STRATEGIC PLAN
NOVEMBER 2016

Charleston County
Public Works Department
STRATEGIC PLAN
CHARLESTON COUNTY PUBLIC WORKS DEPARTMENT
EXECUTIVE SUMMARY

The 2016 Public Works Strategic Plan provides the continued framework for the Department's planning processes and development of long-range and tactical goals and objectives using a Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis, and describes the path forward for the Department. This plan is based on and updates the strategic plan developed in 2012. The 2016 update incorporates criteria from the Public Works Practices Manual, 8th Edition, published by the American Public Works Association (APWA), into the previous plan and emphasizes the need for increased levels of service in key areas.

Baseline service levels are maintained, with elevated emphasis on customer-focused service to our citizens. Major initiatives include:

1. Improving the maintenance of stormwater conveyance systems throughout the County.
2. Implementation of a Citizen’s Education and Outreach Program for our rural and County non-standard roads.
3. Implementation of a major department-wide reorganization to improve productivity, reduce supervisory span of control, enhance dissemination of information and promote higher job skills through broad-based training initiatives.
4. Implementation of a closed drainage system maintenance management program.
5. Implementation of a maintenance based drainage rating system.
6. Further expansion of the Citizens’ Awareness Program to help combat Zika, Dengue Fever, and other mosquito-borne diseases.

The Department’s goals and objectives, mission, and vision statements are included as an attachment in the strategic plan and each is tied to the annual budget request for the Department. The strategic plan is monitored annually through targeted performance measures as part of the budget cycle and quadrennially updated.

The Comprehensive Annual Financial Report (CAFR) compiled and published by Charleston County’s Finance Department serves as the County’s government-wide strategic plan. The 2016 Public Works Strategic Plan, along with input from other departments, is incorporated into the CAFR.

Overview

Since the previous strategic plan was adopted in November 2012, there have been numerous personnel reassignments which have culminated in a full-scale reorganization of the Public Works Department into three functional divisions effected in Fiscal Year 2017.
The Charleston County Public Works Department accomplishes its mission using force account, contractors, and volunteers. The Department focuses on enhancing infrastructure maintenance, proactive maintenance management capabilities, core engineering functions, and stormwater and mosquito control services. The Public Works Department has one of the largest staffs in the County, comprised primarily of "blue collar" employees. It has a diverse mission and programs. The focus of this update to the strategic plan is to examine our path forward integrating the new and redefined missions, targeted training, exploring and adopting new technologies, and being fiscally responsible.

Accomplishments Since the 2012 Strategic Plan Update

In May 2013, the Public Works Department, as lead agency along with two sister departments, became the 83rd nationwide agency accredited by the American Public Works Association. The Department demonstrates its leadership role as documented by several of its employees being recognized by their peers through local, State, and National level awards or appointed to key leadership positions in professional organizations during the previous four years.

The Public Works Department stabilized its workforce by successfully converting several temporary positions to full-time positions and now stands at a force of 200 full-time employees. The Department’s reorganization and repurposing efforts, started prior to the 2012 Strategic Plan, are nearing completion resulting in three functional divisions which will further focus the Department’s efforts toward consistently and continuously providing its citizens, businesses, and tourists with the highest quality of public works services.

The Department’s Earth Road Management Program, implemented in 2011, continues to reap benefits on behalf of the County’s citizens. Integrating iPads for field information management provided a substantial boost to this program through streamlined data collection and transfer operations, eliminating much of the manual document collection and entry processes. To date, the Department has successfully navigated the daunting complexities involved in converting 177 of 297 (60%) non-standard roadways to either fully public or private status.

Through our MS4 Stormwater Program Intergovernmental Agreements maintained with five local municipalities, several stormwater related projects have been completed for the benefit of those municipalities. The Public Works Department, in concert with the municipalities, continues to increase public awareness of stormwater related information through public meetings, educational programs, and a robust information program all posted on its public web-site.

The new technology and equipment, including an additional Hydrovac truck procured in 2012 through our Stormwater Program, have been instrumental in elevating the Department’s system-wide closed drainage maintenance frequency and closed system surveillance capabilities.

The Department’s herbiciding program, initiated in 2012, has shown a marked reduction in labor and machine intensive maintenance activities. The Department continues to seek
out and implement opportunities to expand this program through greater application, herbicide spraying contracts, and investments in better equipment.

The Mosquito Control Division implemented an iPad based electronic recording system and standardized data collection algorithms into its annual education campaign, the results being improved data collection accuracy and analysis. This move also allowed for the use of volunteer interns for this purpose, reducing the burden on existing staff.

The Department has undertaken pilot projects utilizing a permeable pavement initiative. This solution affords the opportunity for paved road surface upgrades in areas which heretofore were not able to due to drainage, right-of-way issues, and/or typical construction methods. The Department is now monitoring these pilot projects to gauge their effectiveness.

The Department remains on track to have all signs not currently meeting requirements of the *Manual on Uniform Traffic Control Devices (MUTCD)* replaced by Calendar Year 2018 and, therefore, in compliance with Federal and State guidelines for sign retroreflectivity standards.

During the previous four years, the Department has upgraded many of its software applications – Cartégraph, our work order and asset management software, was upgraded from a client based version to the web-based Operations Management System (OMS); Mosquito Control replaced its aging Vector Control Management System (VCMS) with FieldSeeker; YourGov, an Android and IOS application integrating with Cartégraph OMS, has been rolled out in a limited fashion; and the Department coordinated with other County departments to consolidate permitting applications through EnerGov.

**Charleston County Public Works Department**

**Mission Statement:** The Public Works Department provides Charleston County's residents, commerce, and visitors efficient, responsive, and responsible County road and drainage infrastructure management and maintenance, engineering, stormwater, and mosquito control services through its integrated delivery programs.

**Vision Statement:** To consistently and reliably execute the mission of the Charleston County Public Works Department - providing exemplary and innovative public service, nationally recognized through American Public Works Association accreditation, to its citizenry, businesses, governmental agencies, and tourists while being the employer of choice with Charleston County government.

**Strengths**
- Well trained, experienced, talented, dedicated, knowledgeable professional staff with professional licensing and/or certifications meeting or exceeding the needs of the position in our technical divisions.
- Decentralized/dispersed operations.
- Technological/expertise and skilled operators.
- Good relationships with State and other local agencies.
• Capital equipment resources.
• Product demand (demand for services).
• Staff well trained in emergency management.
• A highly adaptable Customer Service Support group.
• Staff ability to readily adapt and overcome adversity.
• Major contributor into the Community Rating System which directly affects homeowner insurance rates.
• A strong demonstrated history of delivering innovative, quality Public Works services.
• Nationally and State-wide recognized leadership.

Weaknesses

• Generally underfunded.
• A diverse population and workforce dispersed over a large geographical area.
• Jurisdictional overlap (urban, rural, municipalities, County).
• Vulnerability to economic fluctuations, especially fuel prices.
• Exposure to Workman’s Compensation and Unemployment claims.
• Workload is increasingly environmentally driven.
• Depleted by back-to-back natural disasters (1,000 Year Flood & Hurricane Matthew).

Opportunities

• Increased Stormwater services.
• Improved disaster contract management.
• National Public Works Week outreach programs.
• Summer intern program.
• Leveraging social media.
• Emerging technologies, equipment, resources.

Threats

• New promulgations at State and Federal levels.
• Unsustainable public expectations based on current economic environment.
• Loss of skilled, experienced workers to the private sector.

Goals and Objectives

Short-term Goals

The Public Works Department publishes annualized tactical and strategic goals outlining its programmed levels of service deliverables in selected key areas and improvement planning based on the current Department mission, staffing, and funding. These goals are included in the annual Budget Narrative and by reference are included as an integral part of this strategic plan.
Mid-term Goals

- Increased productivity, accountability, and interoperability accomplished through reorganization into three functional divisions.
- Improved information management through the use of cloud-based tools and systems (Office 2016, Microsoft Office 365, and related applications) and analysis using current and new tools, improved reporting tools (EnerGov; Cartograph OMS), and analytical and decision support technology.
- Improve supervisors’ skills through on-line and classroom training and participation in professional organizations.
- Improve job skills/training through the use of on-the-job and specialized training.
- Improve our mosquito control operations with in-house tools, equipment, and training.
- Enhanced customer service by expanded use of technologies and social media.

Long-term Goals

- Achieve excellence in overall operations as demonstrated by remaining an accredited agency by the American Public Works Association.
- Improve the rural roads network by leveraging available funding mechanisms to move the County road network from earth surfaced to rock bed and paved surfaced roads.
- Encourage staff to contribute to the body of knowledge by publishing articles in professional journals and to seek opportunities for presentation before professional organizations.
- Become a nationally recognized leader in transportation and drainage infrastructure maintenance, repair and replacement, and mosquito control operations.
- Improve the County-wide drainage system by obtaining the funding and resources to become a flood resistant and resilient community.

James R. Neal, P.E.
Public Works Director
Performance Measures:

**Department Goal 1:** Maintain a safe and quality County roadway network.

Objective 1(a): Inspect 20% of the County road network annually using Maintenance Rating Program (MRP) standards.

Objective 1(b): Maintain a minimum MRP rating of 70 or higher on all County roadways.¹

Objective 1(c): Maintain 100% retroreflectivity standards by replacing 11% of sign inventory annually.²

**Department Goal 2:** Regulate and manage the mosquito population in Charleston County to protect the public from nuisance and disease bearing mosquitoes.

Objective 2(a): Maintain an Adult Density Index (ADI) of 3.0 or less.³

Objective 2(b): Increase Citizen Awareness Program to achieve 20%⁴

Objective 2(c): Clear all new requests for service within 36 business hours of receipt.⁵

**Department Goal 3:** Provide a safe and functional County drainage system.⁶

Objective 3(a): Control 100% of the County drainage system vegetation using chemical and/or mechanical controls.

Objective 3(b): Maintain to grade 20% of mechanically cleaned County drainage system annually.

Objective 3(c): Inspect 100% of open drainage system annually.

**Department Goal 4:** Protect the waterways of Charleston County through the Charleston County's Stormwater Management Program.⁷

Objective 4(a): Review all submitted permit requests within 20 working days.

Objective 4(b): Inspect all permitted sites twice during the open permit status of the project.

Objective 4(c): Perform post-construction inspections on 100% of permitted sites.

**Department Goal 5:** Maintain American Public Works Association (APWA) accreditation.⁸

Objective 5(a): Review 25% of all practices annually and review current procedures, update, and implement standards as required.⁹

**Department Goal 6:** Manage Countywide Debris Management Plan to coordinate disaster-related debris removal operations in the event of a major emergency or disaster in Charleston County.¹⁰

Objective 6(a): Execute and/or maintain an Intergovernmental Agreement (IGA) with all municipalities within the County.

### MEASURES:

<table>
<thead>
<tr>
<th>Input:</th>
<th>Objective</th>
<th>FY 2015 Actual</th>
<th>FY 2016 Actual</th>
<th>FY 2017 Projected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total roadway inventory (earthrock/paved/platted CNSR - each)</td>
<td>1(a)(c)</td>
<td>377</td>
<td>412</td>
<td>447</td>
</tr>
<tr>
<td>Total number of maintained signs (each)</td>
<td>1(c)</td>
<td>4,239</td>
<td>3,839</td>
<td>3,845</td>
</tr>
<tr>
<td>Mosquito Control expenditures ¹¹</td>
<td>2(a)</td>
<td>$1,913,880</td>
<td>2,062,420</td>
<td>2,357,460</td>
</tr>
<tr>
<td>Number of requests for service</td>
<td>2(c)</td>
<td>1,333</td>
<td>3,053</td>
<td>1,600</td>
</tr>
<tr>
<td>Drainage inventory subject to treatment (miles)</td>
<td>3(a)</td>
<td>275.5</td>
<td>275.5</td>
<td>275.5</td>
</tr>
<tr>
<td>Drainage inventory mechanically maintained (miles)</td>
<td>3(b)</td>
<td>80.4</td>
<td>80.9</td>
<td>30.9</td>
</tr>
<tr>
<td>Open drainage system to be inspected (each)</td>
<td>3(c)</td>
<td>1,262</td>
<td>1,271</td>
<td>1,271</td>
</tr>
<tr>
<td>Plans submitted for stormwater permits</td>
<td>4(a)</td>
<td>374</td>
<td>458</td>
<td>503</td>
</tr>
<tr>
<td>Stormwater permitted sites inspected</td>
<td>4(b)</td>
<td>3,397</td>
<td>4,805</td>
<td>5,285</td>
</tr>
<tr>
<td>APWA accreditation practices to be reviewed</td>
<td>5(a)</td>
<td>n/a</td>
<td>328</td>
<td>421</td>
</tr>
<tr>
<td>Municipalities in Charleston County</td>
<td>6(a)</td>
<td>n/a</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>Output:</td>
<td>Objective</td>
<td>FY 2015 Actual</td>
<td>FY 2016 Actual</td>
<td>FY 2017 Projected</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>-----------</td>
<td>----------------</td>
<td>----------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Roads inspected (each)</td>
<td>1(a)</td>
<td>239</td>
<td>130</td>
<td>90</td>
</tr>
<tr>
<td>Inspected roads with passing rating (each)</td>
<td>1(b)</td>
<td>205</td>
<td>79</td>
<td>90</td>
</tr>
<tr>
<td>Number of signs replaced</td>
<td>1(c)</td>
<td>195</td>
<td>169</td>
<td>422</td>
</tr>
<tr>
<td>Cost of sign replacements</td>
<td>1(c)</td>
<td>$26,549</td>
<td>$14,690</td>
<td>$36,714</td>
</tr>
<tr>
<td>Light trap collection count</td>
<td>2(a)</td>
<td>n/a</td>
<td>4.7</td>
<td>n/a</td>
</tr>
<tr>
<td>Landing rate count</td>
<td>2(a)</td>
<td>n/a</td>
<td>7.1</td>
<td>n/a</td>
</tr>
<tr>
<td>Number of households visited (Mosquito Control)</td>
<td>2(b)</td>
<td>2,861</td>
<td>6,859</td>
<td>2,980</td>
</tr>
<tr>
<td>Service requests cleared within 36 business hours</td>
<td>2(c)</td>
<td>1,133</td>
<td>2,541</td>
<td>n/a</td>
</tr>
<tr>
<td>Drainage system inventory treated (miles)</td>
<td>3(a)</td>
<td>274.4</td>
<td>219.3</td>
<td>274.4</td>
</tr>
<tr>
<td>Vegetation control expenditures</td>
<td>3(a)</td>
<td>$71,812</td>
<td>$57,995</td>
<td>$70,000</td>
</tr>
<tr>
<td>Drainage system inventory mechanically excavated to grade (miles)</td>
<td>3(b)</td>
<td>37.3</td>
<td>19.6</td>
<td>37.3</td>
</tr>
<tr>
<td>Mechanically maintained drainageway expenditures</td>
<td>3(b)</td>
<td>$160,532</td>
<td>$169,415</td>
<td>$169,415</td>
</tr>
<tr>
<td>Open drainage system inspected (each)</td>
<td>3(c)</td>
<td>1,262</td>
<td>3,058</td>
<td>n/a</td>
</tr>
<tr>
<td>Stormwater permits reviewed within 20 working days</td>
<td>4(a)</td>
<td>374</td>
<td>458</td>
<td>503</td>
</tr>
<tr>
<td>Stormwater permit review expenses</td>
<td>4(a)</td>
<td>$96,038</td>
<td>$103,879</td>
<td>$160,000</td>
</tr>
<tr>
<td>Stormwater permitted sites inspected at least twice</td>
<td>4(b)</td>
<td>3,397</td>
<td>4,805</td>
<td>$2,285</td>
</tr>
<tr>
<td>Stormwater permit site inspection expenses</td>
<td>4(b)</td>
<td>$58,800</td>
<td>$110,095</td>
<td>$121,000</td>
</tr>
<tr>
<td>APWA accreditation practices reviewed</td>
<td>5(a)</td>
<td>n/a</td>
<td>328</td>
<td>421</td>
</tr>
<tr>
<td>Municipalities with executed IGA</td>
<td>6(a)</td>
<td>n/a</td>
<td>12</td>
<td>14</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Efficiency:</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost per sign replacement</td>
<td>1(c)</td>
<td>$136</td>
<td>$87</td>
<td>$87</td>
</tr>
<tr>
<td>Cost per ADI unit</td>
<td>2(a)</td>
<td>n/a</td>
<td>$793,000</td>
<td>$786,000</td>
</tr>
<tr>
<td>Cost per mile vegetation control</td>
<td>3(a)</td>
<td>$261</td>
<td>$269</td>
<td>$269</td>
</tr>
<tr>
<td>Cost per mile mechanically cleaned drainageways</td>
<td>3(b)</td>
<td>$4,304</td>
<td>$6,887</td>
<td>$4,350</td>
</tr>
<tr>
<td>Cost per stormwater permit processed</td>
<td>4(a)</td>
<td>$257</td>
<td>$227</td>
<td>$318</td>
</tr>
<tr>
<td>Cost per site for stormwater inspection services</td>
<td>4(b)</td>
<td>$17</td>
<td>$22</td>
<td>$23</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Outcome:</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of roadway network inspected</td>
<td>1(a)</td>
<td>63.4%</td>
<td>31.5%</td>
<td>20%</td>
</tr>
<tr>
<td>Percentage of inspected roadways with passing rating</td>
<td>1(b)</td>
<td>85.8%</td>
<td>60.7%</td>
<td>30%</td>
</tr>
<tr>
<td>Percentage of signs replaced</td>
<td>1(c)</td>
<td>4.6%</td>
<td>3.9%</td>
<td>11%</td>
</tr>
<tr>
<td>Level of mosquito control (ADI)</td>
<td>2(a)</td>
<td>n/a</td>
<td>2.60</td>
<td>3.00</td>
</tr>
<tr>
<td>Citizen Awareness Program change</td>
<td>2(b)</td>
<td>34.1%</td>
<td>139.7%</td>
<td>n/a</td>
</tr>
<tr>
<td>Percentage of service requests cleared within 36 business hours</td>
<td>2(c)</td>
<td>85.0%</td>
<td>82.6%</td>
<td>90.0%</td>
</tr>
<tr>
<td>Percentage of drainage system treated</td>
<td>3(a)</td>
<td>100.0%</td>
<td>79.9%</td>
<td>100%</td>
</tr>
<tr>
<td>Percentage of drainage system mechanically cleaned</td>
<td>3(b)</td>
<td>46.4%</td>
<td>29.7%</td>
<td>40%</td>
</tr>
<tr>
<td>Percentage of open drainage systems inspected</td>
<td>3(c)</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Percentage of APWA accreditation practices reviewed</td>
<td>5(a)</td>
<td>100%</td>
<td>100%</td>
<td>n/a</td>
</tr>
<tr>
<td>Complete Disaster Debris Management Plan (FEMA Approval)</td>
<td>6(a)</td>
<td>n/a</td>
<td>71%</td>
<td>32%</td>
</tr>
</tbody>
</table>

1 Road ratings are based on an analysis of the severity of seven fault factors. A newly constructed road will have a rating of 100.
2 Traffic control signs are replaced on a 9 year cycle as a safety factor based on material manufacturer's life cycle ratings of 10 years. Highest priority is given to signs not in compliance with the Manual of Uniform Traffic Control Devices (MUTCD) standards. All signs must be in compliance with MUTCD standards by close of calendar year 2018.
3 Adult Density Index (ADI) is an indicator of the average density of biting mosquitoes as a statistical function of actual counts and service requests
4 The department's goal of increasing education program outreach by 20% per annum reached its sustainable level during FY 2016. This is now a maintenance statistic for the mosquito control program. County population growth of 2.1% calculated from U.S. Census population estimates 2011 - 2014.
FY 2015 and FY 2016 reflect the department’s goal of clearing open work requests within 36 working hours. FY 2016 reflects the new goal of 36 working hours.

Includes only sections of drainage ways actively maintained by the Public Works Department.

Includes only unincorporated Charleston County and municipalities covered under an Intergovernmental Agreement (IGA).

Re-accreditation is on a quadrennial basis. Mid-term reports are submitted at the biennial mark for the accreditation cycle. Reportable activities are based on a biennial schedule. Public Works is the coordinating agency for three departments accredited May 8, 2013 (Public Works, Facilities, and Transportation Development) and will be coordinating agency for five additional departments at re-accreditation (Fleet Operations and Environmental Management).

Represents quadrennial activities for re-accreditation.

This department will begin measuring performance against this objective in FY 2016.


FY 2016 open drainage systems inspected. Numbers reflect higher due to a system and program change; canals are row defined as an asset with some having multiple segments.

---

**2017 ACTION STEPS**

**Department Goal 1**
- Implement a County Non-Standard Road (CNSR) Citizen’s Education and Outreach Program in order to complete the platting process necessary for successful affirmation of road into the County’s public maintenance system.
- Implement a County road encroachment permit policy.

**Department Goal 2**
- Develop GIS maps for helicopter adulticiding operations. Integrate with data management systems and acquire additional hardware to implement into flight operations.
- Integrate Cartograph and Field Seeker software systems.
- Deploy tablet computers to field technicians for data management of inspection and treatment operations.
- Implement monthly pesticide inventory management and reporting procedures.

**Department Goal 3**
- Develop and implement a closed drainage system maintenance program.
- Implement a maintenance based drainage rating system.

**Department Goal 4**
- Integrate Stormwater GIS database with Asset Management.

**Department Goal 5**
- Implement random monthly compliance review by the accreditation manager with quarterly updates to department heads.

**Department Goal 6**
- Seek pre-approval from FEMA for Charleston County Debris Management Plan.
- Execute Intergovernmental Agreements with all municipalities within Charleston County.