

## Readiness for Resilience – A Hurricane Rebuilding Program Puerto Rico and Texas Workshop Summary

### Milestones Reached

The Partner Organizations of the Qualcomm sponsored “Readiness for Resilience – A Hurricane Rebuilding Program” completed two major milestones at the close of 2018 designed to help Puerto Rico and Texas recover and rebuild infrastructure with smart, resilient technologies following the impact of hurricanes



Maria and Harvey, respectively. The Readiness for Resilience Program is a three-phased program to discover and learn local rebuilding needs, develop resiliency roadmaps highlighting short-, medium-, and long-term approaches to rebuilding resiliently and compassionately, and facilitate resiliency workshops to provide best practice and technical advice related to the needs identified by affected communities.

On December 4-5, the Partner Organizations, including the Smart Cities Council (SCC), the Business Council for Sustainable Energy (BCSE), and the National Association of State Energy Officials (NASEO), held a Readiness for Resilience Workshop in San Juan, Puerto Rico. In addition, the Partner Organizations held three separate Discovery Workshops in the Texas counties of Harris, Orange and Aransas December 11-13.



The Partners worked directly with the Office of Puerto Rico Governor Ricardo Rosselló and Texas A&M AgriLife Extension, designated by Texas Governor Abbott to lead the Hurricane Harvey Recovery effort, to plan and execute the workshops, respectively.

### Qualcomm Kicks Off Puerto Rico “Readiness for Resiliency” Workshop

Alice Tornquist, Vice President of Spectrum and Technology Policy at Qualcomm, kicked off the San Juan Workshop and spoke to Qualcomm’s sponsorship. Tornquist stated, “We do not come here with any preconceived notions of what needs to be rebuilt and what technologies need to be deployed. Governor Rosselló has a plan. We come here seeking to share our technology expertise with community leaders to help Puerto Rico rebuild more effectively, so that Puerto Rico can better withstand the next major hurricane, and recover more quickly, for the benefit of the people.”



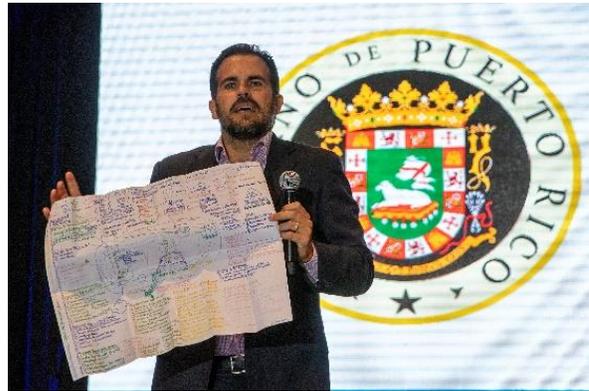
*Alice Tornquist, Qualcomm*

A year after Hurricane Maria ravaged Puerto Rico, there are still reminders of what happened. Many of the traffic signals that have power only blink “caution.” Many more traffic signals don’t have power. In Puerto Rico, it’s not just a matter of rebuilding after its worst hurricane in nearly 90 years. Nor is it even just about preparing for the next one. Rather, Puerto Rico is committed to using smart cities approaches to become a resilience showcase for the rest of the world.

## Governor Ricardo Rosselló Calls for Innovation

**Puerto Rico Governor Ricardo Rosselló** was the featured keynote speaker at the December Readiness for Resilience Workshop. He stated “Our main aspiration in the mid- to long-term is that we innovate. That we not only build as was before, but that we take best practices that we think outside the box and that we create a platform for Puerto Rico to innovate and to develop technologies to be used all across the world.”

“We can either execute the same things that have been done in the past and continue on the downward spiral,” Rosselló said, “or we can take the opportunity to be bold, think outside the box, get the best available minds to come to Puerto Rico and definitely change the path that we were heading on both from an economic perspective, but more importantly a social perspective. ... The potential of what we can achieve here is great.”



*Governor Ricardo Rosselló, Puerto Rico*

Today, Puerto Rico already has ambitious plans, including mandating 100% renewable energy by 2050. It wants to learn from global smart cities best practices, but then improve upon them. “At the end of the day, Puerto Rico reconstructs better than we were before,” said **Carlos Mercader**, Executive Director of the Puerto Rico Federal Affairs Administration.



*Omar Marrero of the P3 Authority, Center*

**Omar Marrero**, Executive Director of the Puerto Rico Public-Private Partnerships Authority (the “P3 Authority”), echoed the Governor’s message. Marrero stated that turning Puerto Rico into a “platform for innovation” is “the greatest opportunity we are going to have to rebuild Puerto Rico in a stronger way.” He said, “We cannot just rebuild what we had before. We cannot. We can’t afford it.” That’s because Puerto Rico now understands that preparation is an investment that pays off — a lesson it hopes to teach other cities. Puerto Rico’s first data portal came in the wake of Hurricane Maria. Before, data

was often impossible to access. Sometimes essential data was on paper, locked in someone’s office. In part due to the necessity of being able to show the status of recovery efforts, it created an online data portal and now is more committed to using data to drive smart decisions.

### **Public Sector Priorities**

Nearly 200 conference attendees heard from top officials of the Rosselló Administration, including: **Dennis González**, Deputy Secretary of Puerto Rico Department of Housing; **Elí Díaz**, Chairman of the Governing Board of the Puerto Rico Electric Power Authority; **Anthony Maceira**, Executive Director, Puerto Rico Ports Authority; and **Glorimar Ripoll Balet**, Chief Innovation Officer, Government of Puerto Rico & Executive Director of the Puerto Rico Innovation and Technology Service. Each of these public sector official provided specific details as to how they plan to meet the recovery and rebuilding priorities identified in Governor's plan and elevate Puerto Rico to be one of the most innovative places in the world.

To provide some valuable perspective in the road ahead, attendees heard from, **Jeff Hebert**, former Deputy Mayor and Chief Administrative Officer of the City of New Orleans, provided a keynote presentation on lessons learned from Hurricane Katrina. Hebert recounted the devastating experience New Orleans endured and the immense challenges they faced throughout the recovery and rebuilding phase. His message was serious, yet inspiring and provided great insight as to how to deal which such extraordinary disasters.

### **Industry Partners Provide Best Practices, Case Studies**

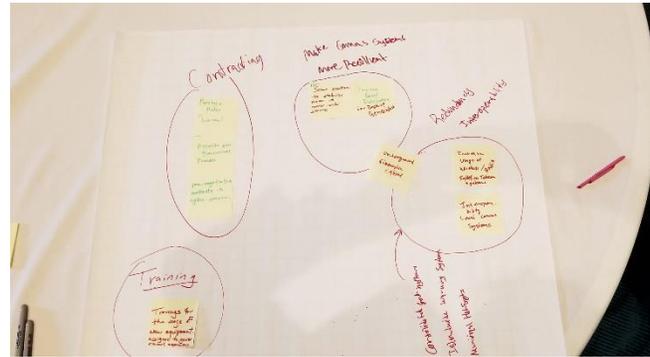
The Readiness for Resilience Program is built on the premise that public private partnerships are essential to tackling major challenges cities and communities face. Thus, conference participants also received an overview from private sector experts on the what, why and how of smart cities and how digital innovations enable communities to attain new levels of resilience. Speakers included **Jennifer James**, Global Readiness Program Director, Smart Cities Council; **Tom Lewis**, President – US, Louis Berger; and **Octavio Jimenez**, Associate, IBI Group. To provide further awareness, Readiness for Resilience Partners **Lisa Jacobson**, President, Business Council for Sustainable Energy; and **Sandy Fazeli**, Managing Director, Policy, National Association of State Energy Officials; provided presentations on ways to engage with industry, drive innovation, and engage in strategic resource planning.

To demonstrate how public private partnerships can be put into action, industry partners provided case studies about successful smart, resilient projects being implemented around the world in the areas of energy, communications, housing and transportation. Presenters included: **Lisa Brown**, Johnson Controls; **Joe Blackwell**, Leidos; **Joe Viscuso**, Pennoni; **Rahul Bhardwaj**, Hatch; **Dominie Garcia**, Battelle; **Kurt Jacobs**, JMA Wireless; **Javier Carrion Diaz**, Cisco; and **Lee Ann Dietz**, SAS. Wrapping it all together, **Rahul Gupta**, Managing Director, Deloitte, provided a keynote presentation on bringing systems and teams together using integrated planning and data to improve resilience and citizen services.

**Public/Private Breakout Sessions Identify Needs/Best Practices**

The plenary sessions involving experts from the public and private sectors served to provide the necessary background for a series of breakout working group sessions interspersed throughout the workshop. Participants from government, industry and NGO’s divided into one of four focus areas: energy, communications, housing and transportation. They discussed how to use technologies and smart approaches to make Puerto Rico more resilient in each of those areas.

In energy, they discussed building an energy grid that has no center. They envision a network of microgrids that are connected to each other, each supporting critical infrastructure. Such a network will help improve system reliability by ensuring that the island is no longer dependent on a single source of generation.



Housing presented a unique challenge in that many people build without seeking permits. One area of the suggested housing plan is to find ways to use data and other approaches to increase compliance so that more homes are built to code. Training programs are also needed due to the shortage of skilled labor.

In transportation, Puerto Rico has a need for very basic infrastructure, which makes longer-term planning more difficult. This working group explored how to “future proof” roads and other transportation infrastructure so that basic elements will be in place when there finally is demand for things like electric or autonomous vehicles.

Smart Cities Council  
 Project 1: Local Telecom Planning & Response  
 Project 2: Regional Telecomm Hubs  
 Part 2 - 45mins: Develop Smart Technology Use Scenarios  
 Focus Area:

Smart Technology Opportunities	Potential Collaboration Opportunities	Business Model Innovations	Potential Benefits Above and Beyond a Traditional Solution	Beneficiaries
1) Microgrid - Data capture - Smart meters - Home Automation - Smart Radios (VoIP) 2) VSAT - High Bandwidth - Self-contained mobile communications - Low Bandwidth for voice communication	Utilities define goals with municipality Local Leadership Critical Infrastructure Public Safety N911 Government Private Industry Military/Govt	Distributed energy Community Switched Operations Emergency Comms Operations	Reliability, resilience Community Resilience Clear, coordinated Federal-State-Local effort Rapid Response Redundant/High Availability	Municipalities, Citizens, Business Everyone Critical Infrastructure Life-saving ability Operations

The telecommunications working group identified the need to develop better communications planning and response strategies so that communities are better informed before, during and after the storm. They working group recommended regular training and testing activities to ensure preparedness. In addition, the working group identified the need to establish regional communications hubs that include resilient, redundant telecommunications systems

communities can rely upon in the midst of natural disaster.

The working group sessions proved to be the source of an invaluable exchange of ideas, data, and recommendations across each of the priority rebuilding areas of energy, telecommunication, housing and transportation. Ultimately, the information and data derived from these working group sessions will be utilized to develop the Resiliency Roadmaps which will serve as a guide for pairing rebuilding needs with technology best practices and solutions.

## Texas Resilience Roadshow

In Texas, the Partners literally caravanned together on a “Resilience Roadshow” led by Texas A&M AgriLife Extension that included stops in Harris County, Orange County and Aransas County, December 11, 12 and 13, respectively. These grassroots “Discovery Workshops” were designed to allow the Partners to go directly to the impacted communities and hear firsthand the experiences of local officials and residents in dealing with Hurricane Harvey before, during and after impact. The Harvey experience was different in each county. The recovery and rebuilding needs are different in each county. Nonetheless, as Texas continues to recover and rebuild from the impact of Hurricane Harvey, it is widely agreed that this effort should include a focus on increased infrastructure resiliency.

### Discovery Workshops Organized

Thus, the Discovery Workshops were designed to help identify the specific rebuilding needs of the local communities and discuss innovative best practices and technology solutions that can be integrated into hurricane rebuilding projects to amplify resilience and other community benefits beyond traditional infrastructure projects. At each stop, a prominent local official kicked off the workshop by welcoming local stakeholders and emphasizing the need to work together to identify and prioritize rebuilding needs and to take advantage of new innovative technology solutions to build resiliency into the local infrastructure. For example, in Harris County **David Wright**, the Harris County Extension Director of Texas A&M AgriLife Extension, welcomed stakeholders and addressed the urgent need to rebuild with smart, resilient technology.



*David Wright, Harris County Extension Director*

In Orange County, **Monty Dozier** of Texas A&M AgriLife Extension and the Governor’s Commission to Rebuild Texas, provided an overview of the



*Monty Dozier, Texas A&M, Governor’s Commission to Rebuild Texas*

Extension’s massive effort to connect with counties and fulfill the goals and objectives of the Governor’s Commission to Rebuild Texas. Finally, Aransas County **Judge C.H. “Burt Mills” Jr.** welcomed participants and detailed the enormous challenges the community faces in rebuilding the infrastructure and the importance of partnering with all stakeholders to utilize best practices and smart technologies.



Steve Mikulencak, Texas A&M AgriLife Extension

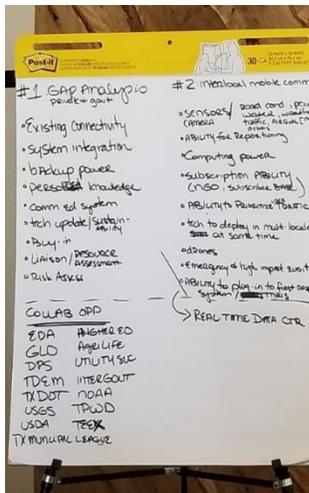
In addition, **Steven Mikulencak**, AICP, Program Specialist and **Charriss York**, Program Specialist of the Texas A&M AgriLife Extension Service provided an update on the statewide recovery efforts and plans to integrate the information and data received from the Discovery Workshops into the rebuilding phase.



Charriss York, Texas A&M AgriLife Extension

To set the stage for the Discovery Workshops, the Partner organizations provided an overview of the what, why and how of smart cities and how digital innovations enable communities to attain new levels of resilience. This included presentations by **Jennifer James**, Global Readiness Program Director, SCC; **Lisa Jacobson**, President, BCSE; and **Sandy Fazeli**, Managing Director of Policy, NASEO.

Following the opening presentations, the workshop participants in each county commenced breakout



working group sessions divided into four areas of priority concern including telecommunications, public safety, energy/water and transportation. Attendees were given the choice to participate in one of these four breakout groups, but each group consisted of community leaders, partner organizations, technology providers and other stakeholders. A facilitator was designated to lead the discussion in each group.

Participants in each working group were asked to identify what they see as the priority areas for applying smart technology to rebuild from Harvey and position the region to more effectively respond to and recover from future disasters. They also collaborated with the partners organization and technology companies to discuss possible smart technology solutions and approaches to Harvey response and recovery issues identified.

The information gained from the workshop breakout sessions will provide input for the development of a “Resilience Roadmap” for Texas that links local needs with potential resilient technology best practices and solutions. The resulting “Resilience Roadmap” will be discussed at May 20-21 Readiness for Resilience workshop in Galveston, Texas, convening community leaders, stakeholders, and technology experts to pave the way for local projects. Workshops will also be held to discuss how to access funding for these projects from federal, state and local programs.



### **Next Steps**

As outlined in the Readiness for Resiliency Program, the information gained from the working group sessions will be utilized to develop Resiliency Roadmaps that will consist of best practices and technology solutions that could be utilized to meet the rebuilding needs identified. The overriding objective is to have the Resiliency Roadmaps be used as a guide to allocate funding sources and the formation of public-private-partnerships to move such projects forward to help make cities and communities more resilient to natural disasters, and importantly, capable of quick restoration and recovery.

In the coming weeks, the Partners will be focused on the information and data collected from the workshops in both Puerto Rico and Texas. The Resiliency Roadmaps will be made available in May 2019 for public review and guidance as we look to rebuild the infrastructure with smart, resilient technologies.

The work being done today is just the beginning of what the Partners hope will be a multi-year engagement with Puerto Rico and Texas throughout the rebuilding process. Community leaders meeting face-to-face with technology experts and citizen stakeholder groups exchanging knowledge, experience, concerns and aspirations – that is the essence of partnership. And the path to recovery and rebuilding with smart, resilient technologies.