0.22%	0.10%

Percentage of Water Bills Not Collected



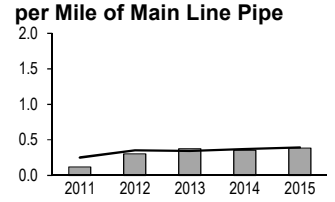
	2011	2012	2013	2014	2015
High Point	2.30%	0.33%	1.67%	1.35%	0.50%
Average	3.34%	1.98%	1.23%	1.26%	1.14%

Peak Daily Demand as a Percentage of Treatment Capacity



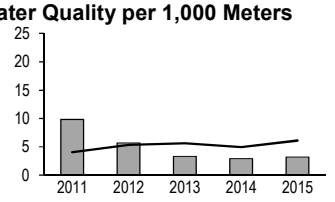
	2011	2012	2013	2014	2015
High Point	65%	62%	61%	67%	66%
Average	61%	61%	55%	54%	59%

Breaks and Leaks per Mile of Main Line Pipe



	2011	2012	2013	2014	2015
High Point	0.12	0.30	0.37	0.35	0.38
Average	0.25	0.35	0.35	0.37	0.39

Customer Complaints about Water Quality per 1,000 Meters



	2011	2012	2013	2014	2015
High Point	9.87	5.68	3.30	2.94	3.22
Average	4.06	5.32	5.62	4.96	6.11

Fiscal Year 2014–15

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 47.4 square miles and covers much of Rowan County. Approximately 53,000 people are served. In the late 1990s and early 2000s, Salisbury assumed ownership of the water and sewer systems of the towns of Spencer, Granite Quarry, and Rockwell, followed by China Grove in 2011. 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 to 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. Currently, approximately 11 percent of meters are 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.

Municipal Profile

Estimated Service Population	53,325
Service Land Area (Square Miles)	47.4
Persons per Square Mile	1,125
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	11.5
Meter Readers	10.0
Billing/Collection	5.5
Other	8.0
Total	43.0
Number of Treatment Plants	1
Total Treatment Capacity	25.0 MG
Average Daily Demand	9.2 MG
Miles of Main Line Pipe	420
Average Age of Main Line Pipe	48 years
Number of Breaks/Leaks	175
Number of Water Meters	19,003
Percent of Meters Read Automatically	11.1%
Total Revenues Collected	NA

Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	23.9%
Operating Costs	44.3%
Capital Costs	31.9%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,848,662
Operating Costs	$3,426,662
Capital Costs	$2,465,459
TOTAL	$7,740,783

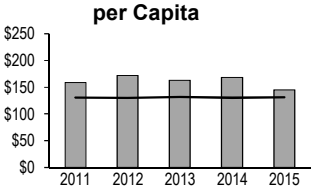
Salisbury

Water Services

Key: Salisbury ■ Benchmarking Average — Fiscal Years 2011 through 2015

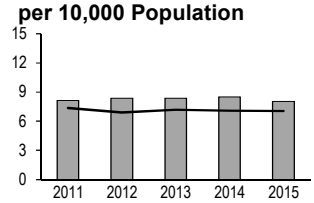
Resource Measures

Water Services Cost per Capita



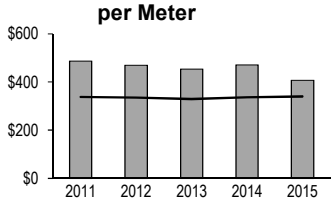
	2011	2012	2013	2014	2015
Salisbury	$159	$172	$163	$168	$145
Average	$131	$130	$132	$130	$131

Water Services FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Salisbury	8.2	8.4	8.4	8.5	8.1
Average	7.4	6.9	7.2	7.1	7.1

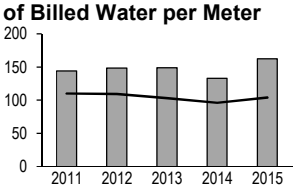
Water Services Cost per Meter



	2011	2012	2013	2014	2015
Salisbury	$488	$469	$453	$471	$407
Average	$338	$335	$329	$337	$340

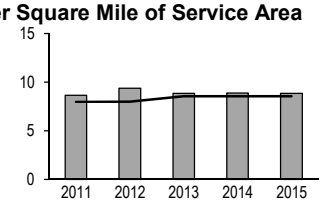
Workload Measures

Thousands of Gallons of Billed Water per Meter



	2011	2012	2013	2014	2015
Salisbury	144.0	148.1	148.6	132.8	162.3
Average	110.0	109.1	102.9	96.1	103.8

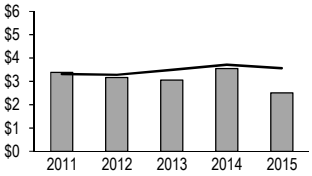
Miles of Main Line Pipe per Square Mile of Service Area



	2011	2012	2013	2014	2015
Salisbury	8.6	9.4	8.9	8.9	8.9
Average	8.0	8.0	8.5	8.6	8.6

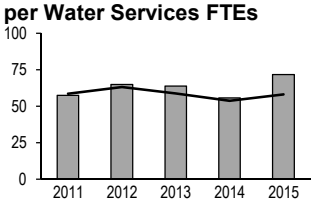
Efficiency Measures

Total Cost per Thousand Gallons of Billed Water



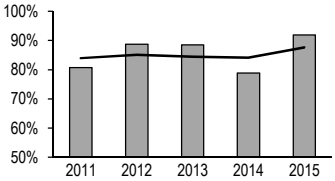
	2011	2012	2013	2014	2015
Salisbury	$3.39	$3.17	$3.05	$3.55	$2.51
Average	$3.31	$3.28	$3.49	$3.71	$3.56

Million Gallons of Billed Water per Water Services FTEs



	2011	2012	2013	2014	2015
Salisbury	57.6	64.9	63.9	55.8	71.7
Average	58.6	63.2	58.8	53.7	58.2

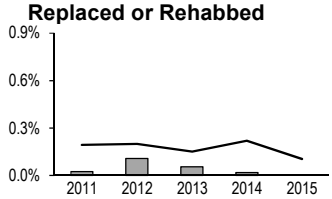
Billed Water as a Percentage of Finished Water



	2011	2012	2013	2014	2015
Salisbury	81%	89%	89%	79%	92%
Average	84%	85%	84%	84%	88%

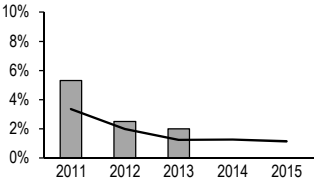
Effectiveness Measures

Percentage of Existing Pipeline Replaced or Rehabbed



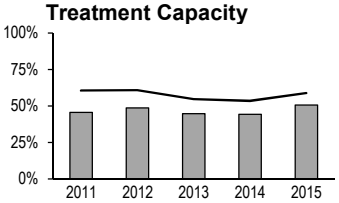
	2011	2012	2013	2014	2015
Salisbury	0.03%	0.11%	0.06%	0.02%	0.00%
Average	0.19%	0.20%	0.15%	0.22%	0.10%

Percentage of Water Bills Not Collected



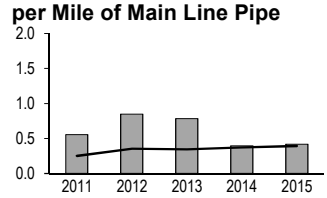
	2011	2012	2013	2014	2015
Salisbury	5.31%	2.50%	2.00%		
Average	3.34%	1.98%	1.23%	1.26%	1.14%

Peak Daily Demand as a Percentage of Treatment Capacity



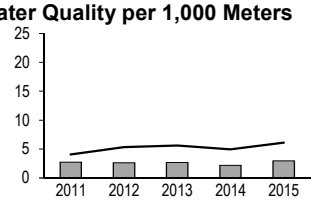
	2011	2012	2013	2014	2015
Salisbury	46%	49%	45%	44%	51%
Average	61%	61%	55%	54%	59%

Breaks and Leaks per Mile of Main Line Pipe



	2011	2012	2013	2014	2015
Salisbury	0.55	0.85	0.78	0.39	0.42
Average	0.25	0.35	0.35	0.37	0.39

Customer Complaints about Water Quality per 1,000 Meters



	2011	2012	2013	2014	2015
Salisbury	2.73	2.62	2.70	2.17	2.95
Average	4.06	5.32	5.62	4.96	6.11

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery
Water services in Wilson 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 52,000 people over 39 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 7 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.

Due to better mapping accuracy, the reported service area decreased from 99 to 39 square miles. The improved mapping more precisely defined which areas were in the service area and excluded broader areas that were previously included in the area calculations. This apparent jump in the miles of pipe per square mile in FY 2012–13 is a result of this improved accuracy of the area served and not due to the laying of more pipe.

Municipal Profile

Estimated Service Population	51,600
Service Land Area (Square Miles)	39.0
Persons per Square Mile	1,323
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	17.0
Line Crews	18.0
Meter Readers	2.0
Billing/Collection	2.0
Other	1.0
Total	40.0
Number of Treatment Plants	2
Total Treatment Capacity	22.0 MG
Average Daily Demand	8.6 MG
Miles of Main Line Pipe	420
Average Age of Main Line Pipe	43 years
Number of Breaks/Leaks	81
Number of Water Meters	21,637
Percent of Meters Read Automatically	7.4%
Total Revenues Collected	$10,914,451

Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	30.8%
Operating Costs	44.9%
Capital Costs	24.3%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$3,116,949
Operating Costs	$4,543,537
Capital Costs	$2,460,160
TOTAL	$10,120,646

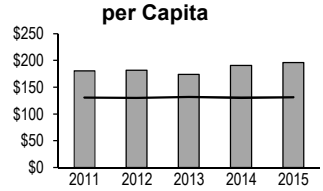
Wilson

Water Services

Key: Wilson ■ Benchmarking Average — Fiscal Years 2011 through 2015

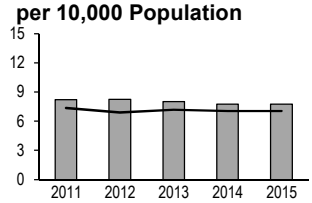
Resource Measures

Water Services Cost per Capita



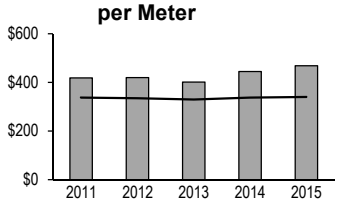
	2011	2012	2013	2014	2015
Wilson	$180	$182	$174	$191	$196
Average	$131	$130	$132	$130	$131

Water Services FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Wilson	8.2	8.2	8.0	7.8	7.8
Average	7.4	6.9	7.2	7.1	7.1

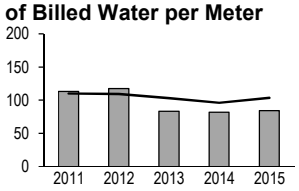
Water Services Cost per Meter



	2011	2012	2013	2014	2015
Wilson	$418	$420	$401	$444	$468
Average	$338	$335	$329	$337	$340

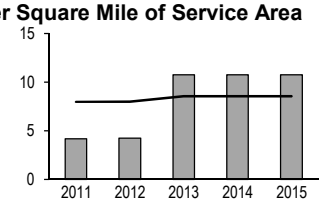
Workload Measures

Thousands of Gallons of Billed Water per Meter



	2011	2012	2013	2014	2015
Wilson	112.9	117.5	83.1	81.6	84.2
Average	110.0	109.1	102.9	96.1	103.8

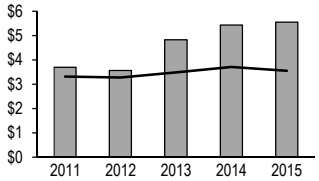
Miles of Main Line Pipe per Square Mile of Service Area



	2011	2012	2013	2014	2015
Wilson	4.2	4.2	10.7	10.8	10.8
Average	8.0	8.0	8.5	8.6	8.6

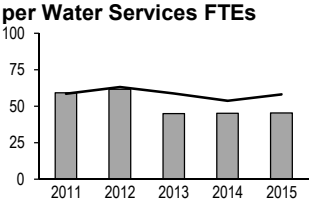
Efficiency Measures

Total Cost per Thousand Gallons of Billed Water



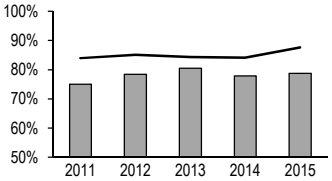
	2011	2012	2013	2014	2015
Wilson	$3.70	$3.57	$4.83	$5.44	$5.56
Average	$3.31	$3.28	$3.49	$3.71	$3.56

Million Gallons of Billed Water per Water Services FTEs



	2011	2012	2013	2014	2015
Wilson	59.4	61.7	45.0	45.3	45.5
Average	58.6	63.2	58.8	53.7	58.2

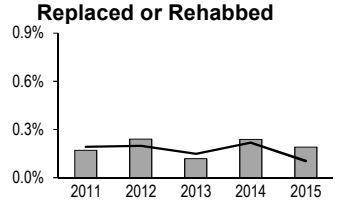
Billed Water as a Percentage of Finished Water



	2011	2012	2013	2014	2015
Wilson	75%	78%	80%	78%	79%
Average	84%	85%	84%	84%	88%

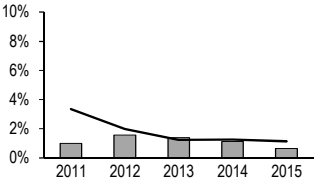
Effectiveness Measures

Percentage of Existing Pipeline Replaced or Rehabbed



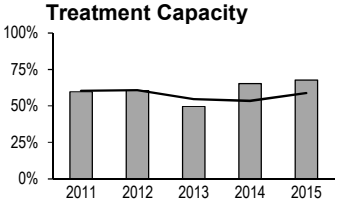
	2011	2012	2013	2014	2015
Wilson	0.17%	0.24%	0.12%	0.24%	0.19%
Average	0.19%	0.20%	0.15%	0.22%	0.10%

Percentage of Water Bills Not Collected



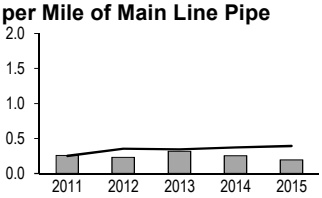
	2011	2012	2013	2014	2015
Wilson	1.00%	1.57%	1.39%	1.13%	0.64%
Average	3.34%	1.98%	1.23%	1.26%	1.14%

Peak Daily Demand as a Percentage of Treatment Capacity



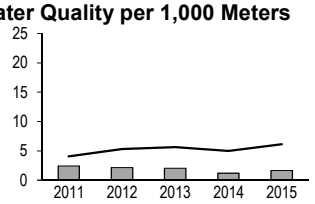
	2011	2012	2013	2014	2015
Wilson	60%	61%	50%	65%	68%
Average	61%	61%	55%	54%	59%

Breaks and Leaks per Mile of Main Line Pipe



	2011	2012	2013	2014	2015
Wilson	0.26	0.23	0.32	0.25	0.19
Average	0.25	0.35	0.35	0.37	0.39

Customer Complaints about Water Quality per 1,000 Meters



	2011	2012	2013	2014	2015
Wilson	2.45	2.13	2.03	1.17	1.66
Average	4.06	5.32	5.62	4.96	6.11

Fiscal Year 2014–15

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 336,000 people are served in an area covering roughly 366 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 drawn from 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 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 2,273 miles of pipeline. 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 13 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	336,243
Service Land Area (Square Miles)	366.0
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	53.0
Line Crews	76.0
Meter Readers	8.0
Billing/Collection	9.0
Other	20.0
Total	166.0
Number of Treatment Plants	3
Total Treatment Capacity	91.0 MG
Average Daily Demand	36.1 MG
Miles of Main Line Pipe	2,273
Average Age of Main Line Pipe	75 years
Number of Breaks/Leaks	430
Number of Water Meters	125,562
Percent of Meters Read Automatically	12.8%
Total Revenues Collected	$51,536,782

Full Cost Profile

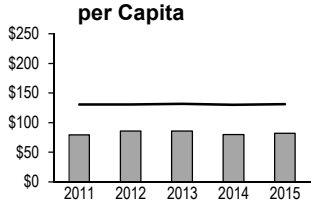
Cost Breakdown by Percentage	
Personal Services	24.4%
Operating Costs	38.5%
Capital Costs	37.1%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$7,358,504
Operating Costs	$11,604,810
Capital Costs	$11,161,378
TOTAL	$30,124,692

Winston-Salem Water Services

Key: Winston-Salem ■ Benchmarking Average — Fiscal Years 2011 through 2015

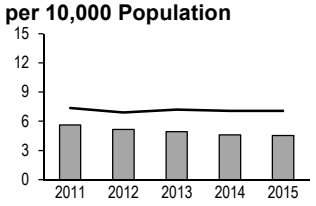
Resource Measures

Water Services Cost per Capita



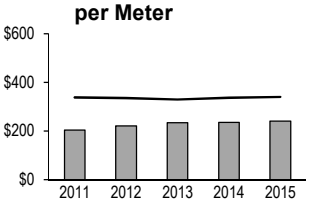
	2011	2012	2013	2014	2015
Winston-Salem	$80	$86	$86	$80	$82
Average	$131	$130	$132	$130	$131

Water Services FTEs per 10,000 Population



	2011	2012	2013	2014	2015
Winston-Salem	5.6	5.1	4.9	4.6	4.5
Average	7.4	6.9	7.2	7.1	7.1

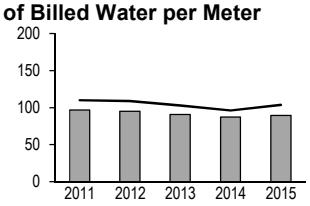
Water Services Cost per Meter



	2011	2012	2013	2014	2015
Winston-Salem	$204	$220	$233	$235	$240
Average	$338	$335	$329	$337	$340

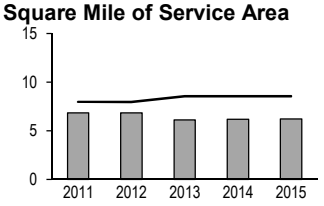
Workload Measures

Thousands of Gallons of Billed Water per Meter



	2011	2012	2013	2014	2015
Winston-Salem	97.0	95.2	90.8	87.1	89.6
Average	110.0	109.1	102.9	96.1	103.8

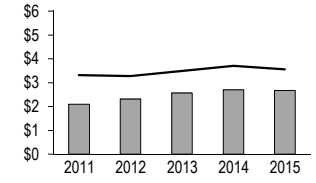
Miles of Main Line Pipe per Square Mile of Service Area



	2011	2012	2013	2014	2015
Winston-Salem	6.8	6.9	6.1	6.2	6.2
Average	8.0	8.0	8.5	8.6	8.6

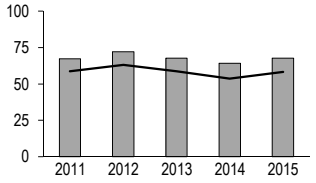
Efficiency Measures

Total Cost per Thousand Gallons of Billed Water



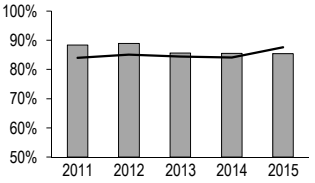
	2011	2012	2013	2014	2015
Winston-Salem	$2.10	$2.32	$2.57	$2.70	$2.68
Average	$3.31	$3.28	$3.49	$3.71	$3.56

Million Gallons of Billed Water per Water Services FTEs



	2011	2012	2013	2014	2015
Winston-Salem	67.2	72.2	67.6	64.2	67.8
Average	58.6	63.2	58.8	53.7	58.2

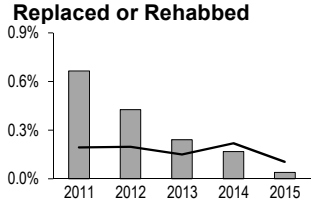
Billed Water as a Percentage of Finished Water



	2011	2012	2013	2014	2015
Winston-Salem	88%	89%	86%	86%	85%
Average	84%	85%	84%	84%	88%

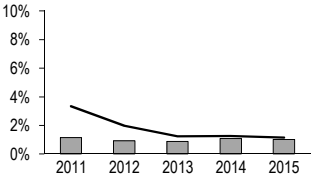
Effectiveness Measures

Percentage of Existing Pipeline Replaced or Rehabbed



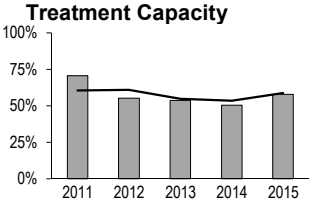
	2011	2012	2013	2014	2015
Winston-Salem	0.67%	0.43%	0.24%	0.17%	0.04%
Average	0.19%	0.20%	0.15%	0.22%	0.10%

Percentage of Water Bills Not Collected



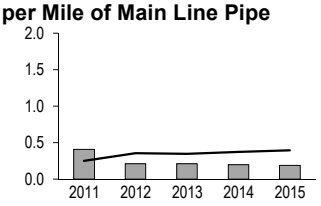
	2011	2012	2013	2014	2015
Winston-Salem	1.16%	0.93%	0.87%	1.08%	1.02%
Average	3.34%	1.98%	1.23%	1.26%	1.14%

Peak Daily Demand as a Percentage of Treatment Capacity



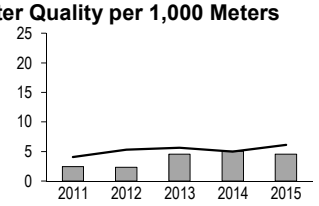
	2011	2012	2013	2014	2015
Winston-Salem	71%	55%	54%	50%	58%
Average	61%	61%	55%	54%	59%

Breaks and Leaks per Mile of Main Line Pipe



	2011	2012	2013	2014	2015
Winston-Salem	0.41	0.21	0.21	0.20	0.19
Average	0.25	0.35	0.35	0.37	0.39

Customer Complaints about Water Quality per 1,000 Meters



	2011	2012	2013	2014	2015
Winston-Salem	2.45	2.34	4.55	5.07	4.56
Average	4.06	5.32	5.62	4.96	6.11

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Performance and Cost Data

WASTEWATER SERVICES

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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 Main Line 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 Accounts	Sewer System FTE Positions
Apex	45,317	18.0	1	2.7	9.7	206.3	14,485	24.5
Cary	172,762	75.5	3	15.8	42.8	930.0	57,357	109.4
Concord	87,654	109.6	0	NA	NA	552.5	33,229	40.5
Greensboro	279,651	148.0	2	32.0	56.0	1,482.9	100,639	156.5
Hickory	37,478	51.2	3	5.2	15.2	500.0	15,131	44.0
High Point	108,552	64.0	2	14.6	32.2	670.4	38,968	91.5
Salisbury	52,250	45.4	2	6.3	12.5	428.2	16,068	55.0
Wilson	53,600	34.0	1	9.9	14.0	355.0	19,735	63.0
Winston-Salem	366,243	366.0	2	29.2	51.0	1,750.0	96,258	183.0

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 2014–15

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, biological nutrient 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 violations for the fiscal year.

Conditions Affecting Service, Performance, and Costs
Wastewater Services was added as 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	45,317
Service Land Area (Square Miles)	18.0
Persons per Square Mile	2,518
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	8.5
Line Crews	12.0
Billing/Collection	2.0
Other	2.0
Number of Treatment Plants	1
Total Treatment Capacity	3.6 MGD
Average Daily Flow	2.7 MGD
River Basin into Which System Discharges	Neuse
Miles of Gravity Main Line Pipe	179
Miles of Forced Main Line Pipe	27
Average Age of Main Line Pipe	19 years
Blocks in Sewer Mains	44
Number of System Breaks	60
Sanitary System Overflows	3
Number of Customer Accounts	14,485
Total Revenues Collected	$10,070,236

Full Cost Profile

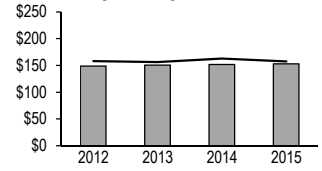
Cost Breakdown by Percentage	
Personal Services	35.0%
Operating Costs	40.7%
Capital Costs	24.3%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$2,430,206
Operating Costs	$2,819,850
Capital Costs	$1,686,437
TOTAL	$6,936,493

Apex Wastewater Services

Key: Apex ■ Benchmarking Average — Fiscal Years 2012 through 2015

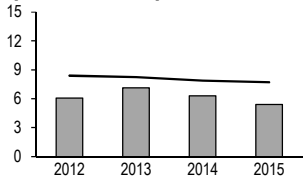
Resource Measures

Wastewater Services Cost per Capita



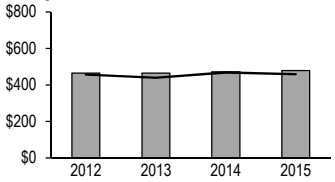
	2012	2013	2014	2015
Apex	$149	$151	$152	$153
Average	$158	$156	$163	$158

Waterwater Services FTEs per 10,000 Population



	2012	2013	2014	2015
Apex	6.1	7.1	6.3	5.4
Average	8.4	8.3	7.9	7.7

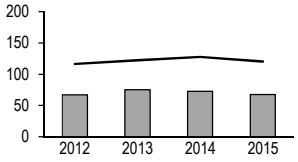
Waterwaste Services Cost per Customer Account



	2012	2013	2014	2015
Apex	$464	$464	$471	$479
Average	$457	$440	$468	$460

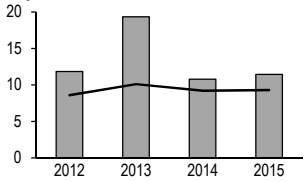
Workload Measures

Thousands of Gallons of Wastewater per Account



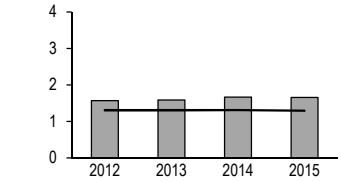
	2012	2013	2014	2015
Apex	66.9	75.0	72.8	67.6
Average	116.4	122.4	127.7	120.1

Miles of Sewer Main Line Pipe per Square Mile of Service Area



	2012	2013	2014	2015
Apex	11.8	19.3	10.8	11.5
Average	8.6	10.1	9.2	9.3

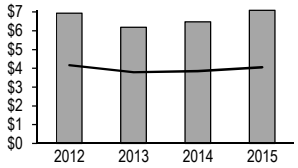
Number of Lift Stations per 1,000 Accounts



	2012	2013	2014	2015
Apex	1.57	1.59	1.66	1.66
Average	1.31	1.31	1.31	1.29

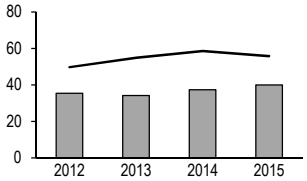
Efficiency Measures

Total Cost per 1,000 Gallons of Treated Wastewater



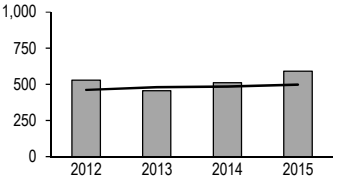
	2012	2013	2014	2015
Apex	$6.94	$6.19	$6.47	$7.09
Average	$4.16	$3.79	$3.85	$4.06

Million Gallons of Wastewater per Wastewater Services FTE



	2012	2013	2014	2015
Apex	35.4	34.3	37.3	39.9
Average	49.8	55.0	58.6	55.7

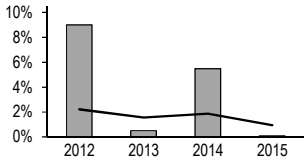
Customer Accounts per Wastewater Services FTE



	2012	2013	2014	2015
Apex	530	457	513	591
Average	462	481	485	498

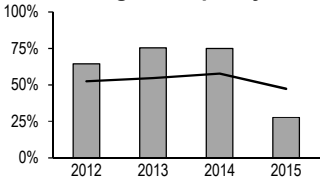
Effectiveness Measures

Percentage of Wastewater Bills Not Collected



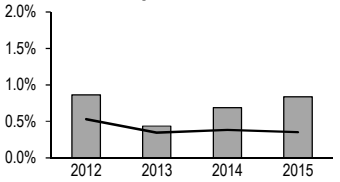
	2012	2013	2014	2015
Apex	9.00%	0.50%	5.48%	0.10%
Average	2.22%	1.56%	1.86%	0.95%

Average Daily Treatment as a Percentage of Capacity



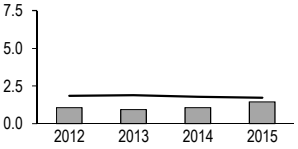
	2012	2013	2014	2015
Apex	64.5%	75.6%	75.0%	27.6%
Average	52.5%	54.6%	57.8%	47.4%

Percent of Main Line Rehabbed or Replaced



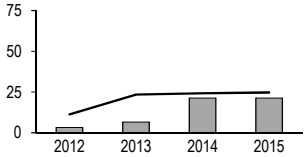
	2012	2013	2014	2015
Apex	0.86%	0.44%	0.69%	0.84%
Average	0.53%	0.35%	0.38%	0.35%

Overflows per 100 Miles of Main Line Pipe



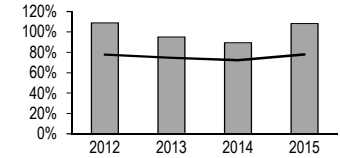
	2012	2013	2014	2015
Apex	1.06	0.94	1.06	1.45
Average	1.85	1.89	1.79	1.72

Backups per 100 Miles of Main Line Pipe



	2012	2013	2014	2015
Apex	3.17	6.61	21.25	21.33
Average	11.36	23.47	24.22	24.78

Billed Wastewater as a Percent of Treated Effluent



	2012	2013	2014	2015
Apex	109%	95%	90%	108%
Average	78%	75%	72%	78%

Fiscal Year 2014–15

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.

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 that 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 seven violations associated with the collection system. These collection violations were due to sanitary system overflows.

Conditions Affecting Service, Performance, and Costs

Wastewater Services was added as 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	172,762
Service Land Area (Square Miles)	75
Persons per Square Mile	2,303
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	55.2
Billing/Collection	8.0
Other	11.3
Number of Treatment Plants	3
Total Treatment Capacity	42.8 MGD
Average Daily Flow	15.8 MGD
River Basin into Which System Discharges	Neuse and Cape Fear
Miles of Gravity Main Line Pipe	847
Miles of Forced Main Line Pipe	83
Average Age of Main Line Pipe	NA
Blocks in Sewer Mains	534
Number of System Breaks	9
Sanitary System Overflows	7
Number of Customer Accounts	57,357
Total Revenues Collected	$37,671,870

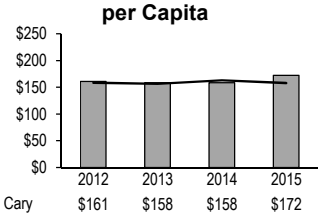
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	30.5%
Operating Costs	39.7%
Capital Costs	29.8%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$9,088,708
Operating Costs	$11,818,025
Capital Costs	$8,889,652
TOTAL	$29,796,385

Key: Cary ■ Benchmarking Average — Fiscal Years 2012 through 2015

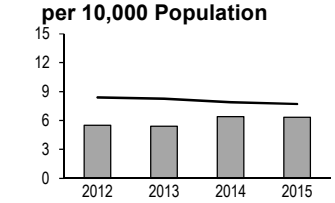
Resource Measures

Wastewater Services Cost per Capita



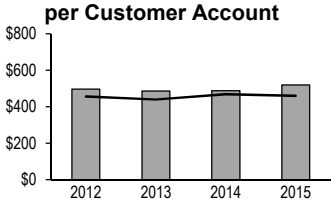
	2012	2013	2014	2015
Cary	$161	$158	$158	$172
Average	$158	$156	$163	$158

Waterwater Services FTEs per 10,000 Population



	2012	2013	2014	2015
Cary	5.5	5.4	6.4	6.3
Average	8.4	8.3	7.9	7.7

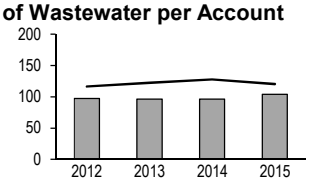
Waterwaste Services Cost per Customer Account



	2012	2013	2014	2015
Cary	$496	$485	$488	$519
Average	$457	$440	$468	$460

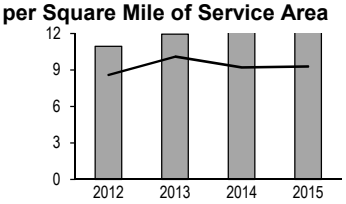
Workload Measures

Thousands of Gallons of Wastewater per Account



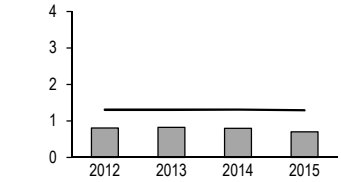
	2012	2013	2014	2015
Cary	97.2	96.4	96.3	104.1
Average	116.4	122.4	127.7	120.1

Miles of Sewer Main Line Pipe per Square Mile of Service Area



	2012	2013	2014	2015
Cary	11.0	11.9	12.1	12.3
Average	8.6	10.1	9.2	9.3

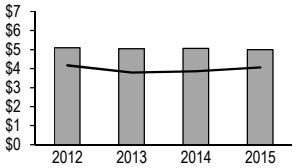
Number of Lift Stations per 1,000 Accounts



	2012	2013	2014	2015
Cary	0.80	0.82	0.80	0.70
Average	1.31	1.31	1.31	1.29

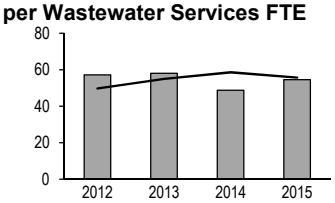
Efficiency Measures

Total Cost per 1,000 Gallons of Treated Wastewater



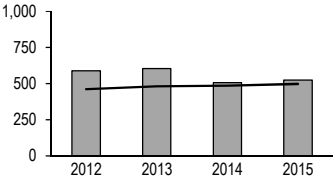
	2012	2013	2014	2015
Cary	$5.10	$5.04	$5.06	$4.99
Average	$4.16	$3.79	$3.85	$4.06

Million Gallons of Wastewater per Wastewater Services FTE



	2012	2013	2014	2015
Cary	57.2	58.2	48.9	54.6
Average	49.8	55.0	58.6	55.7

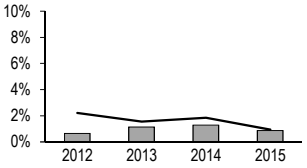
Customer Accounts per Wastewater Services FTE



	2012	2013	2014	2015
Cary	589	604	508	524
Average	462	481	485	498

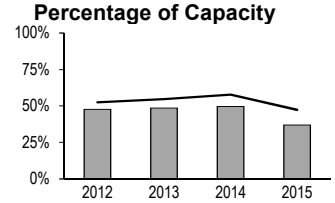
Effectiveness Measures

Percentage of Wastewater Bills Not Collected



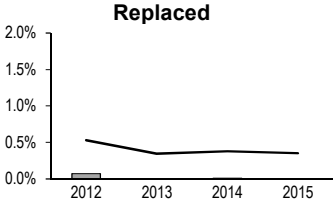
	2012	2013	2014	2015
Cary	0.65%	1.14%	1.28%	0.87%
Average	2.22%	1.56%	1.86%	0.95%

Average Daily Treatment as a Percentage of Capacity



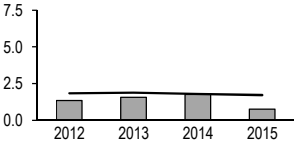
	2012	2013	2014	2015
Cary	47.7%	48.5%	49.8%	36.9%
Average	52.5%	54.6%	57.8%	47.4%

Percent of Main Line Rehabbed or Replaced



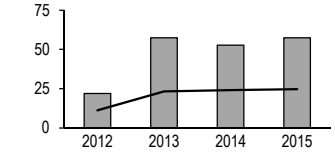
	2012	2013	2014	2015
Cary	0.07%	0.00%	0.01%	0.00%
Average	0.53%	0.35%	0.38%	0.35%

Overflows per 100 Miles of Main Line Pipe



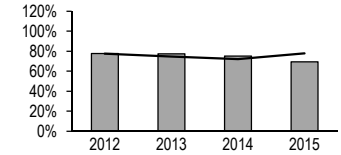
	2012	2013	2014	2015
Cary	1.34	1.55	1.75	0.75
Average	1.85	1.89	1.79	1.72

Backups per 100 Miles of Main Line Pipe



	2012	2013	2014	2015
Cary	21.90	57.49	52.72	57.42
Average	11.36	23.47	24.22	24.78

Billed Wastewater as a Percent of Treated Effluent



	2012	2013	2014	2015
Cary	78%	77%	75%	69%
Average	78%	75%	72%	78%

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery

The City of Concord has a Wastewater Department that focuses on the inspection, maintenance, and repair of the wastewater 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 no regulatory violations during the fiscal year.

Conditions Affecting Service, Performance, and Costs

Wastewater Services was added as 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	87,654
Service Land Area (Square Miles)	110
Persons per Square Mile	797
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	25.0
Billing/Collection	10.5
Other	5.0
Number of Treatment Plants	0
Total Treatment Capacity	NA
Average Daily Flow	7.7 MGD
River Basin into Which System Discharges	Yadkin-Pee Dee
Miles of Gravity Main Line Pipe	541
Miles of Forced Main Line Pipe	12
Average Age of Main Line Pipe	38 years
Blocks in Sewer Mains	3
Number of System Breaks	382
Sanitary System Overflows	2
Number of Customer Accounts	33,229
Total Revenues Collected	$16,055,068

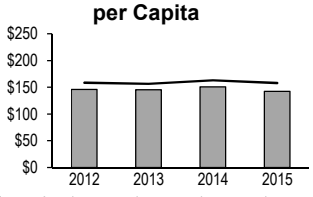
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	16.2%
Operating Costs	60.8%
Capital Costs	23.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$2,025,733
Operating Costs	$7,583,706
Capital Costs	$2,864,022
TOTAL	$12,473,461

Key: Concord ■ Benchmarking Average — Fiscal Years 2012 through 2015

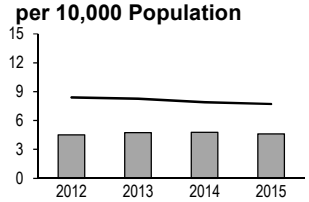
Resource Measures

Wastewater Services Cost per Capita



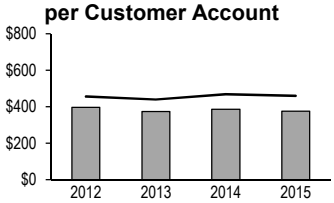
	2012	2013	2014	2015
Concord	$146	$145	$151	$142
Average	$158	$156	$163	$158

Waterwater Services FTEs per 10,000 Population



	2012	2013	2014	2015
Concord	4.5	4.7	4.8	4.6
Average	8.4	8.3	7.9	7.7

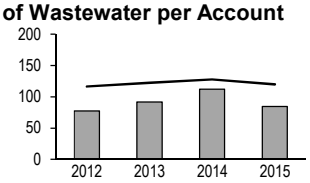
Waterwaste Services Cost per Customer Account



	2012	2013	2014	2015
Concord	$397	$374	$386	$375
Average	$457	$440	$468	$460

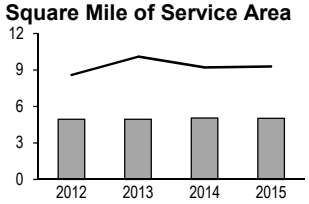
Workload Measures

Thousands of Gallons of Wastewater per Account



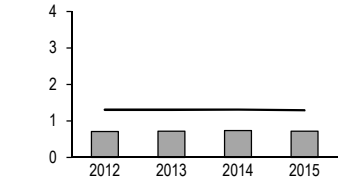
	2012	2013	2014	2015
Concord	77.4	91.8	112.0	84.8
Average	116.4	122.4	127.7	120.1

Miles of Sewer Main Line Pipe per Square Mile of Service Area



	2012	2013	2014	2015
Concord	5.0	5.0	5.0	5.0
Average	8.6	10.1	9.2	9.3

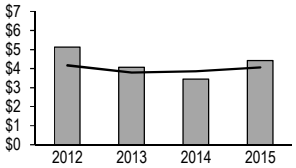
Number of Lift Stations per 1,000 Accounts



	2012	2013	2014	2015
Concord	0.71	0.72	0.74	0.72
Average	1.31	1.31	1.31	1.29

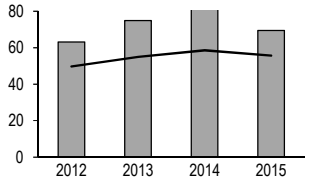
Efficiency Measures

Total Cost per 1,000 Gallons of Treated Wastewater



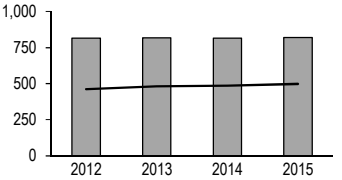
	2012	2013	2014	2015
Concord	$5.13	$4.08	$3.44	$4.43
Average	$4.16	$3.79	$3.85	$4.06

Million Gallons of Wastewater per Wastewater Services FTE



	2012	2013	2014	2015
Concord	63.2	75.0	91.3	69.6
Average	49.8	55.0	58.6	55.7

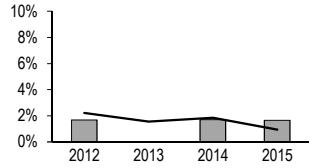
Customer Accounts per Wastewater Services FTE



	2012	2013	2014	2015
Concord	816	817	815	820
Average	462	481	485	498

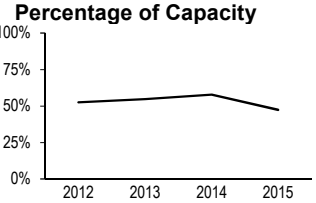
Effectiveness Measures

Percentage of Wastewater Bills Not Collected



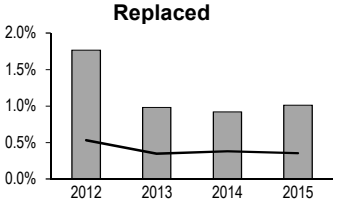
	2012	2013	2014	2015
Concord	1.69%		1.72%	1.65%
Average	2.22%	1.56%	1.86%	0.95%

Average Daily Treatment as a Percentage of Capacity



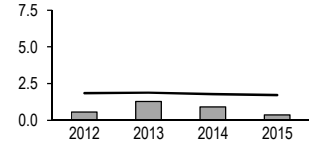
	2012	2013	2014	2015
Concord				
Average	52.5%	54.6%	57.8%	47.4%

Percent of Main Line Rehabbed or Replaced



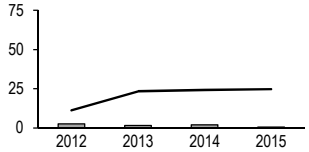
	2012	2013	2014	2015
Concord	1.76%	0.98%	0.92%	1.01%
Average	0.53%	0.35%	0.38%	0.35%

Overflows per 100 Miles of Main Line Pipe



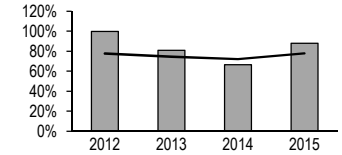
	2012	2013	2014	2015
Concord	0.55	1.29	0.90	0.36
Average	1.85	1.89	1.79	1.72

Backups per 100 Miles of Main Line Pipe



	2012	2013	2014	2015
Concord	2.58	1.66	1.99	0.54
Average	11.36	23.47	24.22	24.78

Billed Wastewater as a Percent of Treated Effluent



	2012	2013	2014	2015
Concord	100%	81%	66%	88%
Average	78%	75%	72%	78%

Fiscal Year 2014–15

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 services. The Director of Water Resources reports to the city manager. Services are provided to most of the City of Greensboro and to 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 that 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 thirteen regulatory violations connected to the treatment portion of the system and eight violations connected to the collection portion of the system for sainitary system overflows.

Conditions Affecting Service, Performance, and Costs

Wastewater Services was added as 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	279,651
Service Land Area (Square Miles)	148
Persons per Square Mile	1,890
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	49.0
Line Crews	84.5
Billing/Collection	8.0
Other	15.0
Number of Treatment Plants	2
Total Treatment Capacity	56.0 MGD
Average Daily Flow	32.0 MGD
River Basin into Which System Discharges	Cape Fear
Miles of Gravity Main Line Pipe	1,416
Miles of Forced Main Line Pipe	67
Average Age of Main Line Pipe	45 years
Blocks in Sewer Mains	1,138
Number of System Breaks	6
Sanitary System Overflows	8
Number of Customer Accounts	100,639
Total Revenues Collected	$53,030,077

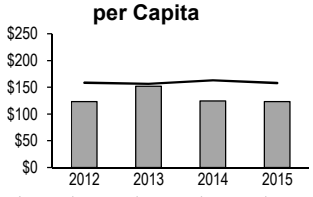
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	18.9%
Operating Costs	56.2%
Capital Costs	24.9%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$6,517,814
Operating Costs	$19,389,376
Capital Costs	$8,594,200
TOTAL	$34,501,390

Key: Greensboro ■ Benchmarking Average — Fiscal Years 2012 through 2015

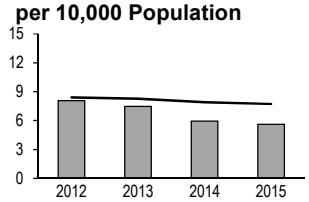
Resource Measures

Wastewater Services Cost per Capita



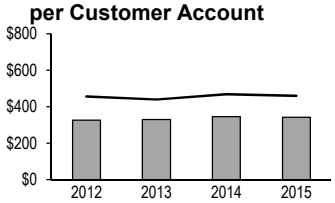
	2012	2013	2014	2015
Greensboro	$123	$152	$124	$123
Average	$158	$156	$163	$158

Waterwater Services FTEs per 10,000 Population



	2012	2013	2014	2015
Greensboro	8.1	7.5	5.9	5.6
Average	8.4	8.3	7.9	7.7

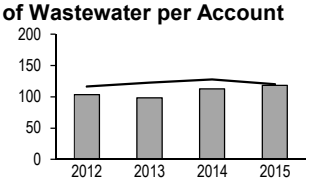
Waterwaste Services Cost per Customer Account



	2012	2013	2014	2015
Greensboro	$327	$329	$345	$343
Average	$457	$440	$468	$460

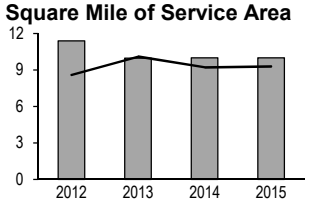
Workload Measures

Thousands of Gallons of Wastewater per Account



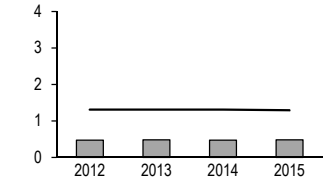
	2012	2013	2014	2015
Greensboro	103.5	98.6	112.6	118.2
Average	116.4	122.4	127.7	120.1

Miles of Sewer Main Line Pipe per Square Mile of Service Area



	2012	2013	2014	2015
Greensboro	11.4	10.0	10.0	10.0
Average	8.6	10.1	9.2	9.3

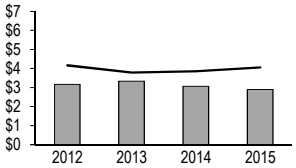
Number of Lift Stations per 1,000 Accounts



	2012	2013	2014	2015
Greensboro	0.47	0.48	0.48	0.49
Average	1.31	1.31	1.31	1.29

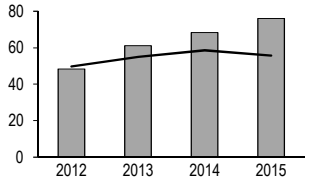
Efficiency Measures

Total Cost per 1,000 Gallons of Treated Wastewater



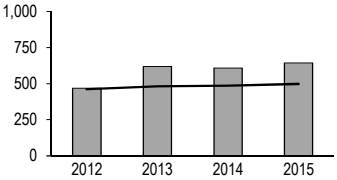
	2012	2013	2014	2015
Greensboro	$3.16	$3.34	$3.06	$2.90
Average	$4.16	$3.79	$3.85	$4.06

Million Gallons of Wastewater per Wastewater Services FTE



	2012	2013	2014	2015
Greensboro	48.3	61.1	68.4	76.0
Average	49.8	55.0	58.6	55.7

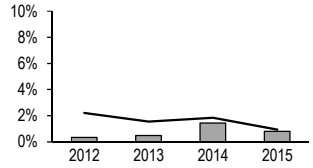
Customer Accounts per Wastewater Services FTE



	2012	2013	2014	2015
Greensboro	467	619	607	643
Average	462	481	485	498

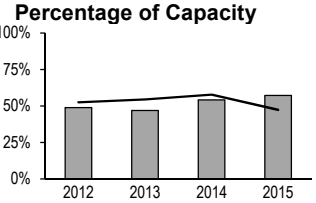
Effectiveness Measures

Percentage of Wastewater Bills Not Collected



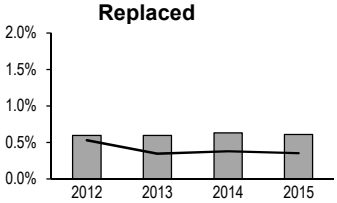
	2012	2013	2014	2015
Greensboro	0.34%	0.50%	1.44%	0.81%
Average	2.22%	1.56%	1.86%	0.95%

Average Daily Treatment as a Percentage of Capacity



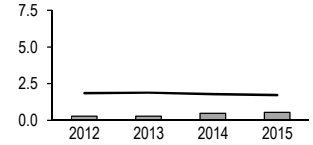
	2012	2013	2014	2015
Greensboro	48.9%	47.0%	54.1%	57.1%
Average	52.5%	54.6%	57.8%	47.4%

Percent of Main Line Rehabbed or Replaced



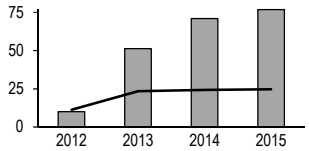
	2012	2013	2014	2015
Greensboro	0.60%	0.60%	0.63%	0.61%
Average	0.53%	0.35%	0.38%	0.35%

Overflows per 100 Miles of Main Line Pipe



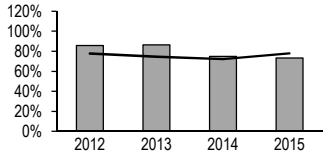
	2012	2013	2014	2015
Greensboro	0.27	0.27	0.47	0.54
Average	1.85	1.89	1.79	1.72

Backups per 100 Miles of Main Line Pipe



	2012	2013	2014	2015
Greensboro	10.02	51.28	70.82	76.74
Average	11.36	23.47	24.22	24.78

Billed Wastewater as a Percent of Treated Effluent



	2012	2013	2014	2015
Greensboro	86%	86%	75%	73%
Average	78%	75%	72%	78%

Fiscal Year 2014–15

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. Biosolids generated are handled as Class A compost.

The system in Hickory had one regulatory violation connected to the treatment portion of the system and eight violations connected to the collection portion of the system during the fiscal year connected to sanitary system overflows.

Conditions Affecting Service, Performance, and Costs
Wastewater Services was added as 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	10.0
Billing/Collection	2.5
Other	2.5
Number of Treatment Plants	3
Total Treatment Capacity	15.2 MGD
Average Daily Flow	5.2 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	43 years
Blocks in Sewer Mains	140
Number of System Breaks	8
Sanitary System Overflows	8
Number of Customer Accounts	15,131
Total Revenues Collected	$9,317,977

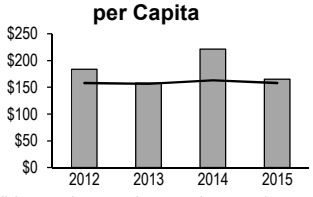
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	32.1%
Operating Costs	39.5%
Capital Costs	28.5%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,988,902
Operating Costs	$2,446,622
Capital Costs	$1,765,059
TOTAL	$6,200,583

Key: Hickory ■ Benchmarking Average — Fiscal Years 2012 through 2015

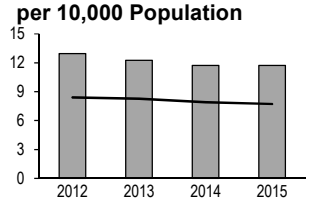
Resource Measures

Wastewater Services Cost per Capita



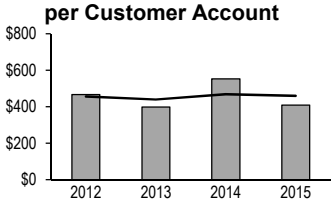
	2012	2013	2014	2015
Hickory	$184	$158	$221	$165
Average	$158	$156	$163	$158

Waterwater Services FTEs per 10,000 Population



	2012	2013	2014	2015
Hickory	12.9	12.3	11.7	11.7
Average	8.4	8.3	7.9	7.7

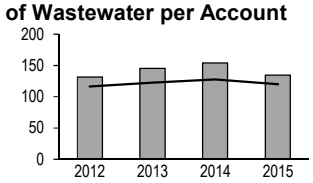
Waterwaste Services Cost per Customer Account



	2012	2013	2014	2015
Hickory	$466	$399	$553	$410
Average	$457	$440	$468	$460

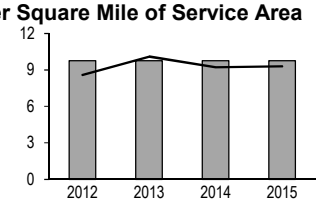
Workload Measures

Thousands of Gallons of Wastewater per Account



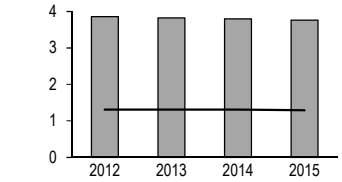
	2012	2013	2014	2015
Hickory	131.9	145.3	154.2	134.7
Average	116.4	122.4	127.7	120.1

Miles of Sewer Main Line Pipe per Square Mile of Service Area



	2012	2013	2014	2015
Hickory	9.8	9.8	9.8	9.8
Average	8.6	10.1	9.2	9.3

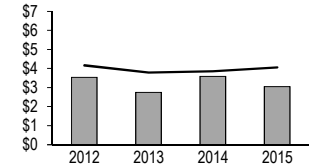
Number of Lift Stations per 1,000 Accounts



	2012	2013	2014	2015
Hickory	3.86	3.83	3.80	3.77
Average	1.31	1.31	1.31	1.29

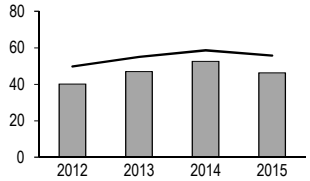
Efficiency Measures

Total Cost per 1,000 Gallons of Treated Wastewater



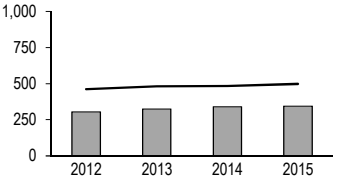
	2012	2013	2014	2015
Hickory	$3.54	$2.74	$3.59	$3.04
Average	$4.16	$3.79	$3.85	$4.06

Million Gallons of Wastewater per Wastewater Services FTE



	2012	2013	2014	2015
Hickory	40.1	47.0	52.5	46.3
Average	49.8	55.0	58.6	55.7

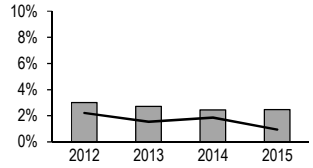
Customer Accounts per Wastewater Services FTE



	2012	2013	2014	2015
Hickory	304	323	341	344
Average	462	481	485	498

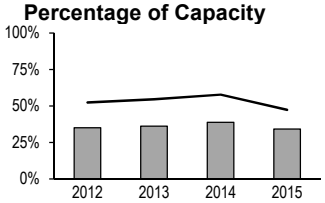
Effectiveness Measures

Percentage of Wastewater Bills Not Collected



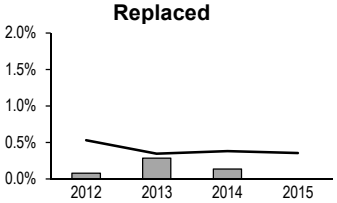
	2012	2013	2014	2015
Hickory	3.00%	2.73%	2.44%	2.47%
Average	2.22%	1.56%	1.86%	0.95%

Average Daily Treatment as a Percentage of Capacity



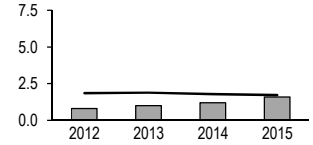
	2012	2013	2014	2015
Hickory	35.0%	36.2%	38.8%	34.1%
Average	52.5%	54.6%	57.8%	47.4%

Percent of Main Line Rehabbed or Replaced



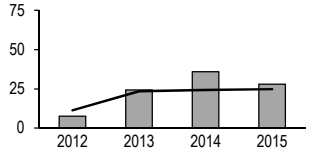
	2012	2013	2014	2015
Hickory	0.08%	0.28%	0.13%	0.00%
Average	0.53%	0.35%	0.38%	0.35%

Overflows per 100 Miles of Main Line Pipe



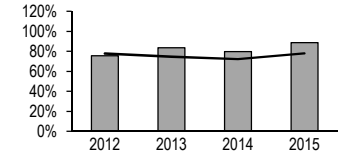
	2012	2013	2014	2015
Hickory	0.80	1.00	1.20	1.60
Average	1.85	1.89	1.79	1.72

Backups per 100 Miles of Main Line Pipe



	2012	2013	2014	2015
Hickory	7.60	24.40	36.00	28.00
Average	11.36	23.47	24.22	24.78

Billed Wastewater as a Percent of Treated Effluent



	2012	2013	2014	2015
Hickory	76%	83%	80%	89%
Average	78%	75%	72%	78%

Fiscal Year 2014–15

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 that 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 two regulatory violations connected to the treatment portion of the system and seventeen violations connected to the collection portion of the system.

Conditions Affecting Service, Performance, and Costs

Wastewater Services was added as 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	108,552
Service Land Area (Square Miles)	64
Persons per Square Mile	1,696
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	34.0
Line Crews	35.0
Billing/Collection	2.0
Other	20.5
Number of Treatment Plants	2
Total Treatment Capacity	32.2 MGD
Average Daily Flow	14.6 MGD
River Basin into Which System Discharges	Yadkin-Pee Dee and Cape Fear
Miles of Gravity Main Line Pipe	655
Miles of Forced Main Line Pipe	16
Average Age of Main Line Pipe	42 years
Blocks in Sewer Mains	121
Number of System Breaks	34
Sanitary System Overflows	26
Number of Customer Accounts	38,968
Total Revenues Collected	$28,353,134

Full Cost Profile

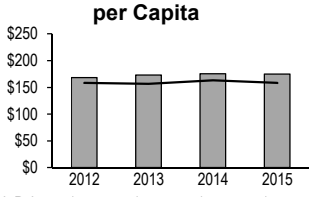
Cost Breakdown by Percentage	
Personal Services	29.9%
Operating Costs	35.1%
Capital Costs	35.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$5,667,514
Operating Costs	$6,667,314
Capital Costs	$6,635,003
TOTAL	$18,969,831

High Point — Wastewater Services

Key: High Point ■ Benchmarking Average — Fiscal Years 2012 through 2015

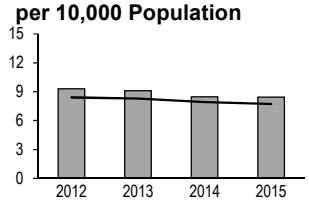
Resource Measures

Wastewater Services Cost per Capita



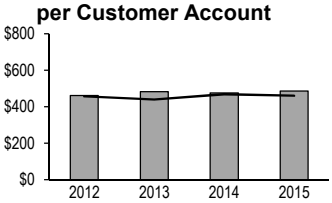
	2012	2013	2014	2015
High Point	$168	$173	$175	$175
Average	$158	$156	$163	$158

Waterwater Services FTEs per 10,000 Population



	2012	2013	2014	2015
High Point	9.3	9.1	8.5	8.4
Average	8.4	8.3	7.9	7.7

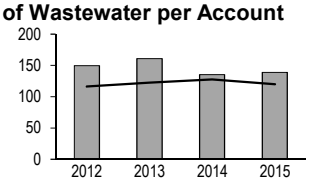
Waterwaste Services Cost per Customer Account



	2012	2013	2014	2015
High Point	$462	$484	$477	$487
Average	$457	$440	$468	$460

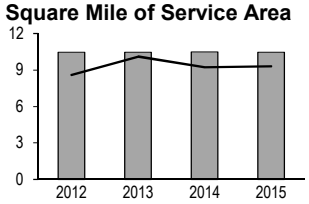
Workload Measures

Thousands of Gallons of Wastewater per Account



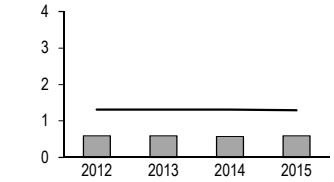
	2012	2013	2014	2015
High Point	150.0	160.8	135.4	138.9
Average	116.4	122.4	127.7	120.1

Miles of Sewer Main Line Pipe per Square Mile of Service Area



	2012	2013	2014	2015
High Point	10.5	10.5	10.5	10.5
Average	8.6	10.1	9.2	9.3

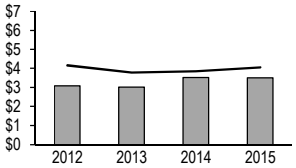
Number of Lift Stations per 1,000 Accounts



	2012	2013	2014	2015
High Point	0.60	0.59	0.57	0.59
Average	1.31	1.31	1.31	1.29

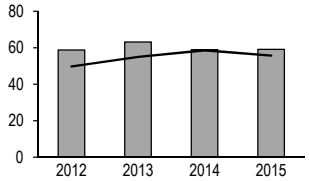
Efficiency Measures

Total Cost per 1,000 Gallons of Treated Wastewater



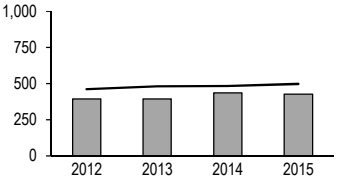
	2012	2013	2014	2015
High Point	$3.08	$3.01	$3.52	$3.50
Average	$4.16	$3.79	$3.85	$4.06

Million Gallons of Wastewater per Wastewater Services FTE



	2012	2013	2014	2015
High Point	58.8	63.1	58.8	59.2
Average	49.8	55.0	58.6	55.7

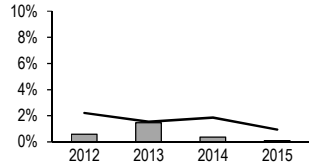
Customer Accounts per Wastewater Services FTE



	2012	2013	2014	2015
High Point	392	392	435	426
Average	462	481	485	498

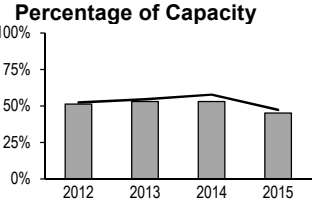
Effectiveness Measures

Percentage of Wastewater Bills Not Collected



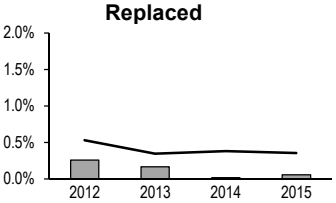
	2012	2013	2014	2015
High Point	0.60%	1.48%	0.38%	0.10%
Average	2.22%	1.56%	1.86%	0.95%

Average Daily Treatment as a Percentage of Capacity



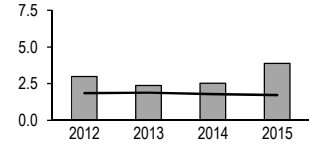
	2012	2013	2014	2015
High Point	51.3%	53.0%	53.0%	45.2%
Average	52.5%	54.6%	57.8%	47.4%

Percent of Main Line Rehabbed or Replaced



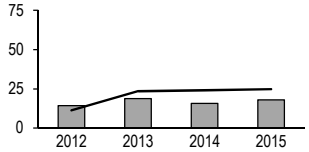
	2012	2013	2014	2015
High Point	0.26%	0.16%	0.02%	0.05%
Average	0.53%	0.35%	0.38%	0.35%

Overflows per 100 Miles of Main Line Pipe



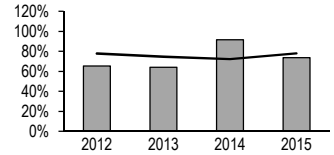
	2012	2013	2014	2015
High Point	2.99	2.39	2.53	3.88
Average	1.85	1.89	1.79	1.72

Backups per 100 Miles of Main Line Pipe



	2012	2013	2014	2015
High Point	14.35	18.81	15.80	18.05
Average	11.36	23.47	24.22	24.78

Billed Wastewater as a Percent of Treated Effluent



	2012	2013	2014	2015
High Point	65%	64%	91%	74%
Average	78%	75%	72%	78%

Fiscal Year 2014–15

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 applied to farmland in Rowan County.

The system had two regulatory violations during the year for issues related to treatment and five violations connected to collections related to sanitary system overflows.

Conditions Affecting Service, Performance, and Costs

Wastewater Services was added as 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	52,250
Service Land Area (Square Miles)	45.4
Persons per Square Mile	1,151
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	19.0
Line Crews	15.0
Billing/Collection	5.5
Other	15.5
Number of Treatment Plants	2
Total Treatment Capacity	12.5 MGD
Average Daily Flow	6.3 MGD
River Basin into Which System Discharges	Yadkin
Miles of Gravity Main Line Pipe	398
Miles of Forced Main Line Pipe	30
Average Age of Main Line Pipe	43 years
Blocks in Sewer Mains	15
Number of System Breaks	0
Sanitary System Overflows	5
Number of Customer Accounts	16,068
Total Revenues Collected	$11,390,579

Full Cost Profile

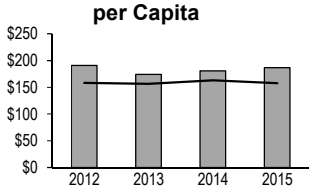
Cost Breakdown by Percentage	
Personal Services	32.4%
Operating Costs	42.4%
Capital Costs	25.3%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$3,158,565
Operating Costs	$4,137,552
Capital Costs	$2,465,459
TOTAL	$9,761,576

Salisbury — Wastewater Services

Key: Salisbury ■ Benchmarking Average — Fiscal Years 2012 through 2015

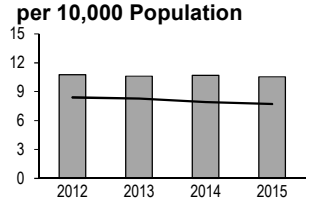
Resource Measures

Wastewater Services Cost per Capita



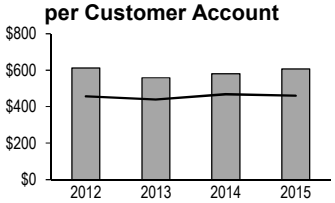
	2012	2013	2014	2015
Salisbury	$191	$175	$181	$187
Average	$158	$156	$163	$158

Waterwater Services FTEs per 10,000 Population



	2012	2013	2014	2015
Salisbury	10.8	10.6	10.7	10.5
Average	8.4	8.3	7.9	7.7

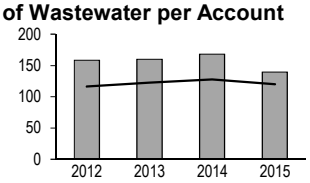
Waterwaste Services Cost per Customer Account



	2012	2013	2014	2015
Salisbury	$613	$559	$582	$608
Average	$457	$440	$468	$460

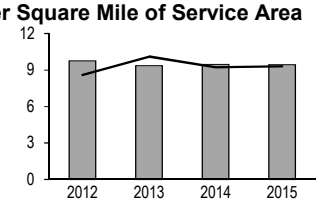
Workload Measures

Thousands of Gallons of Wastewater per Account



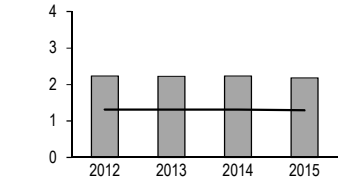
	2012	2013	2014	2015
Salisbury	158.5	160.0	168.0	139.5
Average	116.4	122.4	127.7	120.1

Miles of Sewer Main Line Pipe per Square Mile of Service Area



	2012	2013	2014	2015
Salisbury	9.8	9.4	9.5	9.4
Average	8.6	10.1	9.2	9.3

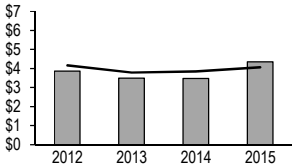
Number of Lift Stations per 1,000 Accounts



	2012	2013	2014	2015
Salisbury	2.23	2.22	2.24	2.18
Average	1.31	1.31	1.31	1.29

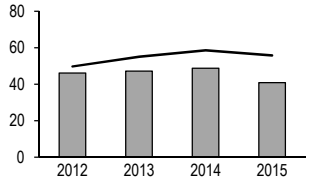
Efficiency Measures

Total Cost per 1,000 Gallons of Treated Wastewater



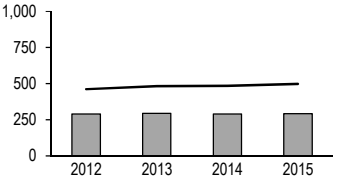
	2012	2013	2014	2015
Salisbury	$3.86	$3.49	$3.47	$4.35
Average	$4.16	$3.79	$3.85	$4.06

Million Gallons of Wastewater per Wastewater Services FTE



	2012	2013	2014	2015
Salisbury	46.0	47.1	48.7	40.8
Average	49.8	55.0	58.6	55.7

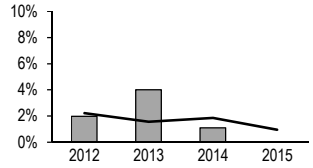
Customer Accounts per Wastewater Services FTE



	2012	2013	2014	2015
Salisbury	290	295	290	292
Average	462	481	485	498

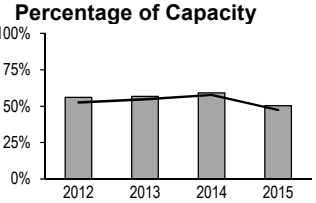
Effectiveness Measures

Percentage of Wastewater Bills Not Collected



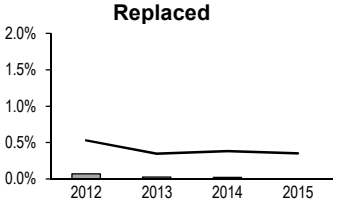
	2012	2013	2014	2015
Salisbury	1.97%	4.00%	1.09%	
Average	2.22%	1.56%	1.86%	0.95%

Average Daily Treatment as a Percentage of Capacity



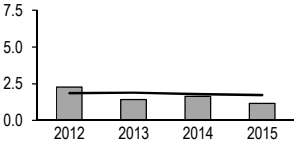
	2012	2013	2014	2015
Salisbury	56.0%	56.8%	59.2%	50.4%
Average	52.5%	54.6%	57.8%	47.4%

Percent of Main Line Rehabbed or Replaced



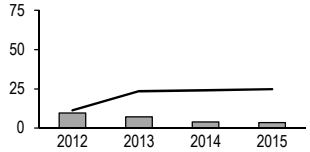
	2012	2013	2014	2015
Salisbury	0.07%	0.03%	0.02%	0.01%
Average	0.53%	0.35%	0.38%	0.35%

Overflows per 100 Miles of Main Line Pipe



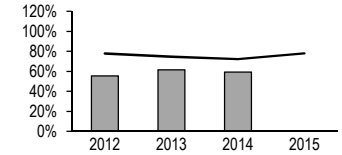
	2012	2013	2014	2015
Salisbury	2.27	1.41	1.63	1.17
Average	1.85	1.89	1.79	1.72

Backups per 100 Miles of Main Line Pipe



	2012	2013	2014	2015
Salisbury	9.75	7.31	3.97	3.50
Average	11.36	23.47	24.22	24.78

Billed Wastewater as a Percent of Treated Effluent



	2012	2013	2014	2015
Salisbury	55%	62%	59%	
Average	78%	75%	72%	78%

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery

Wastewater in Wilson 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 customer billing is handled by the 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 reported four regulatory violations for the treatment portion of the system and no violations for the collection portion of the system during the fiscal year.

Conditions Affecting Service, Performance, and Costs

Wastewater Services was added as 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	53,600
Service Land Area (Square Miles)	34
Persons per Square Mile	1,576
Topography	Flat
Climate	Temperate; little ice and snow
Median Family Income U.S. Census 2010	$43,442

Service Profile

FTE Staff Positions	
Treatment Plant	30.0
Line Crews	30.0
Billing/Collection	2.0
Other	1.0
Number of Treatment Plants	1
Total Treatment Capacity	14.0 MGD
Average Daily Flow	9.9 MGD
River Basin into Which System Discharges	Neuse
Miles of Gravity Main Line Pipe	349
Miles of Forced Main Line Pipe	6
Average Age of Main Line Pipe	40 years
Blocks in Sewer Mains	4
Number of System Breaks	76
Sanitary System Overflows	3
Number of Customer Accounts	19,735
Total Revenues Collected	$12,238,333

Full Cost Profile

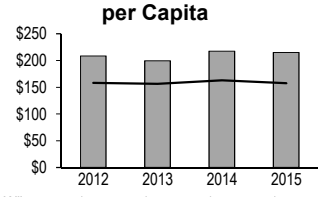
Cost Breakdown by Percentage	
Personal Services	35.4%
Operating Costs	41.0%
Capital Costs	23.6%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$4,083,396
Operating Costs	$4,725,238
Capital Costs	$2,719,450
TOTAL	$11,528,084

Wilson — Wastewater Services

Key: Wilson ■ Benchmarking Average — Fiscal Years 2012 through 2015

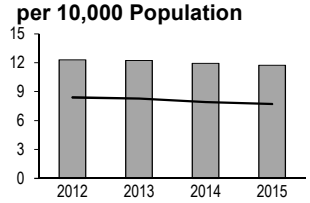
Resource Measures

Wastewater Services Cost per Capita



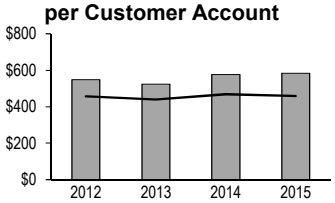
	2012	2013	2014	2015
Wilson	$208	$200	$218	$215
Average	$158	$156	$163	$158

Waterwater Services FTEs per 10,000 Population



	2012	2013	2014	2015
Wilson	12.3	12.2	11.9	11.8
Average	8.4	8.3	7.9	7.7

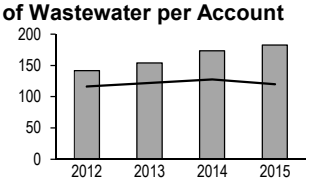
Waterwaste Services Cost per Customer Account



	2012	2013	2014	2015
Wilson	$548	$524	$577	$584
Average	$457	$440	$468	$460

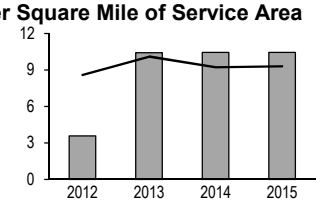
Workload Measures

Thousands of Gallons of Wastewater per Account



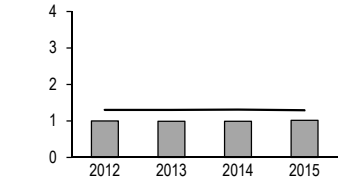
	2012	2013	2014	2015
Wilson	141.8	154.2	173.3	182.4
Average	116.4	122.4	127.7	120.1

Miles of Sewer Main Line Pipe per Square Mile of Service Area



	2012	2013	2014	2015
Wilson	3.6	10.4	10.4	10.4
Average	8.6	10.1	9.2	9.3

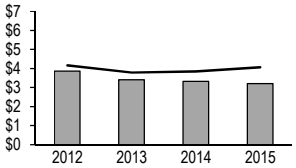
Number of Lift Stations per 1,000 Accounts



	2012	2013	2014	2015
Wilson	1.00	0.99	0.99	1.01
Average	1.31	1.31	1.31	1.29

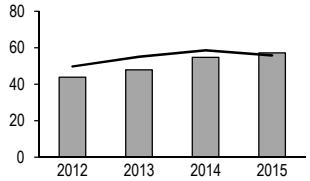
Efficiency Measures

Total Cost per 1,000 Gallons of Treated Wastewater



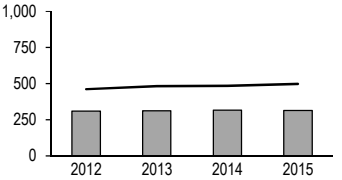
	2012	2013	2014	2015
Wilson	$3.86	$3.40	$3.33	$3.20
Average	$4.16	$3.79	$3.85	$4.06

Million Gallons of Wastewater per Wastewater Services FTE



	2012	2013	2014	2015
Wilson	43.9	48.0	54.8	57.1
Average	49.8	55.0	58.6	55.7

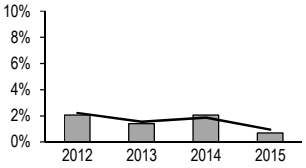
Customer Accounts per Wastewater Services FTE



	2012	2013	2014	2015
Wilson	309	311	316	313
Average	462	481	485	498

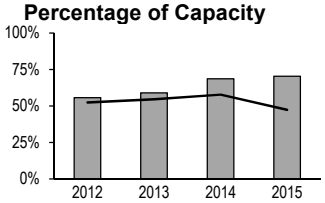
Effectiveness Measures

Percentage of Wastewater Bills Not Collected



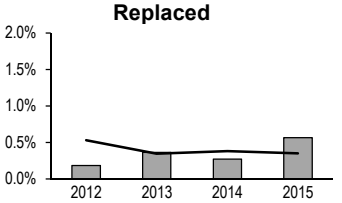
	2012	2013	2014	2015
Wilson	2.07%	1.40%	2.07%	0.70%
Average	2.22%	1.56%	1.86%	0.95%

Average Daily Treatment as a Percentage of Capacity



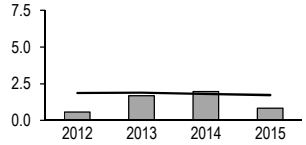
	2012	2013	2014	2015
Wilson	55.8%	59.1%	68.6%	70.4%
Average	52.5%	54.6%	57.8%	47.4%

Percent of Main Line Rehabbed or Replaced



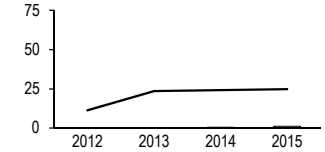
	2012	2013	2014	2015
Wilson	0.18%	0.36%	0.27%	0.56%
Average	0.53%	0.35%	0.38%	0.35%

Overflows per 100 Miles of Main Line Pipe



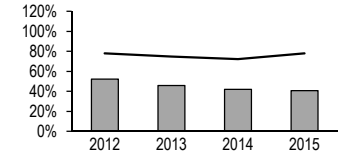
	2012	2013	2014	2015
Wilson	0.56	1.69	1.97	0.85
Average	1.85	1.89	1.79	1.72

Backups per 100 Miles of Main Line Pipe



	2012	2013	2014	2015
Wilson			0.56	1.13
Average	11.36	23.47	24.22	24.78

Billed Wastewater as a Percent of Treated Effluent



	2012	2013	2014	2015
Wilson	52%	46%	42%	41%
Average	78%	75%	72%	78%

Fiscal Year 2014–15

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. 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 of after first using thermal drying with subsequent reuse as a soil amendment.

During the fiscal year, the system had two regulatory violations connected to the treatment portion of the system and eighty-six reported violations for the collection portion of the system connected to sanitary system overflows.

Conditions Affecting Service, Performance, and Costs

Wastewater Services was added as 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.

The city has used improvements in its GIS mapping systems and incident records to change the process by which the Division ranks and proactively cleans pipes. This process is expected to lower the number of breaks and overflows.

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	83.0
Line Crews	64.0
Billing/Collection	9.0
Other	27.0
Number of Treatment Plants	2
Total Treatment Capacity	51.0 MGD
Average Daily Flow	29.2 MGD
River Basin into Which System Discharges	Yadkin
Miles of Gravity Main Line Pipe	1,717
Miles of Forced Main Line Pipe	33
Average Age of Main Line Pipe	49 years
Blocks in Sewer Mains	286
Number of System Breaks	43
Sanitary System Overflows	86
Number of Customer Accounts	96,258
Total Revenues Collected	$43,987,446

Full Cost Profile

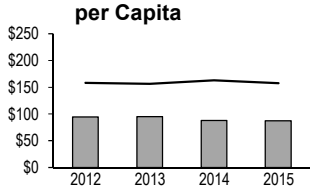
Cost Breakdown by Percentage	
Personal Services	25.6%
Operating Costs	34.5%
Capital Costs	39.9%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$8,189,996
Operating Costs	$11,048,089
Capital Costs	$12,768,778
TOTAL	$32,006,863

Winston-Salem Wastewater Services

Key: Winston-Salem ■ Benchmarking Average — Fiscal Years 2012 through 2015

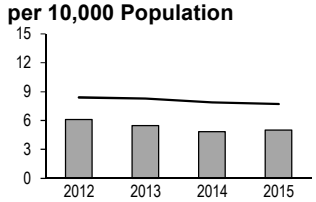
Resource Measures

Wastewater Services Cost per Capita



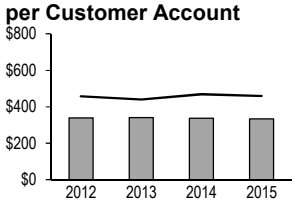
	2012	2013	2014	2015
Winston-Salem	$94	$95	$87	$87
Average	$158	$156	$163	$158

Waterwater Services FTEs per 10,000 Population



	2012	2013	2014	2015
Winston-Salem	6.1	5.5	4.8	5.0
Average	8.4	8.3	7.9	7.7

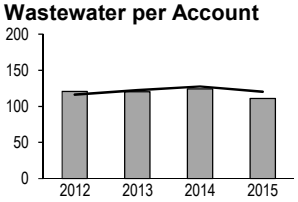
Waterwaste Services Cost per Customer Account



	2012	2013	2014	2015
Winston-Salem	$338	$339	$336	$333
Average	$457	$440	$468	$460

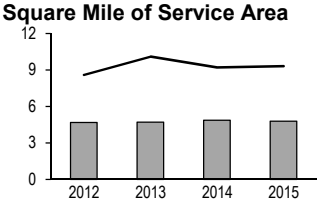
Workload Measures

Thousands of Gallons of Wastewater per Account



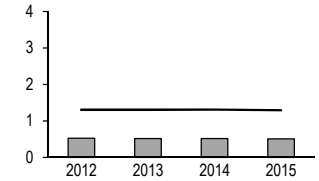
	2012	2013	2014	2015
Winston-Salem	120.5	120.0	124.3	110.8
Average	116.4	122.4	127.7	120.1

Miles of Sewer Main Line Pipe per Square Mile of Service Area



	2012	2013	2014	2015
Winston-Salem	4.7	4.7	4.9	4.8
Average	8.6	10.1	9.2	9.3

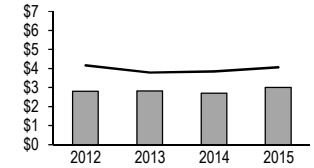
Number of Lift Stations per 1,000 Accounts



	2012	2013	2014	2015
Winston-Salem	0.52	0.52	0.51	0.51
Average	1.31	1.31	1.31	1.29

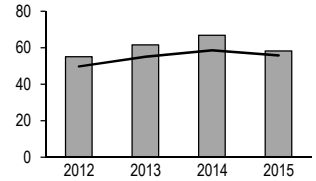
Efficiency Measures

Total Cost per 1,000 Gallons of Treated Wastewater



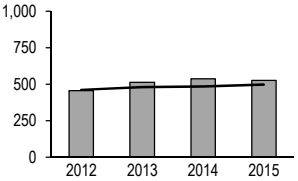
	2012	2013	2014	2015
Winston-Salem	$2.80	$2.82	$2.71	$3.00
Average	$4.16	$3.79	$3.85	$4.06

Million Gallons of Wastewater per Wastewater Services FTE



	2012	2013	2014	2015
Winston-Salem	55.1	61.6	66.9	58.3
Average	49.8	55.0	58.6	55.7

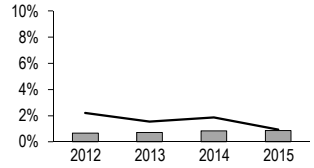
Customer Accounts per Wastewater Services FTE



	2012	2013	2014	2015
Winston-Salem	457	513	538	526
Average	462	481	485	498

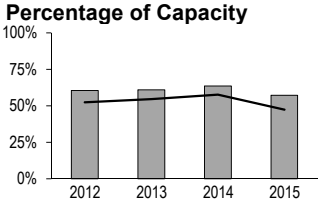
Effectiveness Measures

Percentage of Wastewater Bills Not Collected



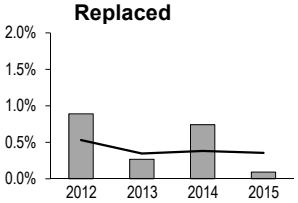
	2012	2013	2014	2015
Winston-Salem	0.67%	0.71%	0.85%	0.86%
Average	2.22%	1.56%	1.86%	0.95%

Average Daily Treatment as a Percentage of Capacity



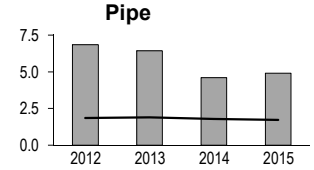
	2012	2013	2014	2015
Winston-Salem	60.5%	60.9%	63.6%	57.3%
Average	52.5%	54.6%	57.8%	47.4%

Percent of Main Line Rehabbed or Replaced



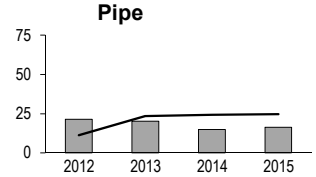
	2012	2013	2014	2015
Winston-Salem	0.89%	0.27%	0.74%	0.09%
Average	0.53%	0.35%	0.38%	0.35%

Overflows per 100 Miles of Main Line Pipe



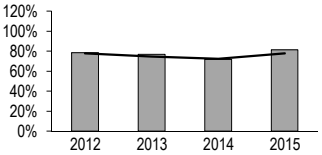
	2012	2013	2014	2015
Winston-Salem	6.84	6.44	4.60	4.91
Average	1.85	1.89	1.79	1.72

Backups per 100 Miles of Main Line Pipe



	2012	2013	2014	2015
Winston-Salem	21.53	20.19	14.88	16.34
Average	11.36	23.47	24.22	24.78

Billed Wastewater as a Percent of Treated Effluent



	2012	2013	2014	2015
Winston-Salem	79%	77%	72%	81%
Average	78%	75%	72%	78%

UNC
SCHOOL OF
GOVERNMENT

Performance and Cost Data

CORE PARKS AND RECREATION

UNC
SCHOOL OF
GOVERNMENT

PERFORMANCE MEASURES FOR CORE PARKS AND RECREATION SERVICES

SERVICE DEFINITION

Parks and Recreation includes both passive and active recreation opportunities maintained and operated by a local government. For the purposes of this benchmarking effort, this will include core operational functions such as parks, multi-purpose recreation facilities, athletic facilities, greenways, and trails. This also includes programs and events.

However, Parks and Recreation departments frequently may include a variety of other activities and facilities. To support reasonable comparisons, this service benchmarking excludes these secondary recreational activities, including performance venues, museums, historic sites, golf courses, marinas/boat ramps, and professional stadiums. Also excluded are other non-recreational activities sometimes performed by parks and recreation departments, such as care of cemeteries; maintenance of right-of-ways along city streets; maintenance of facilities owned by a municipality but not parks-related; and maintenance of city lots. The dollars and people associated with these secondary and non-park activities are excluded.

Parks and Recreation does offer an important difference from many of the other services provided by local governments. Much of the objective of this service area is to provide facilities for the use of citizens. Use of many of these facilities is not easily tracked. Many of the measures shown for this service area are accordingly measures of facility availability rather than the traditional workload type of measures seen in other service areas.

NOTES ON PERFORMANCE MEASURES

1. Land Acres of All Municipal Parks per 10,000 Population

This resource measure captures the amount of park land that is available relative to the population in the communities.

2. Recreation Centers per 10,000 Population

Recreation centers provide space for a variety of indoor recreational activities. This measure shows the number of centers relative to the population.

3. Swimming Pools per 10,000 Population

Indoor and outdoor pools are a desirable recreational facility. This resource measure captures the number of pools relative to the population.

4. Athletic Fields per 10,000 Population

Outdoor athletic fields are used for organized and informal recreation. This measure counts the number of formal athletic fields, including rectangular fields such as those for football and soccer, diamond fields as for baseball, and non-designated fields which can be used for multiple activities. The count includes both natural grass and artificial-surface fields, where available.

5. Playgrounds per 10,000 Population
Formal playgrounds include a variety of fixed equipment such as swings, jungle gyms, slides, and other apparatus. This measure captures these playgrounds relative to the population.

6. Miles of Trails per 10,000 Population
Outdoor trails of all types represent an important type of active recreation. This measure captures the total miles of trails in a community relative to the population. The miles total includes paved and unpaved trails and covers various types of trails, such as those for walking, bike riding, and equestrian riding.

7. Total Core Parks and Recreation Costs
This efficiency measure represents the level of spending relative to the park acreage in a community. Although funds may be spent on facilities and activities, this measure provides some comparison on the intensity of spending.

8. Acres of Park Maintained per Maintenance Full-Time Equivalent (FTE)
This efficiency measure compares the amount of acres in the park system relative to the number of FTEs used by a jurisdiction to provide maintenance.

9. Volunteer Hours in FTEs as a Percent of Paid Staff FTEs
Volunteers represent an important resource to help support Parks and Recreation activities. This efficiency measure compares the estimated amount of volunteer labor relative to the paid staff in order to provide a measure of the benefit these volunteers bring to a community.

10. Revenue Gained as a Percent of Total Core Parks and Recreation Costs
Parks and Recreation is a service that is primarily supported by general funding from a local government budget. But gaining additional revenues in the form of user fees, grants, donations, and sponsorships helps to leverage spending and provide services. This effectiveness measure shows how much revenue has been raised from these other sources relative to the total costs reported.

11. Acts of Vandalism per 10,000 Population
Vandalism damages parks and recreation facilities, making them unavailable or less useful to citizens. This effectiveness measure compares the number of acts of vandalism relative to the population to indicate the extent of this problem.

Core Parks and Recreation

Summary of Key Dimensions of Service

City or Town	Municipal Population as of July 1 2014	Core Parks and Recreation FTEs	Number of Parks	Park Land Acreage	Number of Recreation and Senior Centers	Number of Playgrounds	Number of Athletic Fields	Miles of Trails
Apex	42,689	25.5	12	506.0	1	11	26	9.4
Asheville	89,248	93.4	47	869.0	13	24	27	5.5
Burlington	51,923	64.5	22	631.5	7	21	42	10.5
Chapel Hill	59,758	40.7	30	1,080.0	2	11	16	23.0
Concord	85,428	28.0	9	189.9	3	13	23	8.1
Greensboro	280,803	165.0	616	6,380.0	12	105	112	101.0
Greenville	87,436	116.5	26	1,454.0	8	17	23	6.5
Hickory	40,332	55.0	25	514.0	8	39	24	11.0
High Point	108,556	137.0	50	1,922.0	7	30	53	21.4
Salisbury	33,955	26.0	28	508.0	3	18	12	16.9
Wilson	49,222	71.0	28	400.0	4	25	26	14.5
Winston-Salem	237,905	202.9	79	3,682.9	17	44	97	23.2

EXPLANATORY FACTORS

These are some factors that the project found affected core parks and recreation services performance and cost in one or more of the municipalities:

Youth Population
Total Acreage
Miles of Trails
Number of Facilities

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery

The Town of Apex provides recreation services through the separate Parks, Recreation, and Cultural Resources Department. The city has priority use agreements with the Wake County School System in exchange for maintenance of areas used by the the town.

The town has twelve separate parks and sites. These parks cover506 land acres; most of this area is currently developed. The city has nine miles of trails; about three-fourths of them are paved.

In addition to the core parks and recreational facilities, Apex has a performing arts center. The operation of this other facility is not included in the Core Parks and Recreation comparisons reported here. This facility is not included here in dollars or staff as part of core parks and recreation facilities and activities.

Conditions Affecting Service, Performance, and Costs

Parks and Recreation is a new service area for the benchmarking project beginning with the FY 2012–13 reporting year.

Municipal Profile

Population (OSBM 2014)	42,689
Land Area (Square Miles)	17.25
Persons per Square Mile	2,475
Topography	Flat; gently rolling
Climate	Temperate; little ice and snow

Service Profile

Parks and Recreation Staff	
Administrative Position FTEs	5.5
Maintenance Staff FTEs	16.0
Program and Facility FTEs	4.0
Other Staff FTEs	0.0
TOTAL	25.5
Number of Parks and Sites	12
Total Land Acreage in Parks	506.0
Miles of Trails in Parks	9.4
Recreational Facilities	
Indoor and Outdoor Pools	0
Recreation Centers	1
Outdoor Basketball Courts	5 full, 1 half
Outdoor Tennis Courts	15
Playgrounds	11
Diamond Fields	13
Rectangular Fields	11
Other Athletic Fields	2
Picnic Shelters	13
Parks and Recreation Revenues	
User Fees	$864,102
Grants	$0
Sponsorships	$9,897
Donations	$28,000

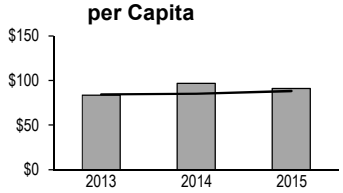
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	42.9%
Operating Costs	47.3%
Capital Costs	9.8%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,672,540
Operating Costs	$1,841,661
Capital Costs	$380,259
TOTAL	$3,894,460

Key: Apex ■ Benchmarking Average — Fiscal Years 2013 through 2015

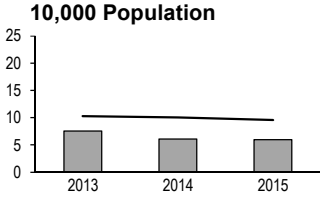
Resource Measures

Core Parks and Recreation Services per Capita



	2013	2014	2015
Apex	$83	$97	$91
Average	$85	$85	$88

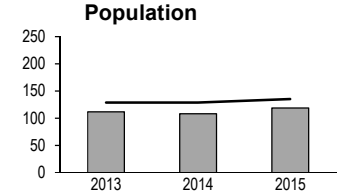
Core Parks and Recreation Staff per 10,000 Population



	2013	2014	2015
Apex	7.5	6.1	6.0
Average	10.3	10.1	9.6

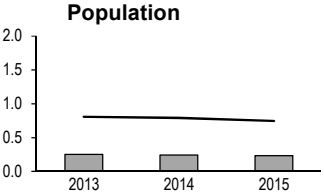
Facilities Measures

Land Acres of Parks per 10,000 Population



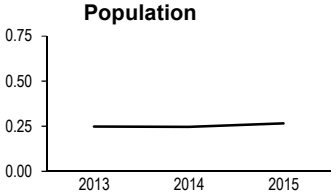
	2013	2014	2015
Apex	111.40	108.25	118.53
Average	128.84	128.67	135.34

Recreation Centers per 10,000 Population



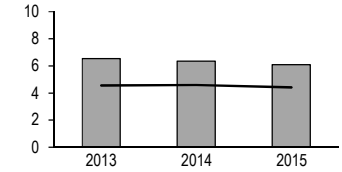
	2013	2014	2015
Apex	0.25	0.24	0.23
Average	0.81	0.79	0.75

Swimming Pools per 10,000 Population



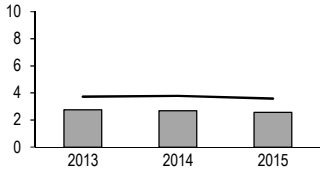
	2013	2014	2015
Apex	0.00	0.00	0.00
Average	0.25	0.25	0.27

Athletic Fields per 10,000 Population



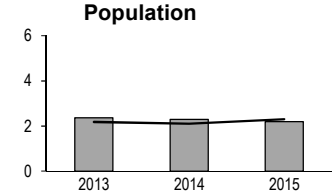
	2013	2014	2015
Apex	6.54	6.35	6.09
Average	4.55	4.59	4.41

Playgrounds per 10,000 Population



	2013	2014	2015
Apex	2.77	2.69	2.58
Average	3.74	3.79	3.58

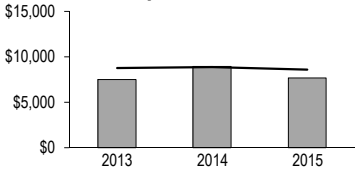
Miles of Land Trails per 10,000 Population



	2013	2014	2015
Apex	2.36	2.29	2.20
Average	2.18	2.10	2.30

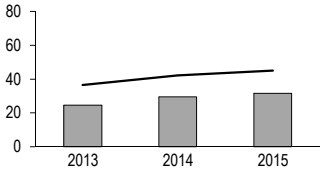
Efficiency Measures

Total Core Parks and Recreation Costs per Acre



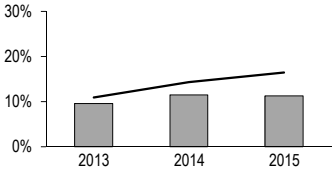
	2013	2014	2015
Apex	$7,493	$8,934	$7,697
Average	$8,763	$8,871	$8,609

Acres of Park Maintained per Maintenance FTE



	2013	2014	2015
Apex	24.6	29.5	31.6
Average	36.6	42.2	45.1

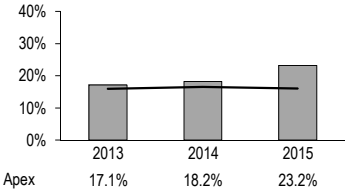
Volunteer Hours in FTEs as a Percent of Paid Staff FTEs



	2013	2014	2015
Apex	10%	12%	11.3%
Average	10.9%	14.3%	16.5%

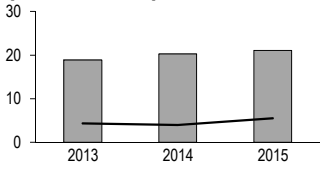
Effectiveness Measures

Revenue Gained as a Percent of Total Core Costs



	2013	2014	2015
Apex	17.1%	18.2%	23.2%
Average	15.9%	16.6%	16.0%

Acts of Vandalism at Parks Facilities per 10,000 Population



	2013	2014	2015
Apex	18.86	20.28	21.08
Average	4.30	3.96	5.50

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery

The City of Asheville provides recreation services through the separate Parks and Recreation Department. The city has formal agreements and partnerships with athletic associations, non-profits, universities, individuals, and for-profit organizations for the provision of recreational services.

The city has forty-seven separate parks and sites. These parks cover 869 land acres; about three-fourths of them are currently developed. The city has nearly six miles miles of trails.

In addition to the core parks and recreational facilities, Asheville has two large outdoor performance event sites and runs an eighteen-hole municipal golf course. The operation of these other facilities is not included in the Core Parks and Recreation comparisons reported here. These facilities are not included here in dollars or staff as part of core parks and recreation facilities and activities.

Conditions Affecting Service, Performance, and Costs

Parks and Recreation is a new service area for the benchmarking project beginning with the FY 2012–13 reporting year.

Municipal Profile

Population (OSBM 2014)	89,248
Land Area (Square Miles)	45.52
Persons per Square Mile	1,961
Topography	Hilly, mountains
Climate	Moderate; ice and snow

Service Profile

Parks and Recreation Staff	
Administrative Position FTEs	14.0
Maintenance Staff FTEs	30.3
Program and Facility FTEs	43.1
Other Staff FTEs	6.0
TOTAL	93.4
Number of Parks and Sites	47
Total Land Acreage in Parks	869.0
Miles of Trails in Parks	5.5
Recreational Facilities	
Indoor and Outdoor Pools	3
Recreation Centers	11
Outdoor Basketball Courts	13 full, 2 half
Outdoor Tennis Courts	26
Playgrounds	24
Diamond Fields	19
Rectangular Fields	5
Other Athletic Fields	3
Picnic Shelters	11
Parks and Recreation Revenues	
User Fees	$1,072,302
Grants	$212,160
Sponsorships	$5,000
Donations	$36,462

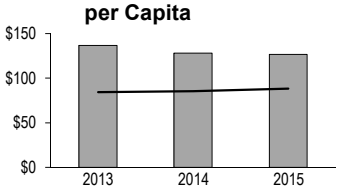
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	50.9%
Operating Costs	38.2%
Capital Costs	10.9%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$5,760,518
Operating Costs	$4,315,944
Capital Costs	$1,231,574
TOTAL	$11,308,036

Key: Asheville ■ Benchmarking Average — Fiscal Years 2013 through 2015

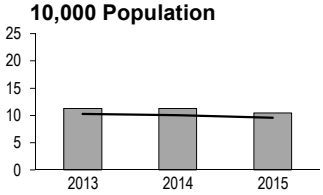
Resource Measures

Core Parks and Recreation Services per Capita



	2013	2014	2015
Asheville	$137	$128	$127
Average	$85	$85	$88

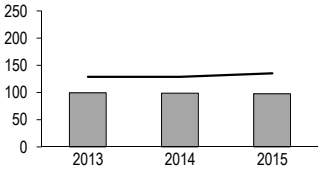
Core Parks and Recreation Staff per 10,000 Population



	2013	2014	2015
Asheville	11.3	11.3	10.5
Average	10.3	10.1	9.6

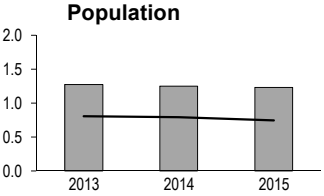
Facilities Measures

Land Acres of Parks per 10,000 Population



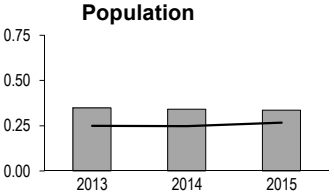
	2013	2014	2015
Asheville	99.47	98.74	97.36
Average	128.84	128.67	135.34

Recreation Centers per 10,000 Population



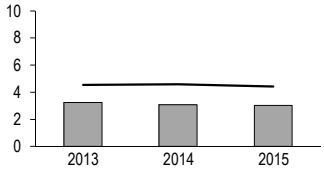
	2013	2014	2015
Asheville	1.28	1.25	1.23
Average	0.81	0.79	0.75

Swimming Pools per 10,000 Population



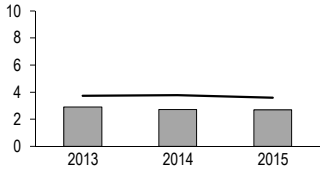
	2013	2014	2015
Asheville	0.35	0.34	0.34
Average	0.25	0.25	0.27

Athletic Fields per 10,000 Population



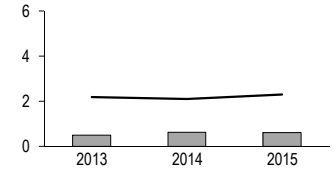
	2013	2014	2015
Asheville	3.25	3.07	3.03
Average	4.55	4.59	4.41

Playgrounds per 10,000 Population



	2013	2014	2015
Asheville	2.90	2.73	2.69
Average	3.74	3.79	3.58

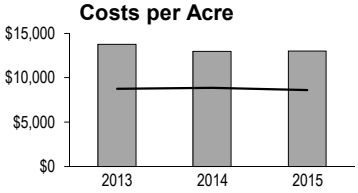
Miles of Land Trails per 10,000 Population



	2013	2014	2015
Asheville	0.50	0.62	0.61
Average	2.18	2.10	2.30

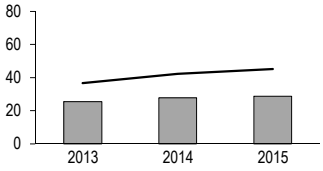
Efficiency Measures

Total Core Parks and Recreation Costs per Acre



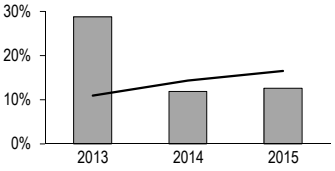
	2013	2014	2015
Asheville	$13,748	$12,977	$13,013
Average	$8,763	$8,871	$8,609

Acres of Park Maintained per Maintenance FTE



	2013	2014	2015
Asheville	25.4	27.8	28.7
Average	36.6	42.2	45.1

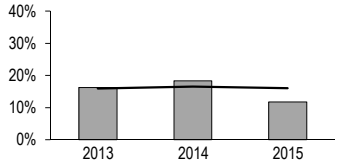
Volunteer Hours in FTEs as a Percent of Paid Staff FTEs



	2013	2014	2015
Asheville	29%	12%	12.6%
Average	10.9%	14.3%	16.5%

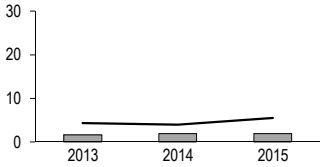
Effectiveness Measures

Revenue Gained as a Percent of Total Core Costs



	2013	2014	2015
Asheville	16.3%	18.3%	11.7%
Average	15.9%	16.6%	16.0%

Acts of Vandalism at Parks Facilities per 10,000 Population



	2013	2014	2015
Asheville	1.62	1.93	1.90
Average	4.30	3.96	5.50

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery

The City of Burlington provides recreation services through the separate Recreation and Parks Department. The city has formal agreements with Guilford County at the Guilford MacKintosh Park and Marina.

The city has twenty-two separate parks and sites. These parks cover 632 land acres; about two-thirds of them are currently developed. Additionally, a further 2,140 water acres are part of the park system. The city has ten miles of trails.

In addition to the core parks and recreational facilities, Burlington has two large outdoor performance event sites, two historic properties, one performing arts center, one professional sports site, one farmers' market, and four boat ramps or marinas. The city also runs an eighteen-hole municipal golf course. The operation of these other facilities is not included in the Core Parks and Recreation comparisons reported here. These facilities are not included here in dollars or staff as part of core parks and recreation facilities and activities.

Conditions Affecting Service, Performance, and Costs

Parks and Recreation is a new service area for the benchmarking project beginning with the FY 2012–13 reporting year.

Municipal Profile

Population (OSBM 2014)	51,923
Land Area (Square Miles)	30.52
Persons per Square Mile	1,701
Topography	Flat; gently rolling
Climate	Temperate; little ice and snow

Service Profile

Parks and Recreation Staff	
Administrative Position FTEs	7.5
Maintenance Staff FTEs	11.0
Program and Facility FTEs	46.0
Other Staff FTEs	0.0
TOTAL	64.5
Number of Parks and Sites	22
Total Land Acreage in Parks	631.5
Miles of Trails in Parks	10.5
Recreational Facilities	
Indoor and Outdoor Pools	3
Recreation Centers	6
Outdoor Basketball Courts	9
Outdoor Tennis Courts	17
Playgrounds	21
Diamond Fields	22
Rectangular Fields	18
Other Athletic Fields	2
Picnic Shelters	13
Parks and Recreation Revenues	
User Fees	$2,475,237
Grants	$506,025
Sponsorships	$10,000
Donations	$25,000

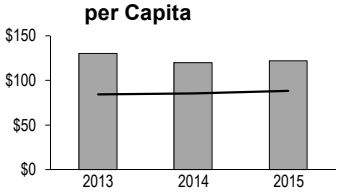
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	54.5%
Operating Costs	37.8%
Capital Costs	7.7%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$3,459,087
Operating Costs	$2,397,737
Capital Costs	$489,575
TOTAL	$6,346,399

Key: Burlington ■ Benchmarking Average — Fiscal Years 2013 through 2015

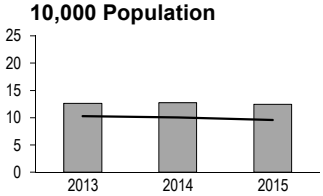
Resource Measures

Core Parks and Recreation Services per Capita



	2013	2014	2015
Burlington	$130	$120	$122
Average	$85	$85	$88

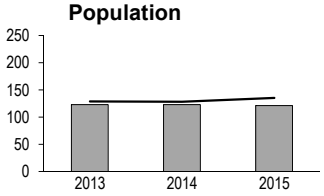
Core Parks and Recreation Staff per 10,000 Population



	2013	2014	2015
Burlington	12.6	12.7	12.4
Average	10.3	10.1	9.6

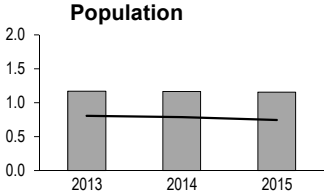
Facilities Measures

Land Acres of Parks per 10,000 Population



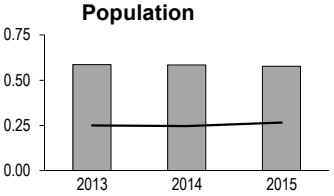
	2013	2014	2015
Burlington	123.35	122.86	121.61
Average	128.84	128.67	135.34

Recreation Centers per 10,000 Population



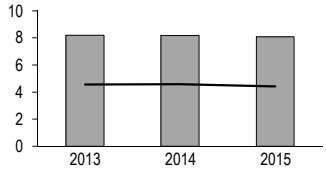
	2013	2014	2015
Burlington	1.17	1.17	1.16
Average	0.81	0.79	0.75

Swimming Pools per 10,000 Population



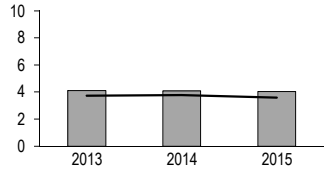
	2013	2014	2015
Burlington	0.59	0.58	0.58
Average	0.25	0.25	0.27

Athletic Fields per 10,000 Population



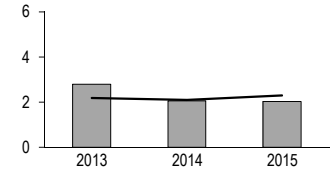
	2013	2014	2015
Burlington	8.20	8.17	8.09
Average	4.55	4.59	4.41

Playgrounds per 10,000 Population



	2013	2014	2015
Burlington	4.10	4.09	4.04
Average	3.74	3.79	3.58

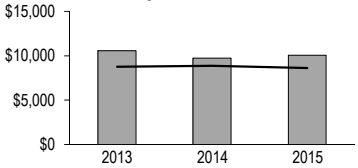
Miles of Land Trails per 10,000 Population



	2013	2014	2015
Burlington	2.79	2.05	2.03
Average	2.18	2.10	2.30

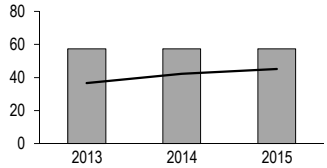
Efficiency Measures

Total Core Parks and Recreation Costs per Acre



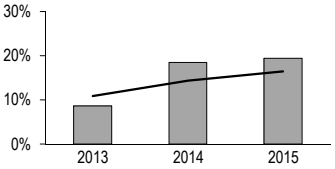
	2013	2014	2015
Burlington	$10,571	$9,748	$10,051
Average	$8,763	$8,871	$8,609

Acres of Park Maintained per Maintenance FTE



	2013	2014	2015
Burlington	57.4	57.4	57.4
Average	36.6	42.2	45.1

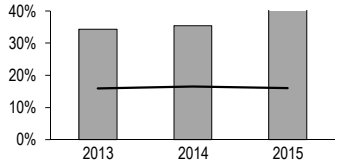
Volunteer Hours in FTEs as a Percent of Paid Staff FTEs



	2013	2014	2015
Burlington	9%	18%	19.4%
Average	10.9%	14.3%	16.5%

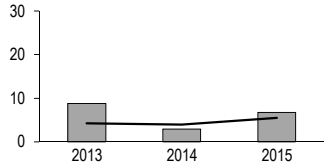
Effectiveness Measures

Revenue Gained as a Percent of Total Core Costs



	2013	2014	2015
Burlington	34.3%	35.4%	47.5%
Average	15.9%	16.6%	16.0%

Acts of Vandalism at Parks Facilities per 10,000 Population



	2013	2014	2015
Burlington	8.79	2.92	6.74
Average	4.30	3.96	5.50

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery

The Town of Chapel Hill provides recreation services through the separate Parks and Recreation Department. The town has agreements with Orange County for use of the senior center and county participants in other programs. The Town also has agreements with the Town of Carrboro, the Street Scene Teen Center, Holmes Childcare Center, and Chapel Hill-Carrboro City Schools.

The town has thirty separate parks and sites. These parks cover 1,080 land acres much of which is undeveloped. The town has twenty-three miles of trails.

Conditions Affecting Service, Performance, and Costs

The Town of Chapel Hill began participation in the benchmarking project in July 2015, with FY 2014–15 being the first reporting year.

Parks and Recreation is a new service area for the benchmarking project beginning with the FY 2012–13 reporting year.

Municipal Profile

Population (OSBM 2014)	59,758
Land Area (Square Miles)	21.17
Persons per Square Mile	2,823
Topography	Flat; gently rolling
Climate	Temperate; little ice and snow

Service Profile

Parks and Recreation Staff	
Administrative Position FTEs	6.0
Maintenance Staff FTEs	13.5
Program and Facility FTEs	21.2
Other Staff FTEs	0.0
TOTAL	40.7
Number of Parks and Sites	30
Total Land Acreage in Parks	1,080.0
Miles of Trails in Parks	23.0
Recreational Facilities	
Indoor and Outdoor Pools	3
Recreation Centers	2
Outdoor Basketball Courts	7
Outdoor Tennis Courts	20
Playgrounds	11
Diamond Fields	7
Rectangular Fields	9
Other Athletic Fields	0
Picnic Shelters	8
Parks and Recreation Revenues	
User Fees	$1,322,477
Grants	$100,000
Sponsorships	$27,310
Donations	$0

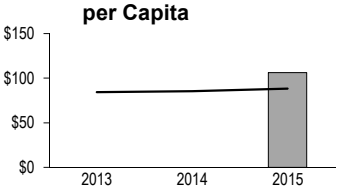
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	53.9%
Operating Costs	35.1%
Capital Costs	11.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$3,422,878
Operating Costs	$2,225,289
Capital Costs	$697,069
TOTAL	$6,345,236

Key: Chapel Hill ■ Benchmarking Average — Fiscal Years 2013 through 2015

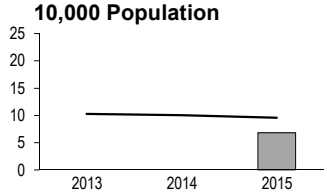
Resource Measures

Core Parks and Recreation Services per Capita



	2013	2014	2015
Chapel Hill			$106
Average	$85	$85	$88

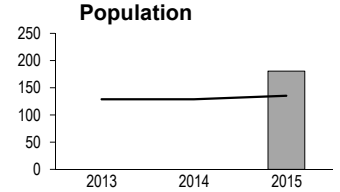
Core Parks and Recreation Staff per 10,000 Population



	2013	2014	2015
Chapel Hill			6.8
Average	10.3	10.1	9.6

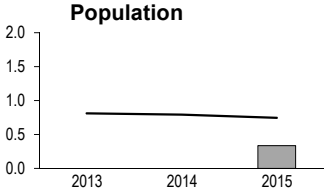
Facilities Measures

Land Acres of Parks per 10,000 Population



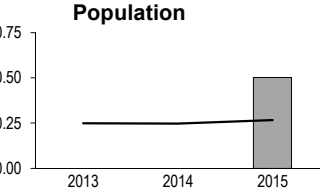
	2013	2014	2015
Chapel Hill			180.73
Average	128.84	128.67	135.34

Recreation Centers per 10,000 Population



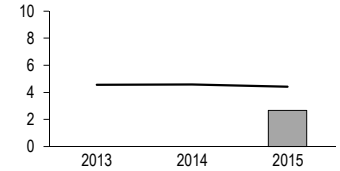
	2013	2014	2015
Chapel Hill			0.33
Average	0.81	0.79	0.75

Swimming Pools per 10,000 Population



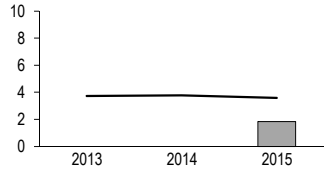
	2013	2014	2015
Chapel Hill			0.50
Average	0.25	0.25	0.27

Athletic Fields per 10,000 Population



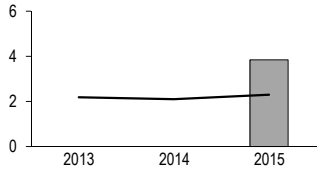
	2013	2014	2015
Chapel Hill			2.68
Average	4.55	4.59	4.41

Playgrounds per 10,000 Population



	2013	2014	2015
Chapel Hill			1.84
Average	3.74	3.79	3.58

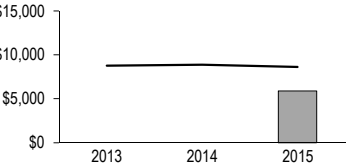
Miles of Land Trails per 10,000 Population



	2013	2014	2015
Chapel Hill			3.84
Average	2.18	2.10	2.30

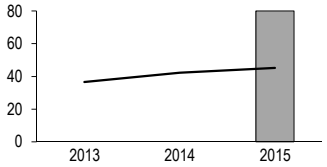
Efficiency Measures

Total Core Parks and Recreation Costs per Acre



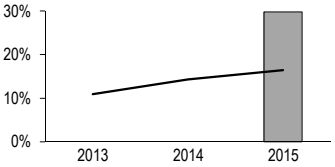
	2013	2014	2015
Chapel Hill			$5,875
Average	$8,763	$8,871	$8,609

Acres of Park Maintained per Maintenance FTE



	2013	2014	2015
Chapel Hill			80.0
Average	36.6	42.2	45.1

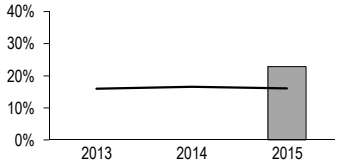
Volunteer Hours in FTEs as a Percent of Paid Staff FTEs



	2013	2014	2015
Chapel Hill			29.8%
Average	10.9%	14.3%	16.5%

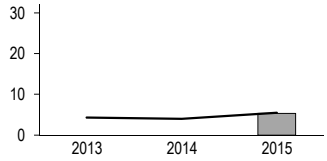
Effectiveness Measures

Revenue Gained as a Percent of Total Core Costs



	2013	2014	2015
Chapel Hill			22.8%
Average	15.9%	16.6%	16.0%

Acts of Vandalism at Parks Facilities per 10,000 Population



	2013	2014	2015
Chapel Hill			5.35
Average	4.30	3.96	5.50

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery
The City of Concord provides recreation services through the separate Parks and Recreation Department. The city provides an array of facilities and activities for recreation.

The city has nine separate parks and sites. These parks cover 190 land acres. The city has eight miles of recreational trails, most of them paved.

In addition to the core parks and recreational facilities, Concord has one large outdoor performance event site and one boat ramp. The operation of these other facilities is not included in the Core Parks and Recreation comparisons reported here. These facilities are not included here in dollars or staff as part of core parks and recreation facilities and activities.

Conditions Affecting Service, Performance, and Costs
Parks and Recreation is a new service area for the benchmarking project beginning with the FY 2012–13 reporting year.

Municipal Profile

Population (OSBM 2014)	85,428
Land Area (Square Miles)	61.09
Persons per Square Mile	1,398
Topography	Flat; gently rolling
Climate	Temperate; little ice and snow

Service Profile

Parks and Recreation Staff	
Administrative Position FTEs	5.0
Maintenance Staff FTEs	0.0
Program and Facility FTEs	15.5
Other Staff FTEs	7.5
TOTAL	28.0
Number of Parks and Sites	9
Total Land Acreage in Parks	189.9
Miles of Trails in Parks	8.1
Recreational Facilities	
Indoor and Outdoor Pools	1
Recreation Centers	3
Outdoor Basketball Courts	7
Outdoor Tennis Courts	14
Playgrounds	13
Diamond Fields	13
Rectangular Fields	9
Other Athletic Fields	1
Picnic Shelters	14
Parks and Recreation Revenues	
User Fees	$306,483
Grants	$100,000
Sponsorships	$3,875
Donations	$0

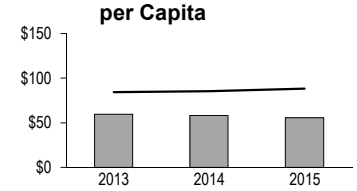
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	27.3%
Operating Costs	67.6%
Capital Costs	5.1%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,294,390
Operating Costs	$3,205,932
Capital Costs	$243,318
TOTAL	$4,743,640

Key: Concord ■ Benchmarking Average — Fiscal Years 2013 through 2015

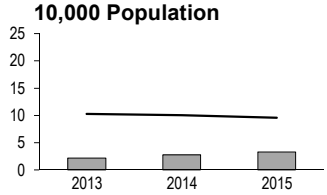
Resource Measures

Core Parks and Recreation Services per Capita



	2013	2014	2015
Concord	$60	$58	$56
Average	$85	$85	$88

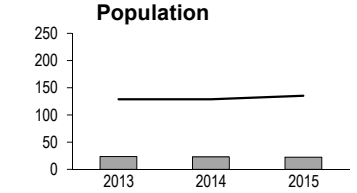
Core Parks and Recreation Staff per 10,000 Population



	2013	2014	2015
Concord	2.1	2.8	3.3
Average	10.3	10.1	9.6

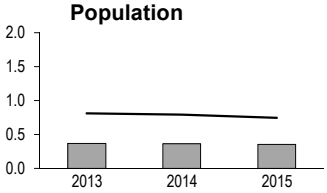
Facilities Measures

Land Acres of Parks per 10,000 Population



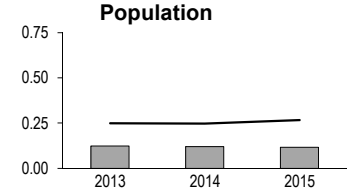
	2013	2014	2015
Concord	23.31	22.80	22.23
Average	128.84	128.67	135.34

Recreation Centers per 10,000 Population



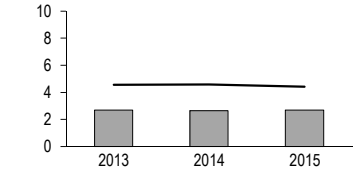
	2013	2014	2015
Concord	0.37	0.36	0.35
Average	0.81	0.79	0.75

Swimming Pools per 10,000 Population



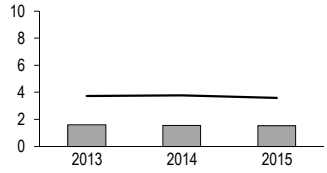
	2013	2014	2015
Concord	0.12	0.12	0.12
Average	0.25	0.25	0.27

Athletic Fields per 10,000 Population



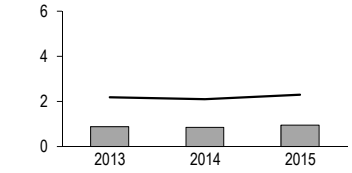
	2013	2014	2015
Concord	2.70	2.64	2.69
Average	4.55	4.59	4.41

Playgrounds per 10,000 Population



	2013	2014	2015
Concord	1.60	1.56	1.52
Average	3.74	3.79	3.58

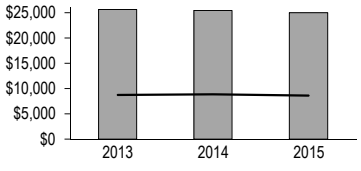
Miles of Land Trails per 10,000 Population



	2013	2014	2015
Concord	0.87	0.85	0.95
Average	2.18	2.10	2.30

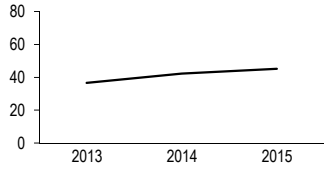
Efficiency Measures

Total Core Parks and Recreation Costs per Acre



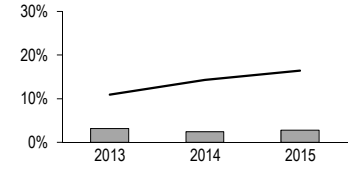
	2013	2014	2015
Concord	$25,633	$25,464	$24,980
Average	$8,763	$8,871	$8,609

Acres of Park Maintained per Maintenance FTE



	2013	2014	2015
Concord			
Average	36.6	42.2	45.1

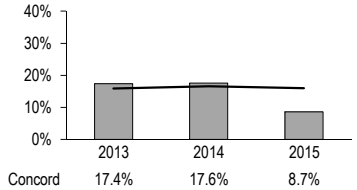
Volunteer Hours in FTEs as a Percent of Paid Staff FTEs



	2013	2014	2015
Concord	3%	2%	2.8%
Average	10.9%	14.3%	16.5%

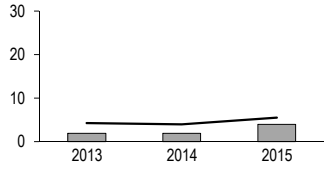
Effectiveness Measures

Revenue Gained as a Percent of Total Core Costs



	2013	2014	2015
Concord	17.4%	17.6%	8.7%
Average	15.9%	16.6%	16.0%

Acts of Vandalism at Parks Facilities per 10,000 Population



	2013	2014	2015
Concord	1.96	1.92	3.98
Average	4.30	3.96	5.50

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery

The City of Greensboro provides recreation services through the separate Parks and Recreation Department. The city has several cooperative agreements with the local schools and some non-profits for the provision of services or use of facilities. The city provides a full array of recreational facilities and activities.

The city has 616 separate parks and sites. These parks cover 6,380 land acres; most of them are developed. In addition, 2,584 acres in water space is part of the parks system. The city has one hundred and one miles of trails.

In addition to the core parks and recreational facilities, Greensboro has a large outdoor performance event site, a historic property, a famers' market, a boat ramp and marina, and operates a nine-hole municipal golf course. The operation of these other facilities is not included in the Core Parks and Recreation comparisons reported here. These facilities are not included here in dollars or staff as part of core parks and recreation facilities and activities.

Conditions Affecting Service, Performance, and Costs

Parks and Recreation is a new service area for the benchmarking project beginning with the FY 2012–13 reporting year.

Municipal Profile

Population (OSBM 2014)	280,803
Land Area (Square Miles)	128.11
Persons per Square Mile	2,192
Topography	Flat; gently rolling
Climate	Temperate; little ice and snow

Service Profile

Parks and Recreation Staff	
Administrative Position FTEs	16.5
Maintenance Staff FTEs	79.5
Program and Facility FTEs	69.0
Other Staff FTEs	0.0
TOTAL	165.0
Number of Parks and Sites	616
Total Land Acreage in Parks	6,380.0
Miles of Trails in Parks	101.0
Recreational Facilities	
Indoor and Outdoor Pools	6
Recreation Centers	11
Outdoor Basketball Courts	22 full, 15 half
Outdoor Tennis Courts	97
Playgrounds	105
Diamond Fields	55
Rectangular Fields	57
Other Athletic Fields	0
Picnic Shelters	40
Parks and Recreation Revenues	
User Fees	$1,682,691
Grants	$28,893
Sponsorships	$1,975
Donations	$57,065

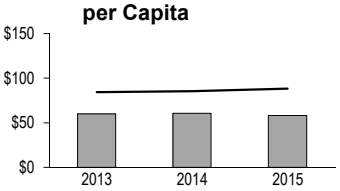
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	59.9%
Operating Costs	40.1%
Capital Costs	0.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$9,758,187
Operating Costs	$6,527,909
Capital Costs	$0
TOTAL	$16,286,096

Key: Greensboro ■ Benchmarking Average — Fiscal Years 2013 through 2015

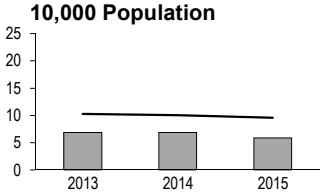
Resource Measures

Core Parks and Recreation Services per Capita



	2013	2014	2015
Greensboro	$60	$61	$58
Average	$85	$85	$88

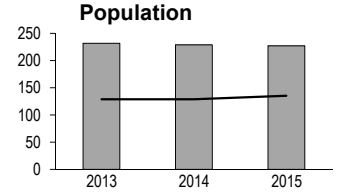
Core Parks and Recreation Staff per 10,000 Population



	2013	2014	2015
Greensboro	6.8	6.9	5.9
Average	10.3	10.1	9.6

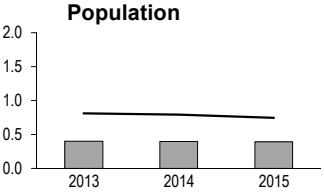
Facilities Measures

Land Acres of Parks per 10,000 Population



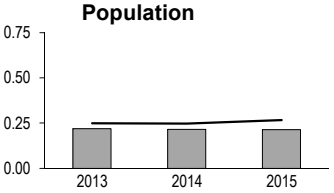
	2013	2014	2015
Greensboro	231.56	228.96	227.21
Average	128.84	128.67	135.34

Recreation Centers per 10,000 Population



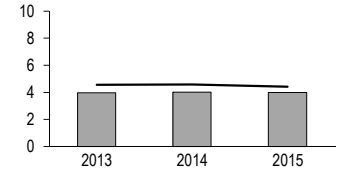
	2013	2014	2015
Greensboro	0.40	0.39	0.39
Average	0.81	0.79	0.75

Swimming Pools per 10,000 Population



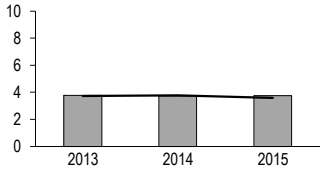
	2013	2014	2015
Greensboro	0.22	0.22	0.21
Average	0.25	0.25	0.27

Athletic Fields per 10,000 Population



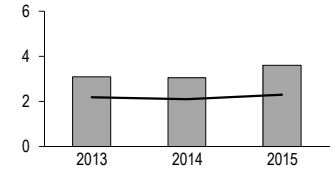
	2013	2014	2015
Greensboro	3.96	4.02	3.99
Average	4.55	4.59	4.41

Playgrounds per 10,000 Population



	2013	2014	2015
Greensboro	3.78	3.73	3.74
Average	3.74	3.79	3.58

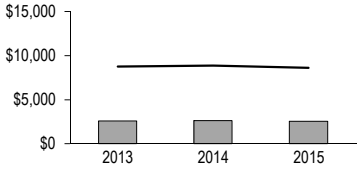
Miles of Land Trails per 10,000 Population



	2013	2014	2015
Greensboro	3.09	3.05	3.60
Average	2.18	2.10	2.30

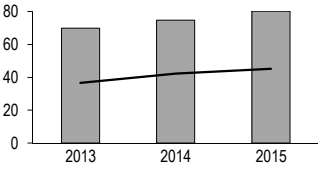
Efficiency Measures

Total Core Parks and Recreation Costs per Acre



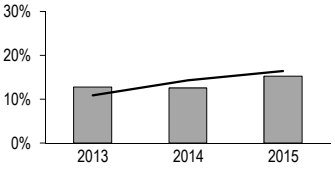
	2013	2014	2015
Greensboro	$2,591	$2,647	$2,553
Average	$8,763	$8,871	$8,609

Acres of Park Maintained per Maintenance FTE



	2013	2014	2015
Greensboro	70.0	74.8	80.3
Average	36.6	42.2	45.1

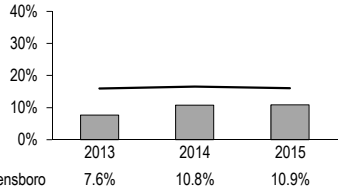
Volunteer Hours in FTEs as a Percent of Paid Staff FTEs



	2013	2014	2015
Greensboro	13%	13%	15.2%
Average	10.9%	14.3%	16.5%

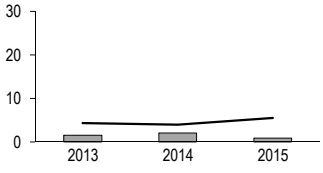
Effectiveness Measures

Revenue Gained as a Percent of Total Core Costs



	2013	2014	2015
Greensboro	7.6%	10.8%	10.9%
Average	15.9%	16.6%	16.0%

Acts of Vandalism at Parks Facilities per 10,000 Population



	2013	2014	2015
Greensboro	1.53	2.05	0.85
Average	4.30	3.96	5.50

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery

The City of Greenville provides recreation services through the separate Recreation and Parks Department. The city has a number of ad hoc or handshake agrements with other organizations but is moving to more formal agreements. Partner groups include Pitt County, local sports organizations, and concert entertainment groups.

The city has twenty-six separate parks and sites. These parks cover 1,454 acres; about two-thirds of them are developed. The city has nearly seven miles of trails.

In addition to the core parks and recreational facilities, Greenville has a large outdoor performance event site, a historic property, a boat ramp, a museum, and an eighteen-hole golf course. The operation of these other facilities is not included in the Core Parks and Recreation comparisons reported here. These facilities are not included here in dollars or staff as part of core parks and recreation facilities and activities.

Conditions Affecting Service, Performance, and Costs

Parks and Recreation is a new service area for the benchmarking project beginning with the FY 2012–13 reporting year.

Municipal Profile

Population (OSBM 2014)	87,436
Land Area (Square Miles)	34.90
Persons per Square Mile	2,505
Topography	Flat
Climate	Temperate; little ice and snow

Service Profile

Parks and Recreation Staff	
Administrative Position FTEs	3.0
Maintenance Staff FTEs	28.3
Program and Facility FTEs	83.5
Other Staff FTEs	1.8
TOTAL	116.6
Number of Parks and Sites	26
Total Land Acreage in Parks	1,454.0
Miles of Trails in Parks	6.5
Recreational Facilities	
Indoor and Outdoor Pools	2
Recreation Centers	7
Outdoor Basketball Courts	1
Outdoor Tennis Courts	20
Playgrounds	17
Diamond Fields	16
Rectangular Fields	5
Other Athletic Fields	2
Picnic Shelters	23
Parks and Recreation Revenues	
User Fees	$1,313,419
Grants	$5,590
Sponsorships	$4,234
Donations	$50

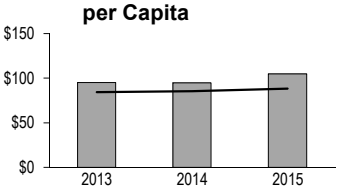
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	55.9%
Operating Costs	40.2%
Capital Costs	4.0%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$5,123,558
Operating Costs	$3,684,448
Capital Costs	$362,577
TOTAL	$9,170,583

Key: Greenville ■ Benchmarking Average — Fiscal Years 2013 through 2015

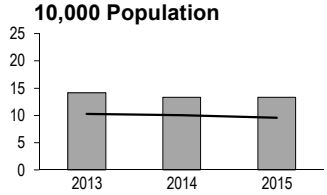
Resource Measures

Core Parks and Recreation Services per Capita



	2013	2014	2015
Greenville	$95	$95	$105
Average	$85	$85	$88

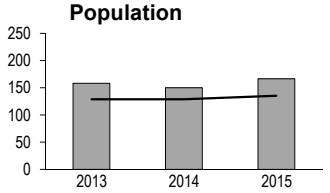
Core Parks and Recreation Staff per 10,000 Population



	2013	2014	2015
Greenville	14.1	13.4	13.3
Average	10.3	10.1	9.6

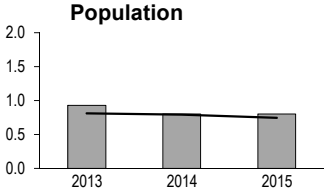
Facilities Measures

Land Acres of Parks per 10,000 Population



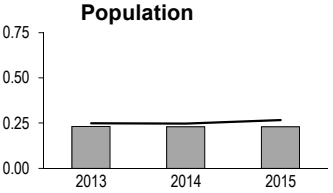
	2013	2014	2015
Greenville	157.99	150.11	166.29
Average	128.84	128.67	135.34

Recreation Centers per 10,000 Population



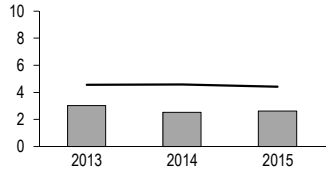
	2013	2014	2015
Greenville	0.93	0.80	0.80
Average	0.81	0.79	0.75

Swimming Pools per 10,000 Population



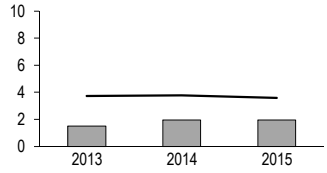
	2013	2014	2015
Greenville	0.23	0.23	0.23
Average	0.25	0.25	0.27

Athletic Fields per 10,000 Population



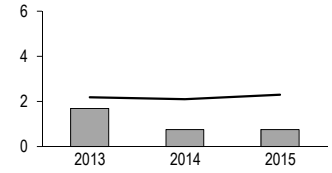
	2013	2014	2015
Greenville	3.02	2.52	2.63
Average	4.55	4.59	4.41

Playgrounds per 10,000 Population



	2013	2014	2015
Greenville	1.51	1.95	1.94
Average	3.74	3.79	3.58

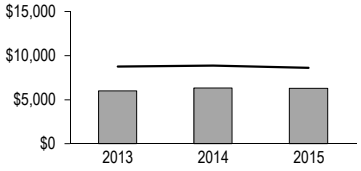
Miles of Land Trails per 10,000 Population



	2013	2014	2015
Greenville	1.68	0.75	0.74
Average	2.18	2.10	2.30

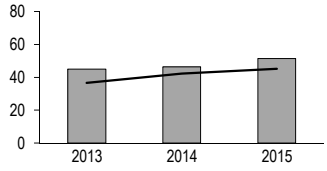
Efficiency Measures

Total Core Parks and Recreation Costs per Acre



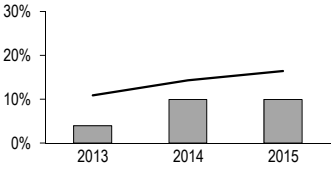
	2013	2014	2015
Greenville	$6,013	$6,320	$6,307
Average	$8,763	$8,871	$8,609

Acres of Park Maintained per Maintenance FTE



	2013	2014	2015
Greenville	45.0	46.4	51.5
Average	36.6	42.2	45.1

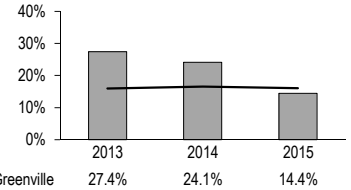
Volunteer Hours in FTEs as a Percent of Paid Staff FTEs



	2013	2014	2015
Greenville	4%	10%	9.9%
Average	10.9%	14.3%	16.5%

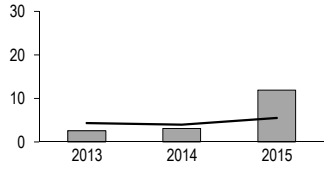
Effectiveness Measures

Revenue Gained as a Percent of Total Core Costs



	2013	2014	2015
Greenville	27.4%	24.1%	14.4%
Average	15.9%	16.6%	16.0%

Acts of Vandalism at Parks Facilities per 10,000 Population



	2013	2014	2015
Greenville	2.55	3.09	11.89
Average	4.30	3.96	5.50

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery

The City of Hickory Parks and Recreation Department is a separate department under the city organization. The city has partnerships with other organizations to provide recreational services, including a priority use agreement with local schools for use of facilities over other non-school users and a priority use agreement with Catawba Valley Youth Soccer for use of city soccer fields.

The city has twenty-five separate parks and sites. This includes 514 acres of park acreage; 428 of these acres are developed. The city has eleven miles of trails; about five miles are paved.

In addition to the core parks and recreational facilities, Hickory has one historic property, one professional sports facility, one boat ramp, one museum, two community gardens, and a tower ropes course. The operation of these other facilities is not included in the Core Parks and Recreation comparisons reported here. These facilities are not included here in dollars or staff as part of core parks and recreation facilities and activities.

Conditions Affecting Service, Performance, and Costs

Parks and Recreation is a new service area for the benchmarking project beginning with the FY 2012–13 reporting year.

Municipal Profile

Population (OSBM 2014)	40,332
Land Area (Square Miles)	29.84
Persons per Square Mile	1,352
Topography	Gently rolling
Climate	Temperate; some ice and snow

Service Profile

Parks and Recreation Staff	
Administrative Position FTEs	4.0
Maintenance Staff FTEs	27.5
Program and Facility FTEs	23.5
Other Staff FTEs	0.0
TOTAL	55.0
Number of Parks and Sites	25
Total Land Acreage in Parks	514.0
Miles of Trails in Parks	11.0
Recreational Facilities	
Indoor and Outdoor Pools	0
Recreation Centers	6
Outdoor Basketball Courts	13 full, 1 half
Outdoor Tennis Courts	17
Playgrounds	39
Diamond Fields	13
Rectangular Fields	11
Other Athletic Fields	0
Picnic Shelters	18
Parks and Recreation Revenues	
User Fees	$190,365
Grants	$0
Sponsorships	$42,887
Donations	$7,590

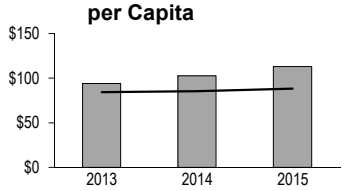
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	49.7%
Operating Costs	36.4%
Capital Costs	13.9%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$2,265,070
Operating Costs	$1,662,513
Capital Costs	$634,414
TOTAL	$4,561,997

Key: Hickory ■ Benchmarking Average — Fiscal Years 2013 through 2015

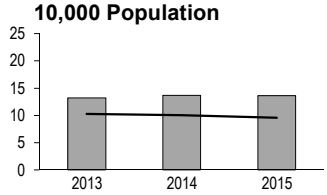
Resource Measures

Core Parks and Recreation Services per Capita



	2013	2014	2015
Hickory	$94	$103	$113
Average	$85	$85	$88

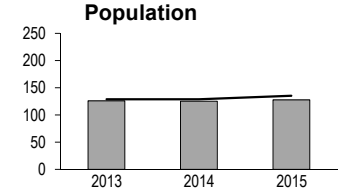
Core Parks and Recreation Staff per 10,000 Population



	2013	2014	2015
Hickory	13.2	13.7	13.6
Average	10.3	10.1	9.6

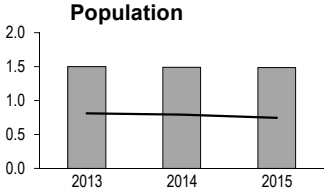
Facilities Measures

Land Acres of Parks per 10,000 Population



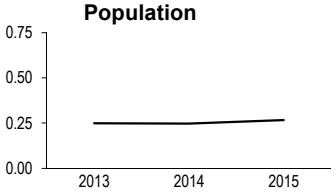
	2013	2014	2015
Hickory	125.88	125.30	127.44
Average	128.84	128.67	135.34

Recreation Centers per 10,000 Population



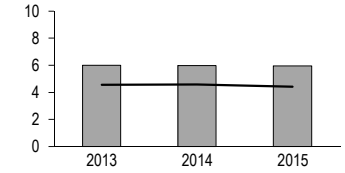
	2013	2014	2015
Hickory	1.50	1.49	1.49
Average	0.81	0.79	0.75

Swimming Pools per 10,000 Population



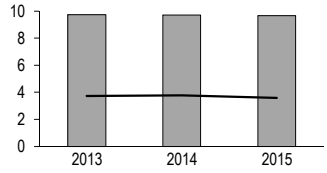
	2013	2014	2015
Hickory	0.00	0.00	0.00
Average	0.25	0.25	0.27

Athletic Fields per 10,000 Population



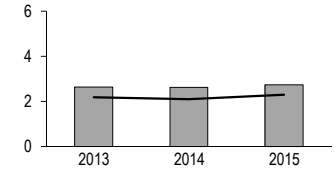
	2013	2014	2015
Hickory	5.99	5.97	5.95
Average	4.55	4.59	4.41

Playgrounds per 10,000 Population



	2013	2014	2015
Hickory	9.74	9.70	9.67
Average	3.74	3.79	3.58

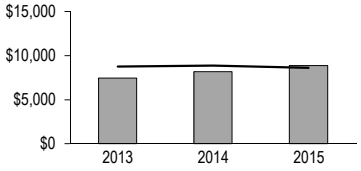
Miles of Land Trails per 10,000 Population



	2013	2014	2015
Hickory	2.64	2.63	2.73
Average	2.18	2.10	2.30

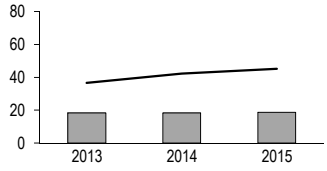
Efficiency Measures

Total Core Parks and Recreation Costs per Acre



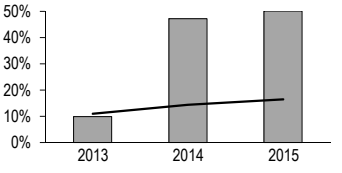
	2013	2014	2015
Hickory	$7,463	$8,188	$8,875
Average	$8,763	$8,871	$8,609

Acres of Park Maintained per Maintenance FTE



	2013	2014	2015
Hickory	18.3	18.3	18.7
Average	36.6	42.2	45.1

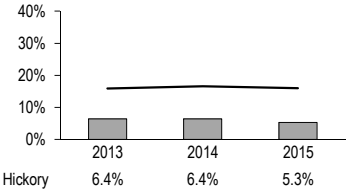
Volunteer Hours in FTEs as a Percent of Paid Staff FTEs



	2013	2014	2015
Hickory	10%	47%	50.1%
Average	10.9%	14.3%	16.5%

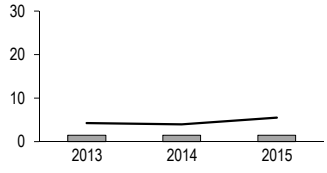
Effectiveness Measures

Revenue Gained as a Percent of Total Core Costs



	2013	2014	2015
Hickory	6.4%	6.4%	5.3%
Average	15.9%	16.6%	16.0%

Acts of Vandalism at Parks Facilities per 10,000 Population



	2013	2014	2015
Hickory	1.50	1.49	1.49
Average	4.30	3.96	5.50

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery

The City of High Point's Parks and Recreation Department is a separate department within the city. The city has a full array of recreational facilities and programs available.

The city has fifty separate parks with 1,922 acres; most of this acreage is developed. Additionally, 1,569 acres of water space is part of the parks system. The city has 21.4 miles of trails; just less than half of them are paved. All of these are multi-purpose trails, but equestrian riding is not permitted.

In addition to traditional core recreational facilities, High Point has two public boat ramps as part of the department's operations. These facilities are not included here in dollars or staff as part of core parks and recreation facilities and activities.

Conditions Affecting Service, Performance, and Costs

Parks and Recreation is a new service area for the benchmarking project beginning with the FY 2012–13 reporting year.

Municipal Profile

Population (OSBM 2014)	108,556
Land Area (Square Miles)	55.05
Persons per Square Mile	1,972
Topography	Flat; gently rolling
Climate	Temperate; little ice and snow

Service Profile

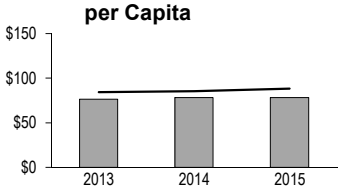
Parks and Recreation Staff	
Administrative Position FTEs	11.8
Maintenance Staff FTEs	60.5
Program and Facility FTEs	59.7
Other Staff FTEs	5.0
TOTAL	137.0
Number of Parks and Sites	50
Total Land Acreage in Parks	1,922
Miles of Trails in Parks	21.4
Recreational Facilities	
Indoor and Outdoor Pools	2
Recreation Centers	6
Outdoor Basketball Courts	15
Outdoor Tennis Courts	28
Playgrounds	30
Diamond Fields	23
Rectangular Fields	27
Other Athletic Fields	3
Picnic Shelters	36
Parks and Recreation Revenues	
User Fees	$1,487,296
Grants	$16,002
Sponsorships	$0
Donations	$29,719

Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	56.5%
Operating Costs	34.8%
Capital Costs	8.6%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$4,796,971
Operating Costs	$2,954,924
Capital Costs	$731,108
TOTAL	$8,483,003

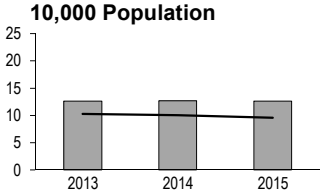
Resource Measures

Core Parks and Recreation Services per Capita



	2013	2014	2015
High Point	$76	$78	$78
Average	$85	$85	$88

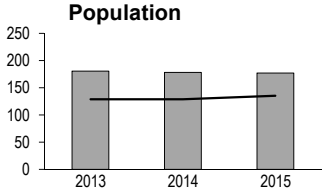
Core Parks and Recreation Staff per 10,000 Population



	2013	2014	2015
High Point	12.6	12.7	12.6
Average	10.3	10.1	9.6

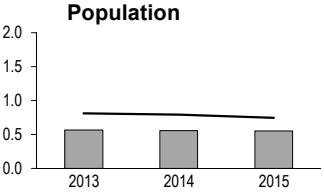
Facilities Measures

Land Acres of Parks per 10,000 Population



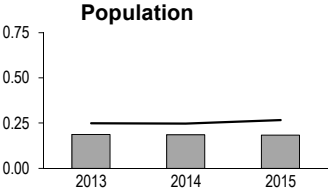
	2013	2014	2015
High Point	180.35	178.54	177.05
Average	128.84	128.67	135.34

Recreation Centers per 10,000 Population



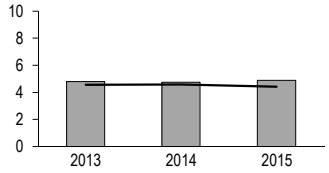
	2013	2014	2015
High Point	0.56	0.56	0.55
Average	0.81	0.79	0.75

Swimming Pools per 10,000 Population



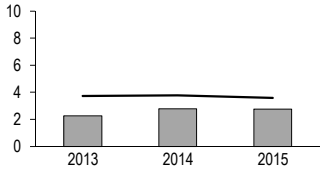
	2013	2014	2015
High Point	0.19	0.19	0.18
Average	0.25	0.25	0.27

Athletic Fields per 10,000 Population



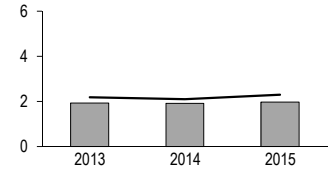
	2013	2014	2015
High Point	4.79	4.74	4.88
Average	4.55	4.59	4.41

Playgrounds per 10,000 Population



	2013	2014	2015
High Point	2.26	2.79	2.76
Average	3.74	3.79	3.58

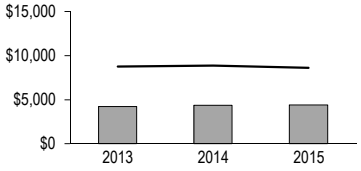
Miles of Land Trails per 10,000 Population



	2013	2014	2015
High Point	1.93	1.90	1.97
Average	2.18	2.10	2.30

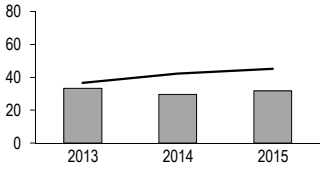
Efficiency Measures

Total Core Parks and Recreation Costs per Acre



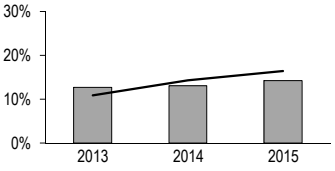
	2013	2014	2015
High Point	$4,235	$4,375	$4,414
Average	$8,763	$8,871	$8,609

Acres of Park Maintained per Maintenance FTE



	2013	2014	2015
High Point	33.4	29.5	31.8
Average	36.6	42.2	45.1

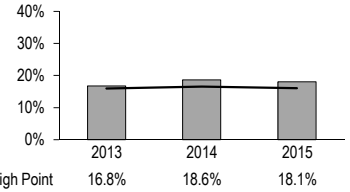
Volunteer Hours in FTEs as a Percent of Paid Staff FTEs



	2013	2014	2015
High Point	13%	13%	14.2%
Average	10.9%	14.3%	16.5%

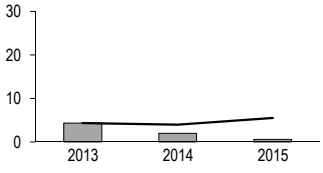
Effectiveness Measures

Revenue Gained as a Percent of Total Core Costs



	2013	2014	2015
High Point	16.8%	18.6%	18.1%
Average	15.9%	16.6%	16.0%

Acts of Vandalism at Parks Facilities per 10,000 Population



	2013	2014	2015
High Point	4.32	1.95	0.55
Average	4.30	3.96	5.50

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery
The City of Salisbury provides parks and recreation services through a separate department. This department includes other functions, such as services related to cemeteries, landscaping, right-of-ways, trees, medians, and mowing.

These other functions are not counted in the employees or dollars shown here. The city has an agreement with Rowan County for providing certain services for special populations. The city also provides funding for senior recreation services at the Rufty Homes Senior Center.

Salisbury has a full array of recreational facilities available. The city has 508 acres of parks; more than half are developed. The city has 16.9 miles of trails.

In addition to traditional recreational facilities, Salisbury has a large outdoor performance event site and six historic sites. These facilities are not included here in dollars or staff as part of core parks and recreation facilities and activities.

Conditions Affecting Service, Performance, and Costs
Parks and Recreation is a new service area for the benchmarking project beginning with the FY 2012–13 reporting year.

Many of Salisbury's neighborhood recreational facilities are forty years or older and somewhat dated. There is a YMCA in the city for paying members. The city programs primarily serve those who cannot afford the YMCA programs.

Municipal Profile

Population (OSBM 2014)	33,955
Land Area (Square Miles)	22.22
Persons per Square Mile	1,528
Topography	Flat; gently rolling
Climate	Temperate; little ice and snow

Service Profile

Parks and Recreation Staff	
Administrative Position FTEs	1.0
Maintenance Staff FTEs	13.0
Program and Facility FTEs	12.0
Other Staff FTEs	0.0
TOTAL	26.0
Number of Parks and Sites	28
Total Land Acreage in Parks	508.0
Miles of Trails in Parks	16.9
Recreational Facilities	
Indoor and Outdoor Pools	1
Recreation Centers	3
Outdoor Basketball Courts	6 full, 6 half
Outdoor Tennis Courts	10
Playgrounds	18
Diamond Fields	8
Rectangular Fields	4
Other Athletic Fields	0
Picnic Shelters	14
Parks and Recreation Revenues	
User Fees	$132,068
Grants	$164
Sponsorships	$0
Donations	$10,853

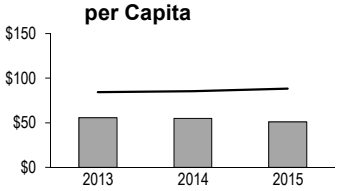
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	58.4%
Operating Costs	36.1%
Capital Costs	5.5%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$1,014,088
Operating Costs	$625,994
Capital Costs	$96,224
TOTAL	$1,736,306

Key: Salisbury ■ Benchmarking Average — Fiscal Years 2013 through 2015

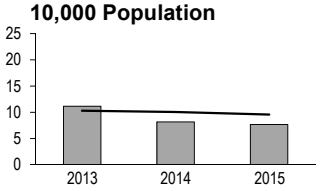
Resource Measures

Core Parks and Recreation Services per Capita



	2013	2014	2015
Salisbury	$56	$55	$51
Average	$85	$85	$88

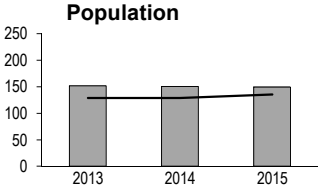
Core Parks and Recreation Staff per 10,000 Population



	2013	2014	2015
Salisbury	11.1	8.2	7.7
Average	10.3	10.1	9.6

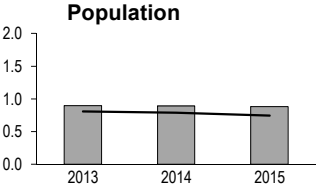
Facilities Measures

Land Acres of Parks per 10,000 Population



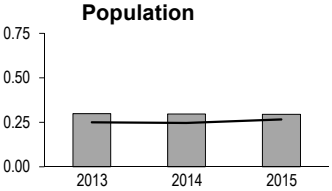
	2013	2014	2015
Salisbury	151.90	150.63	149.61
Average	128.84	128.67	135.34

Recreation Centers per 10,000 Population



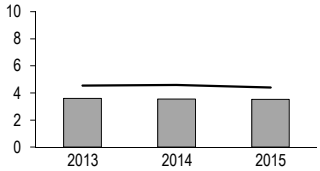
	2013	2014	2015
Salisbury	0.90	0.89	0.88
Average	0.81	0.79	0.75

Swimming Pools per 10,000 Population



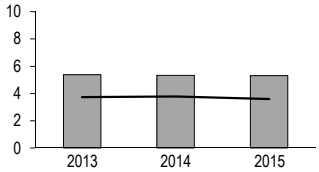
	2013	2014	2015
Salisbury	0.30	0.30	0.29
Average	0.25	0.25	0.27

Athletic Fields per 10,000 Population



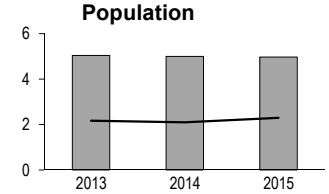
	2013	2014	2015
Salisbury	3.59	3.56	3.53
Average	4.55	4.59	4.41

Playgrounds per 10,000 Population



	2013	2014	2015
Salisbury	5.38	5.34	5.30
Average	3.74	3.79	3.58

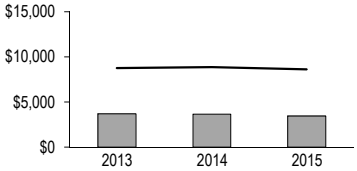
Miles of Land Trails per 10,000 Population



	2013	2014	2015
Salisbury	5.05	5.01	4.98
Average	2.18	2.10	2.30

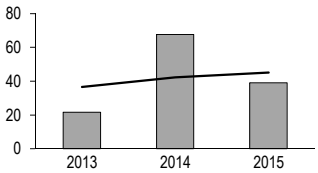
Efficiency Measures

Total Core Parks and Recreation Costs per Acre



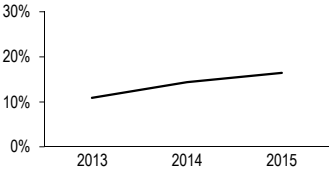
	2013	2014	2015
Salisbury	$3,662	$3,646	$3,418
Average	$8,763	$8,871	$8,609

Acres of Park Maintained per Maintenance FTE



	2013	2014	2015
Salisbury	21.6	67.7	39.1
Average	36.6	42.2	45.1

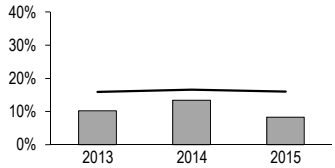
Volunteer Hours in FTEs as a Percent of Paid Staff FTEs



	2013	2014	2015
Salisbury			
Average	10.9%	14.3%	16.5%

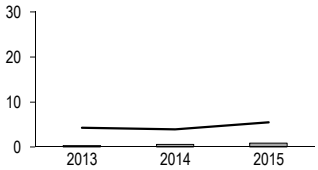
Effectiveness Measures

Revenue Gained as a Percent of Total Core Costs



	2013	2014	2015
Salisbury	10.3%	13.4%	8.2%
Average	15.9%	16.6%	16.0%

Acts of Vandalism at Parks Facilities per 10,000 Population



	2013	2014	2015
Salisbury	0.30	0.59	0.88
Average	4.30	3.96	5.50

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery

The City of Wilson Parks and Recreation Department is a separate department under the city organization. The city has partnerships with other organizations to provide recreational services, including the Wilson County Schools, the Wilson Youth Soccer Association, Wilson City Little League, Special Olympics, Youth Soccer Association, the Senior Games of North Carolina, and the Wilson Arts Council.

The city has twenty-eight separate parks and sites. This includes 400 acres of park acreage, most currently undeveloped. The city has fourteen miles of trails.

In addition to the core parks and recreational facilities, Wilson has three boat ramps and one museum. The city also runs a municipal eighteen-hole golf course. The operation of these other facilities is not included in the Core Parks and Recreation comparisons reported here. These facilities are not included here in dollars or staff as part of core parks and recreation facilities and activities.

Conditions Affecting Service, Performance, and Costs

Parks and Recreation is a new service area for the benchmarking project beginning with the FY 2012–13 reporting year.

Municipal Profile

Population (OSBM 2014)	49,222
Land Area (Square Miles)	30.52
Persons per Square Mile	1,613
Topography	Flat
Climate	Temperate; little ice and snow

Service Profile

Parks and Recreation Staff	
Administrative Position FTEs	4.0
Maintenance Staff FTEs	14.0
Program and Facility FTEs	49.0
Other Staff FTEs	4.0
TOTAL	71.0
Number of Parks and Sites	28
Total Land Acreage in Parks	400.0
Miles of Trails in Parks	14.5
Recreational Facilities	
Indoor and Outdoor Pools	2
Recreation Centers	4
Outdoor Basketball Courts	7
Outdoor Tennis Courts	16
Playgrounds	25
Diamond Fields	11
Rectangular Fields	14
Other Athletic Fields	1
Picnic Shelters	15
Parks and Recreation Revenues	
User Fees	$350,000
Grants	$0
Sponsorships	$104,000
Donations	$0

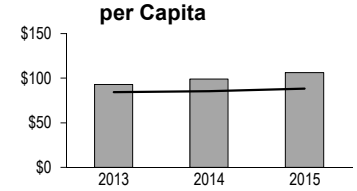
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	53.2%
Operating Costs	38.1%
Capital Costs	8.7%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$2,780,731
Operating Costs	$1,988,947
Capital Costs	$454,998
TOTAL	$5,224,676

Key: Wilson ■ Benchmarking Average — Fiscal Years 2013 through 2015

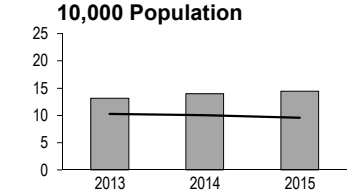
Resource Measures

Core Parks and Recreation Services per Capita



	2013	2014	2015
Wilson	$93	$99	$106
Average	$85	$85	$88

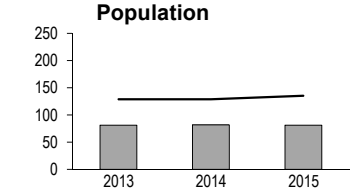
Core Parks and Recreation Staff per 10,000 Population



	2013	2014	2015
Wilson	13.1	14.0	14.4
Average	10.3	10.1	9.6

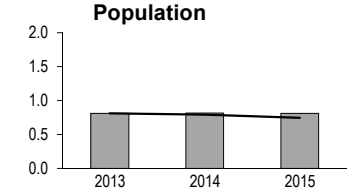
Facilities Measures

Land Acres of Parks per 10,000 Population



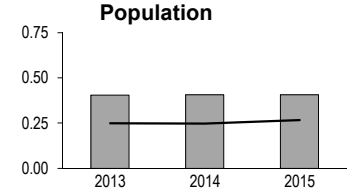
	2013	2014	2015
Wilson	80.91	81.47	81.26
Average	128.84	128.67	135.34

Recreation Centers per 10,000 Population



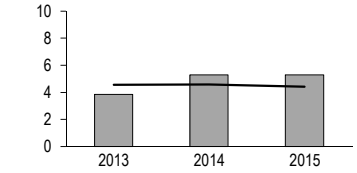
	2013	2014	2015
Wilson	0.81	0.81	0.81
Average	0.81	0.79	0.75

Swimming Pools per 10,000 Population



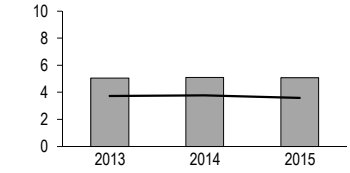
	2013	2014	2015
Wilson	0.40	0.41	0.41
Average	0.25	0.25	0.27

Athletic Fields per 10,000 Population



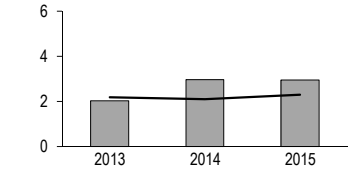
	2013	2014	2015
Wilson	3.84	5.30	5.28
Average	4.55	4.59	4.41

Playgrounds per 10,000 Population



	2013	2014	2015
Wilson	5.06	5.09	5.08
Average	3.74	3.79	3.58

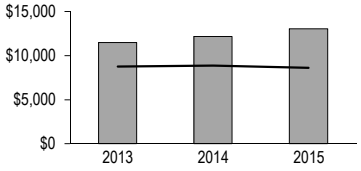
Miles of Land Trails per 10,000 Population



	2013	2014	2015
Wilson	2.02	2.95	2.95
Average	2.18	2.10	2.30

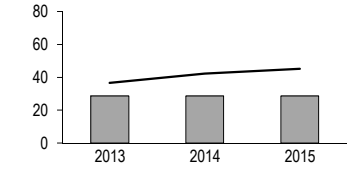
Efficiency Measures

Total Core Parks and Recreation Costs per Acre



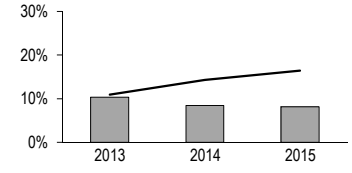
	2013	2014	2015
Wilson	$11,508	$12,184	$13,062
Average	$8,763	$8,871	$8,609

Acres of Park Maintained per Maintenance FTE



	2013	2014	2015
Wilson	28.6	28.6	28.6
Average	36.6	42.2	45.1

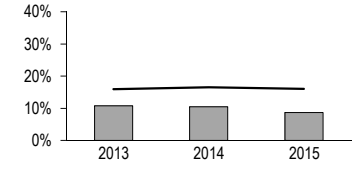
Volunteer Hours in FTEs as a Percent of Paid Staff FTEs



	2013	2014	2015
Wilson	10%	8%	8.1%
Average	10.9%	14.3%	16.5%

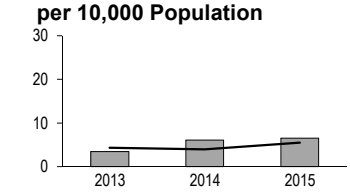
Effectiveness Measures

Revenue Gained as a Percent of Total Core Costs



	2013	2014	2015
Wilson	10.8%	10.5%	8.7%
Average	15.9%	16.6%	16.0%

Acts of Vandalism at Parks Facilities per 10,000 Population



	2013	2014	2015
Wilson	3.44	6.11	6.50
Average	4.30	3.96	5.50

Fiscal Year 2014–15

Explanatory Information

Service Level and Delivery

The City of Winston-Salem Recreation and Parks Department is a separate department under the city organization. The department is overseen by the advisory Parks and Recreation Commission, which has eleven members appointed by the mayor and approved by the city council. The city has formal cooperative arrangements with Foryth County and various public-private partnerships with other organizations to provide recreational services.

The city has seventy-nine separate parks and sites. This includes 3,683 acres of park land, most of which is developed The city has twenty-three miles of trails, about two-thirds of which are paved.

In addition to the core parks and recreational facilities, Winston-Salem has two large outdoor performance event sites, a historic property, one boat ramp, and one museum. The city also runs two municipal eighteen-hole golf courses. The operation of these other facilities is not included in the Core Parks and Recreation comparisons reported here. These facilities are not included here in dollars or staff as part of core parks and recreation facilities and activities.

Conditions Affecting Service, Performance, and Costs

Parks and Recreation is a new service area for the benchmarking project beginning with the FY 2012–13 reporting year.

Many Forsyth County residents make use of of the city's parks and recreational facilities. Most of the city's facilities were built in the 1960s to 1980s and are aging.

Municipal Profile

Population (OSBM 2014)	237,905
Land Area (Square Miles)	132.45
Persons per Square Mile	1,796
Topography	Gently rolling
Climate	Temperate; some ice and snow

Service Profile

Parks and Recreation Staff	
Administrative Position FTEs	25.0
Maintenance Staff FTEs	75.3
Program and Facility FTEs	100.6
Other Staff FTEs	2.0
TOTAL	202.9
Number of Parks and Sites	79
Total Land Acreage in Parks	3,682.9
Miles of Trails in Parks	23.2
Recreational Facilities	
Indoor and Outdoor Pools	8
Recreation Centers	17
Outdoor Basketball Courts	15 full, 1 half
Outdoor Tennis Courts	112
Playgrounds	44
Diamond Fields	47
Rectangular Fields	50
Other Athletic Fields	0
Picnic Shelters	51
Parks and Recreation Revenues	
User Fees	$962,226
Grants	$446
Sponsorships	$425,690
Donations	$65,706

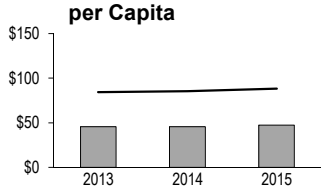
Full Cost Profile

Cost Breakdown by Percentage	
Personal Services	54.4%
Operating Costs	33.2%
Capital Costs	12.4%
TOTAL	100.0%
Cost Breakdown in Dollars	
Personal Services	$6,135,906
Operating Costs	$3,740,431
Capital Costs	$1,393,843
TOTAL	$11,270,180

Key: Winston-Salem ■ Benchmarking Average — Fiscal Years 2013 through 2015

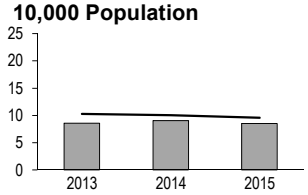
Resource Measures

Core Parks and Recreation Services per Capita



	2013	2014	2015
Winston-Salem	$46	$46	$47
Average	$85	$85	$88

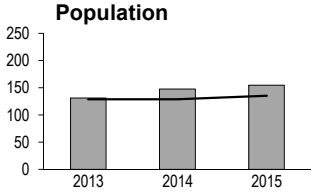
Core Parks and Recreation Staff per 10,000 Population



	2013	2014	2015
Winston-Salem	8.6	9.0	8.5
Average	10.3	10.1	9.6

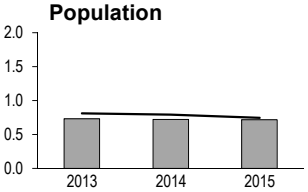
Facilities Measures

Land Acres of Parks per 10,000 Population



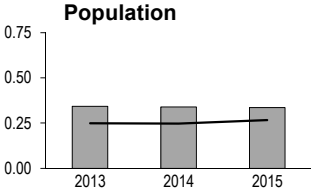
	2013	2014	2015
Winston-Salem	131.07	147.71	154.81
Average	128.84	128.67	135.34

Recreation Centers per 10,000 Population



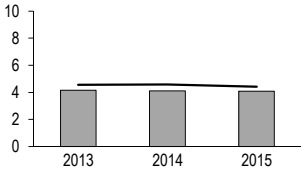
	2013	2014	2015
Winston-Salem	0.73	0.72	0.71
Average	0.81	0.79	0.75

Swimming Pools per 10,000 Population



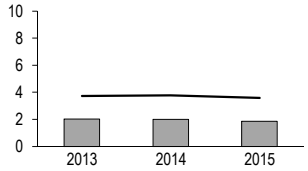
	2013	2014	2015
Winston-Salem	0.34	0.34	0.34
Average	0.25	0.25	0.27

Athletic Fields per 10,000 Population



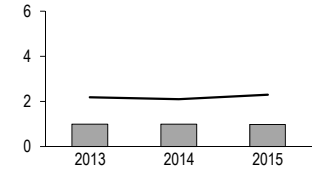
	2013	2014	2015
Winston-Salem	4.16	4.12	4.08
Average	4.55	4.59	4.41

Playgrounds per 10,000 Population



	2013	2014	2015
Winston-Salem	2.02	2.00	1.85
Average	3.74	3.79	3.58

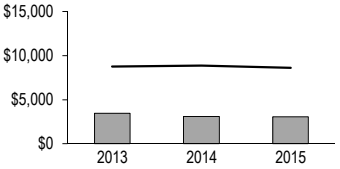
Miles of Land Trails per 10,000 Population



	2013	2014	2015
Winston-Salem	1.00	0.99	0.98
Average	2.18	2.10	2.30

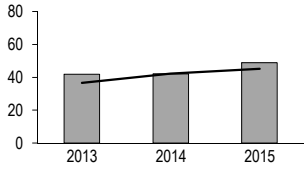
Efficiency Measures

Total Core Parks and Recreation Costs per Acre



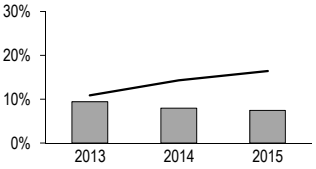
	2013	2014	2015
Winston-Salem	$3,478	$3,094	$3,060
Average	$8,763	$8,871	$8,609

Acres of Park Maintained per Maintenance FTE



	2013	2014	2015
Winston-Salem	42.0	42.0	48.9
Average	36.6	42.2	45.1

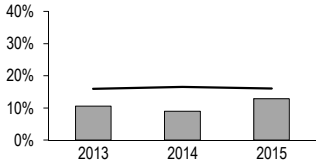
Volunteer Hours in FTEs as a Percent of Paid Staff FTEs



	2013	2014	2015
Winston-Salem	9%	8%	7.4%
Average	10.9%	14.3%	16.5%

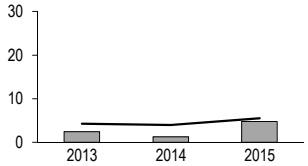
Effectiveness Measures

Revenue Gained as a Percent of Total Core Costs



	2013	2014	2015
Winston-Salem	10.6%	9.0%	12.9%
Average	15.9%	16.6%	16.0%

Acts of Vandalism at Parks Facilities per 10,000 Population



	2013	2014	2015
Winston-Salem	2.44	1.23	4.79
Average	4.30	3.96	5.50

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The report is part of the North Carolina Benchmarking Project, a joint undertaking of the UNC School of Government and the North Carolina Local Government Budget Association. For more information, visit **sog.unc.edu/resources/microsites/north-carolina-benchmarking-project**.

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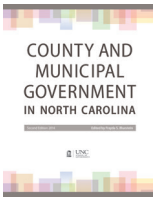

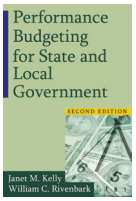

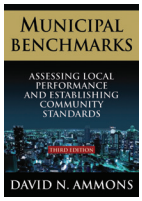

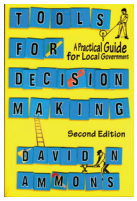

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ABOUT THE AUTHOR

Dale J. Roenigk is a lecturer at the UNC School of Government and serves as director of the North Carolina Benchmarking Project.

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