Statement of Trent Epperson, Assistant City Manager, City of Pearland, Texas

Before the House of Representatives Committee on Energy and Commerce, Subcommittee on Environment Hearing on "Response and Recovery to Environmental Concerns from the 2017 Hurricane Season."

Chairman Shimkus, Ranking Member Tonko, and Members of the Subcommittee, I am pleased to be invited to present to you today on the effects of Hurricane Harvey in the City of Pearland, Texas, especially as it relates to critical water and sewer infrastructure and the need to make that infrastructure resilient and redundant.

Pearland, TX is a City of approximately 120,000 residents located just south of Houston and has been one of the fastest growing communities in the Country over the past 15 years. During Hurricane Harvey, with its unprecedented flooding, Pearland experienced structural flooding affecting over 1,700 residences, over 50 businesses, and critical infrastructure including two wastewater treatment plants. Most of the flooding occurred along Clear Creek, which is on the 303D listing of impaired water bodies for bacteria. With a 500 year storm it was estimated that over 7,000 homes flooded in the Clear Creek watershed, which includes Pearland and the downstream communities. There is a US Army Corps of Engineers drainage project which has been on the books since the 1960's but remains unfunded. Had that project been completed approximately half of the houses flooded in the Clear Creek watershed would have been spared. Additionally, critical infrastructure within the watershed would not have flooded and failed.

Although we have grown rapidly, new development and new infrastructure follows current codes and standards. The result was that Pearland had very minimal flooding in new areas where we have added tens of thousands of rooftops over the past 15 years built to current drainage and infrastructure standards. Along with the completion of the Clear Creek drainage project, what is needed is funding for continued sound investment in resilient and redundant critical

infrastructure, especially to bring our older infrastructure to current standards. The most critical infrastructure areas for Pearland are water, wastewater, and the automated systems that control that infrastructure.

It is a critical life/safety issue for a city to have the ability to deliver clean and safe drinking water during a disaster. This ability relies on having resilient and redundant critical infrastructure. For Pearland, this critical infrastructure must have adequate generator power, flood proofing, and adequate elevation to survive a minimum of a 500-year flood event and needs to be structurally built to withstand a Category 4 hurricane. During Hurricane Harvey, our water system performed very well with only one water well sustaining damage due to either a lighting strike or electrical surge. The previously mentioned criteria will be applied to our upcoming Surface Water Treatment Plant which is currently in the design phase and planned to be a regional water supply facility.

Continuity of service for treating wastewater is critical for citizens sheltering in place and the return of evacuees to their homes. We must ensure wastewater is adequately treated and not released due to rising flood waters or wind damage to the treatment process, which can affect downstream water quality in our streams and bayous. In our area, wastewater facilities are traditionally located in low-lying areas close to their receiving streams making them vulnerable to flooding, and therefore in need of the same resiliency and redundancy criteria applied to drinking water facilities

During Harvey, our wastewater system did not fare as well as our water system. The Longwood Wastewater Treatment Plant originally built in mid 1960s is located in an oxbow of Clear Creek and was inundated with flood waters, rendering it inoperable for approximately 72 hours during and after the Hurricane Harvey event. The estimated damage to the plant is over $1.5M. Due to proximity to the creek, instead of making expensive repairs vulnerable to the next flood, this facility should have its flows redirected to an adequately protected plant to mitigate any future

damage or loss of service. Additionally, our Barry Rose Wastewater Plant was out of service for approximately 48 hours due to flooding of a pump pit for the on-site lift station.

One final critical piece of our utility operations (both water and wastewater) is our Supervisory Control and Data Acquisition (SCADA) system. The SCADA system allows us to monitor and control our critical water and wastewater facilities remotely. SCADA systems must be resilient and redundant to provide continuous connectivity to our facilities throughout an emergency event. SCADA is indispensable to ensure plants and lift stations are operational and properly functioning when we cannot reach facilities due to high water or debris. During Hurricane Harvey, for 3 days we could not physically access 18 wastewater lift stations, which are critical to getting wastewater to the treatment plants. Due to a lack of SCADA redundancy we were also unable to monitor many of those facilities remotely.

The City of Pearland, although challenged, fared relatively well thorough Hurricane Harvey and will recover stronger than we were before the disaster. As we re-build, we look to ensure that our critical infrastructure is able to withstand flooding, high winds, and other potential disasters. To do this we must have adequate recovery and mitigation funding available so that we do not just rebuild our critical infrastructure to its original state but we rebuild resilient, redundant infrastructure ready for the next disaster.