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WSSC: Commissioner's Engineering Scholarship Essay  
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## Commissioners' Engineering Scholarship Essay

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### Essay Topic:

“Since 1918, WSSC has proudly served the citizens of Prince George’s and Montgomery Counties through its delivery of safe and reliable water and wastewater treatment services. In honor of WSSC’s Centennial this year, write an essay, in 1500 words or less, detailing the benefits WSSC has brought to its 1.8 million residents over the past 100 years. Additionally, outline the challenges you foresee facing water utilities over the next 25 years and how you would resolve them.”

### Essay Response:

2018 is the 100-year anniversary that the Washington Sanitary Suburban Commission (WSSC) has served citizens within both Prince George’s and Montgomery Counties through its sanitary and safe water and wastewater treatment facilities. Even though WSSC was established officially May 1, 1918, the “bi-county water/sewer agency” was first brought to mind in 1912 after several complaints were made that Prince George’s (P.G.) and Montgomery County were behind the issue in why Washington D.C.’s streams was bombarded by a foul stench (WSSC History, p. 1). The world renowned engineer behind the creation of WSSC was Abel Wolman (WSSC History, p. 1). During that time period, Wolman was considered to be the “father of modern sanitary engineering” due to his developed method of chlorinating the water to prevent widespread diseases (WSSC History, p. 1). From 1918 to now in 2018, WSSC has taken up the mission of being entrusted by their communities in bringing safe and dependable water, and return clean water back to the environment (WSSC Overview, p. 1).

Some of the provisions enacted by WSSC to ensure safe and dependable water for its communities include the following:

- WSSC built its first one million gallon rapid and sand filtration plants for Hyattsville in 1920 (WSSC History, p. 2)
- Implemented new sections to the water supply distribution networks in order to serve the growing Silver Spring Community in the 1920s (WSSC History, p. 2)
- Increase in population during the 1930s caused WSSC to build the Brighton Dam-Triadelphia Reservoir facilities on the Patuxent River (WSSC History, p. 2)
- In the 1950s, The Patuxent River Filtration Plant, considered to be WSSC's first true regional water supply facility, featured the Morse-filter design that linked together with the Triadelphia Reservoir facilities & Howard Duckett Dam to be essential key elements in WSSC's regional supply. (WSSC History, p. 3)

If we look at the perspective of wastewater treatment, WSSC made progress in the 1920s for regional integration of the sewage system. The first sewer constructed by WSSC was implemented 1919 in Riverdale, MD (WSSC History, p. 4). In the 1940s, WSSC created one of its earliest major sewage treatment plants in Bladensburg, MD in order to maintain pollution control services in Maryland's portion of the bi-county Anacostia Basin (WSSC History, p. 4). Even though the Bladensburg sewage treatment plant was short lived after World War II in 1945, WSSC began to develop their own sewage treatment facilities in the 1950s & 1960s (WSSC History, p. 4). In recent years, WSSC's service in sewage treatment is ahead of other companies in the nation due to their constant advancements in tertiary treatment, versus the typical secondary processing of wastewater. As a result, WSSC produce high quality treated wastewater at all of their plants (WSSC Overview, p. 5).

From a residential perspective, WSSC has taken up responsibility in enforcing plumbing and gas fitting regulations within the suburban sections of Maryland, and the development of

maintenance of the various storm drainage facilities (WSSC History, p. 5). In 2018, WSSC is currently serving home populations of nearly 1.8 million residents and has a service area close to 1,000 square miles (WSSC History, p. 6). The long and substantial success WSSC has is fueled by its dedication to protect natural resources and the environment for the health of future generations (WSSC Overview, p. 2)

Within the United States, there is a setback with our nation's infrastructure. "Every business and family within a nation needs infrastructure [in order] to thrive..." within a growing nation (Infrastructure Report Card, p. 1) . According to the American Society of Civil Engineers Report Card on the United States' Grade in infrastructure, The United States received a "D+" in 2017 (p. 1). Main contributors to the nation's rather low grade in infrastructure is due to the lack of policymaking and budgeting to make progress in moving toward replacing the nation's various structures that are many years old. For example, the underground piping in various parts of America has been around since the Civil War due to many never receiving proper repairs and replacement in the 20<sup>th</sup> century. Even though spending is being pushed towards repairing the nation's infrastructure over a period of years, there is a constant issue that float's over the entire planet and will only get worse with time. That issue is climate change. Along with climate change, droughts and floods places a restriction on America's water supply since they're causing private water companies to take huge amounts of water from reservoirs in order to help out regions experiencing these life altering conditions (Fresh Water, p. 2). According to a report given by the U.S. Government Accountability Office, freshwater shortages are expected to continue into the future (Fresh Water, p. 2). If you refer to figure 1 below, the U.S. Government of Accountability reported that 40/50 state water managers in the country predicted that most countries will have similar conditions within the next 10 years (Fresh Water, p. 2). Even though

the predictions were made by the state water managers in the struggle for maintaining freshwater in the 50 states, many admitted that there is a level of uncertainty that exists with how many will respond to manage water consumption. Which may be due to possible economic growth patterns and land use changes (such as climate change).

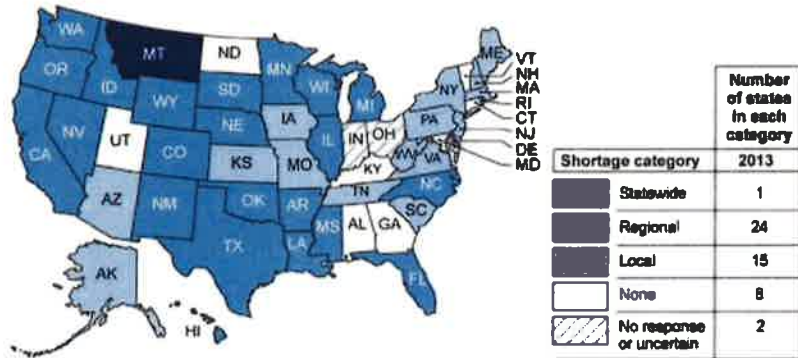


Figure 1: United States Government Accountability Office analysis of state of water managers' response due to changes in freshwater availability.

Since 2011, California has experienced droughts the worse within its state. With these conditions existing within the region, it has caused officials and citizens to consider water as a scarce commodity. In July 2015, The Metropolitan Water District of Southern California had to start delivering less water to cities in the Los Angeles area (Integrated Water, p. 2). To show perspective of how other states contribute to this growing issue, a U.S. Geological survey in 2010 called, "Estimated Use of Water in the United States 2010" mentioned that Americans use nearly 27,400 million gallons of water per day around the house and nearly 88 gallons of water per day in 2010 (Molly A. Maupin, p. 5). It has also been predicted that the United Nations Department of Economic Social affair's report, "Coping with Water scarcity" that 2030 will be the year in which half of the people in the world will be living in countries who are in dire need for water (p. 147).

With this sort of issue looming for the next 25 or so years, it places pressure on water utility companies, such as WSSC, to find better ways in preserving water by staying on top of sanitation, maintaining manageable reservoir levels, and even allocating the necessary forms of infrastructure to get distribution equal amongst citizens. To face this national issue head on, it must begin with water utility companies making a stand through members in the white house and congressman in order to give them a real sense that the water issue that's occurring in California is going to be spreading nationwide due to various factors that are both controllable and uncontrollable. After the first transaction of advocacy and making protest to Congressman, senators, and other delegates, I believe water utility companies need to start informing their customers through visual aid and literature of the issues that are arising with our nation's water supplies. Once messages are sent through television advertisements, billboards, and during news programs, then I think acknowledgement will be made by the citizens to push towards voting for people in various political offices who will address the issues head on before it's too late. In order to fix national issues, it takes one unit to work together in succeeding through compromise and sacrifice for the sake of the nation. With an issue like this looming within the next 25 years or so, then public and private school systems should have kids realize at a younger age of this looming issue in order to gain young minds to join fields in S.T.E.M in order to keep our world healthy.

I feel through these actions made by water utility companies, like WSSC, will cause a positive wide spread movement that can enact positive change in less than 5 years. WSSC's mission to be "entrusted by [the] community to provide safe and reliable water...and return clean water to [the] environment, all in an ethical, sustainable, and financially responsible manner..." is a mission that we as citizens in the United States hope all water utility companies take pride in

preserving survivability within a society. With WSSC's leading advancements in tertiary treatment within the nation, I feel WSSC should lead the charge to influence other water utility companies to jump on board in passing on the same mission for a future in how we can continue to survive on water.

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