



We Are Columbia

City of Columbia



State of South Carolina House of Representatives Ways & Means Committee

November 18, 2015

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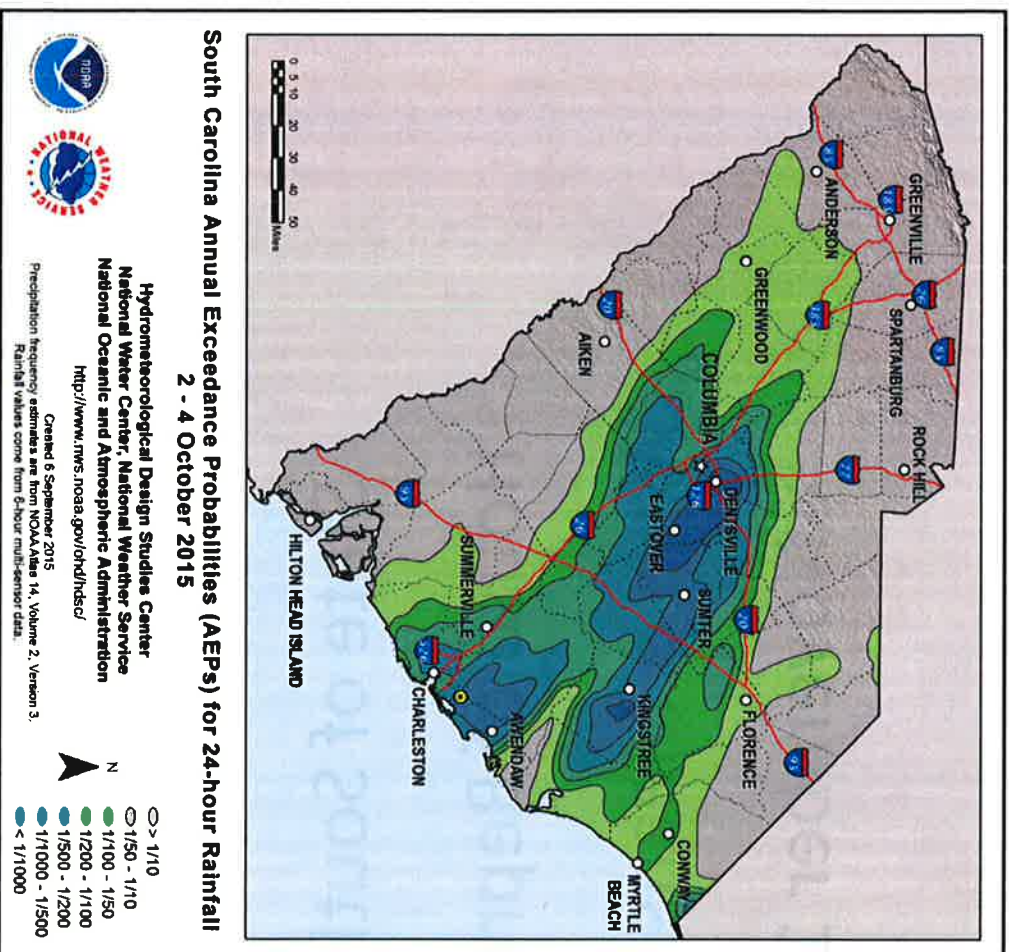


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- Parts of Columbia experienced rainfall that exceeded once in a thousand year levels.
- Almost two feet of rainfall in less than 48 hours.
 - Avg annual rate is 45 in.
- Rainfall caused historic flooding and unprecedented damages to the City of Columbia.





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- On average, CRC 911 processes between 2,500 and 3,000 calls every 24 hour period.
- The average number of Agency Dispatches per day is 1,400 to 1,600, for all Agencies combined.
- During the first 24 hours of the Flood Event, these numbers more than doubled.
- On October 4, 2015, CRC 911 processed 6,415 phone calls and 2,697 Agency Dispatches.





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- The flooding caused damages to:
 - Almost 400 homes and 60 businesses were damaged, at a minimum.
 - \$65M worth of damage estimated
 - Multiple dam failures.
 - Massive breach in the Columbia Canal.
 - Over 100 streets within the City were closed, blocked, or impassable.
 - Multiple sewer and water line ruptures or breaks.
 - Loss of one fire station and training facility.
 - Inspections are ongoing, and additional damages may be discovered.



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- Flooding caused a 60ft section of the Columbia Canal to wash away.
- The breach caused the water level of the canal to drop below the ability of the City to pump water into its water treatment facility through normal operations.



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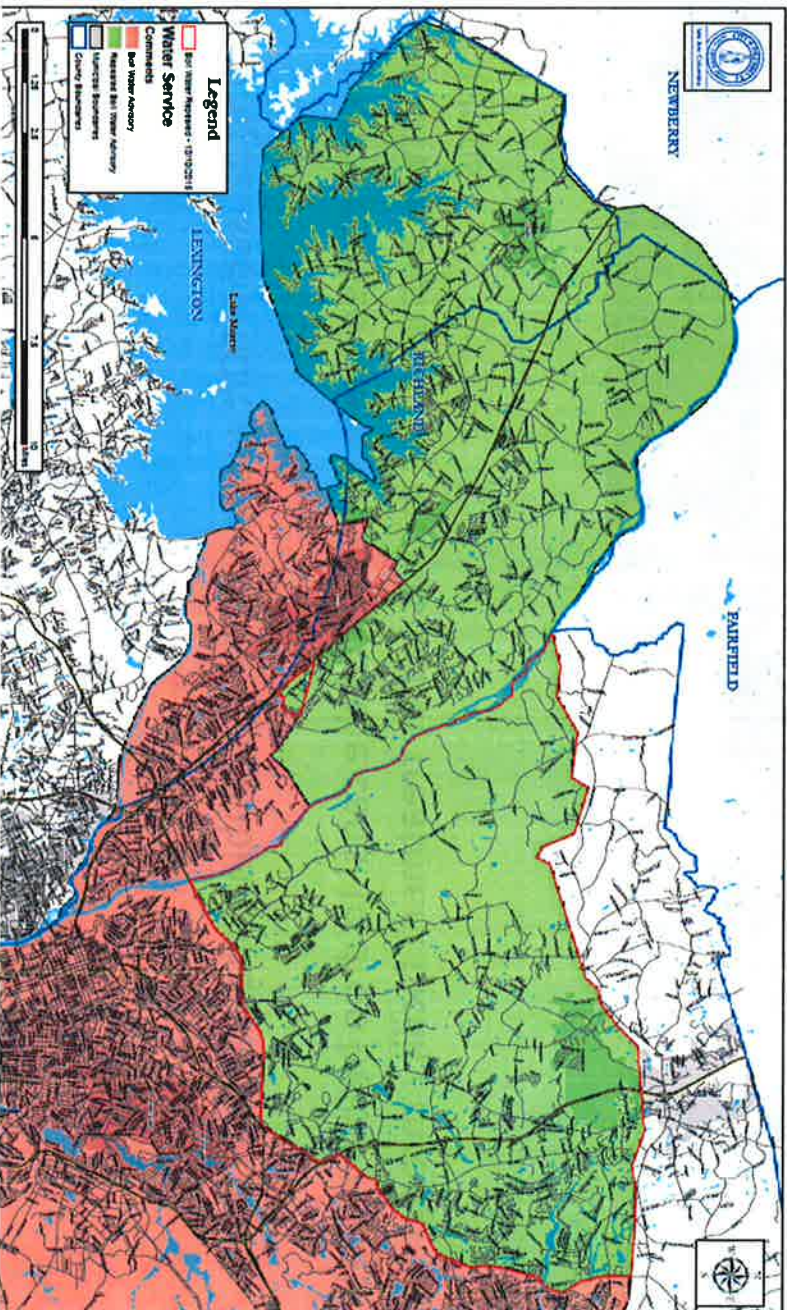


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- The Canal breach combined with numerous line breaks throughout the water system led to a widespread impact to clean drinking water for 10 days for 375,000 people, resulting in a system wide boil water notice.





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- The boil water advisory impacted:
 - 5 Hospitals with 2,436 beds (including a Level 1 Trauma Center)
 - Nursing homes and assisted care facilities
 - State Government Agencies
 - State Capitol Complex
 - Governor's residential compound
 - 5 colleges and 1 major university (40,000 students and 2,000 faculty)
 - US military installation (3,500 active duty members and 12,000 family members)
 - All public, private, and parochial school districts
 - Numerous Banking Institutions, Restaurants, Hotels, Tourist Destinations, and hundreds of other businesses and organizations



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City of Columbia, SC - DR 4241

Current Project List

Project Name	Initial Assessment Amount	Estimated Long-Term Mitigation Cost
Debris Removal (Category A)	\$411,000.00	NA
Emergency Protective Measures (Category B)	\$11,168,178.00	NA
Columbia Canal Repairs (Category D)	\$40,000,000.00	\$50,000,000.00
Sewer System Repairs (Category F)	\$10,000,000.00	TBD
Columbia Hydroplant Repairs (Category F)	\$2,250,000.00	TBD
Road Repairs (Category C)	\$1,500,000.00	TBD
Multiple Parks to be Repaired (Category G)	\$300,200.00	TBD
City Owned Building Repairs (Category E)	\$2,500,000.00	TBD
Contents Replacement (Category E)	\$200,000.00	NA
Program Management Services (Category E)	\$8,199,525.36	\$6,000,000.00
Total Estimated Program Cost	\$75,528,903.36	\$132,528,903.36



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- Category A and Category B are costs the City has spent to **RESPOND** to the emergencies and associated damages caused by the rain and flooding.
 - Includes all labor, overtime, equipment, supplies, and contractor costs for the City's response efforts.
 - Labor: \$710,000 for overtime.
 - Utilities and Engineering: Water, Sewer, Public Works, Transportation/Traffic Control, Power.
 - Public Safety: Police, Fire, 9-11, EMS
 - Public Services: Parks and Recreation, Animal Control, etc.
- Categories C-G will be **RECOVERY** works that will take months/years to complete.
 - The City has just transitioned from emergency response to recovery and is still capturing data.



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Category A: Debris removal

Current Cost Estimate:	\$411,000
Additional Future Costs :	TBD
TOTAL	TBD



- 3,800 tons of debris have been collected and taken to the locally contracted landfill; efforts are winding down but still ongoing. The City managed/collected debris internally.
- Downed trees are taken to a large wood only debris pile. The wood only debris pile was set up to limit the costs of landfill fees, as the wood can be mulched or burned at a lower cost.
- Waterway Debris Removal is not included in these costs
 - Funding for waterway debris is currently limited to roughly \$3M for the entire state through the Department of Agriculture's National Resource Conservation Service (NRCS).



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Category B: Emergency Protective Measures

Current Cost Estimate:	\$11.5M
Additional Future Costs:	TBD
TOTAL	TBD

- Repairs to the canal were the largest expense, at about \$10M out of the \$11.5M.
- Canal repairs included building a coffer dam and bypass pumps and pipes to serve access to an alternate water supply for the Water Treatment Facility.





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Category C: Roads and Bridges

Current Estimate:	\$1.5M
Additional Future Costs:	TBD
TOTAL	TBD

Road Repairs: \$500,000

- The total amount of damaged roads has not yet been calculated, but the best estimate the City has at this time is roughly \$0.5M.

Lost Creek Bridge: \$738,645

- A RFP for repairing the 20-year old bridge to its pre-condition was sent out and the winning bid was at \$738,645.





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Category D: Water Control Facilities (Columbia Canal Repairs)

Current Estimate: \$40M (Restore to Previous Condition)
Additional Future Costs: \$50M (Mitigation Measures)
TOTAL \$90M

- The current estimates of restoring the Canal to its pre-condition are between \$40M-\$50M.
- Additional mitigation efforts to reinforce the levee and build a permanent bypass pumping system to pull water from the nearby rivers are estimated to be an additional \$50M.
- This does not include the \$10M in Emergency Repairs done at the Canal, listed in CAT B.



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Category E: Buildings and Equipment

Current Estimate:	\$2.7M
Additional Future Costs:	TBD
TOTAL	TBD

Buildings: **\$2.5M**

- Several buildings had water damage from several inches of water resting on flat roofs which caused water to seep in.
- The single largest building loss will be one of the fire stations that was completely submerged by water and heavily damaged.

Contents: **\$200,000**

- The majority of funding will go toward fire and police equipment that was lost or damaged while operating in floodwaters.



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Category F: Utilities (Wastewater Systems Repairs)

Current Estimates:	\$10,000,000
Additional Future Costs:	TBD
TOTAL	TBD



- Several lift stations were completely submerged during the flooding.
- The stations were built to the 100-year flood standard, yet still suffered damages.
- There were several sections of sewer lines that were damaged and repaired during the emergency, and the concern is there are more sections of pipeline that have been weakened but not yet discovered.



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- \$9.5M in Mitigation Measures spent to raise the critical components of the station above the 100 year flood level in 2013.
- Handles approximately 18% of the City's sewage pumping, which includes customers outside of City limits.
- Designed to reduce sanitary sewer overflows.

Mitigation Success Story: Sewer Lift Station #110



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Mitigation Success Story: Sewer Lift Station #1110

- Experienced 20ft of flood water from Congaree River, but never stopped operating.
- Only \$300,000 in damages compared to an estimated \$6M without mitigation measures.
- Loss of service would have impacted all of the City of West Columbia, NW Columbia (including Harbison), and Parkridge Hospital.
- Loss of service would have led to sewer overflows and additional infrastructure damages from backups.



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Category F: Utilities (Hydroelectric Plant Repair)

Current Estimates:	\$2.25M
Additional Future Costs:	TBD
TOTAL	TBD

- Current estimates for the damages to the facility are about \$2.25M.



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Category G: Recreational Facilities and Other Facilities (Parks)

Current Estimate:	\$300,000
Additional Future Costs:	TBD
TOTAL	TBD

- 20 out of the 60 parks have been damaged, and assessments on the extent of the damages is ongoing.
- Repairs or replacement include:
 - Fencing, Clay courts, Gates, Ranger Stations, and Gym.
 - Tree removal (8-10 trees)
 - Embankment/erosion
 - Erosion at Rocky Branch, Smith Branch, outdoor structures, fencing, playground, trees, sidewalks and fountains
- 10 parks have undergone air quality assessments for possible remediation.



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Future Financial Considerations

- **Water & Sewer**
 - \$120M Capital Budget in FY 15/16
 - Expected to spend \$120M each year for next 5 years for CIP.
 - 70% is federally mandated through a consent decree
 - Cannot defer projects!
 - 25% share of expected \$100M+ in storm related costs = \$25M+
 - \$25M expense has potential to effect City's credit rating if reserves are significantly impacted.
 - Potential customer rate increases to cover the recovery and mitigation costs.



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Closing Remarks

- Ongoing operations for Fire Services in Lower Richland
 - Limited access routes and available rural water supplies (Inoperable Dry Hydrants)
 - Modified staffing levels to ensure sufficient personnel to respond
 - Increased costs associated with overtime and movement of personnel
 - Stressors to personnel to meet fire-flow requirements increases risks and becomes a safety issue
- Floodplain Management
 - Streamlined processes
 - Workshops for community
 - Permits and licensing fee waivers



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Closing Remarks



- Challenges and Opportunities
 - Health and Human Services Issues
 - Sheltering guidelines
 - Mosquito abatement guidelines
 - Emergency response partnerships
 - City of Columbia is committed to working with the State to capture damages to document potential mitigation efforts and critical needs that will be addressed in the State's HUD Action Plan.