

Interviewee: Nalls, Sharon and Terry Moore

Interview Date: July 22, 2009

UNIVERSITY OF HOUSTON
ORAL HISTORY OF HOUSTON PROJECT

Sharon Nalls and Terry Moore
Houston's Emergency Management

Interviewed by: Reed Amadon

Date:

Transcribed by: Michelle Kokes

Location:

RA: So I'll be recording right here and the only thing we have to be careful of is we don't thump on the table because it will pick all that up.

SN: Okay.

RA: When I was in Mexico we had dogs, birds, kids, cars, anything you could imagine would show up so, but I think we will be in much better shape here. I'm Reed Amadon. I'm from the Center for Public History and we are doing what our project is, is to gather historical data and interesting information on people who are alive today that have experienced certain circumstances. We know a lot about the hurricane for instance in 1911 or whatever it was in Galveston but there really isn't a whole lot of work being done to sort of capture what happened with Ike. So that is one thing that I was doing was visiting with people who had some Ike experience especially from the top looking down. So I'm going to be getting, I'm recording this. It will be transcribed and I will be glad to get you a copy of what we transcribed for yourself.

Okay.

RA: It will be going into the Texas archives. What tends to happen is these kinds of things at some future point when somebody is doing... I hope somebody will be doing a

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book on Ike, you know that, if they haven't already done 10 of them but your information will be very helpful to those kind of people.

SN: Okay.

RA: So I am interviewing Sharon Holt who is the Emergency Management Coordinator and Terry Moore, Deputy Emergency Management Coordinator here at the Center for Emergency Management.

SN: My last name is Nulls.

RA: I'm sorry, Nulls what did I say?

SN: Holt.

RA: Oh I'm sorry.

SN: That's okay.

RA: I think I must have known a Sharon Holt. Thank you very much though Sharon I'm sorry about that.

SN: No problem.

RA: Why don't we start with you, Sharon and I just wanted to ask you how did you end up, how did you get this department? Let me start this first what is your actual role here?

SN: I'm the city's Emergency Management Coordinator. What that really boils down to is I am an appointee of the mayor to manage and run their Emergency Management Program.

RA: Okay and yourself Terry?

TM: I'm Sharon's deputy. She is the day shift and I'm the night shift.

RA: Is that kind of how it works?

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SN: Yes.

RA: Where have you come from to get to where you are, how did you get here?

SN: I am unique in regards to being an Emergency Management Coordinator from my background prospective. I graduated from the University of Mary Heart in Baylor and my degree is in human behavior.

RA: How interesting.

SN: I went to work for the American Red Cross working with the military specifically and ended up doing my first disaster as a result of a barracks fire. I worked for Red Cross for 15 years both for the national sector and a local chapter. I spent numerous days, weeks and months on disasters ranging from floods in Texas to Michigan to earthquakes in California.

RA: Yeah I work for the Red Cross here locally through Ike and Rita.

SN: That's just what I did. I have a lot of experience in that area.

RA: It is an interesting combination of human services and the disaster because so much of it is human services.

SN: Right. I happened to be on a disaster assignment here in Houston for Red Cross. I finally got a day off and went down to Galveston. I saw as I was coming back it was dusk and you had all the petrochemical industry lit up at Texas City with their lights. I heard an inner voice that said that's were I was supposed to go. I went back to finishing the disaster assignment here. I went back to Austin where I was working at that particular time for Red Cross. I resigned from my position and moved to Texas City and began sending letters to the mayor that he needed to have an Emergency Management program. I eventually got an interview, got a program put in place. I was there for four

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years and then I came here. Here I came to be the community liaison four months into the job I got involved in a project for the city of Houston that involved preparations for terrorist events as a result of the Nunn-Lugar **DiminsheyAct (4.45)** that had been passed in Washington. In July 1, 2003 I became the coordinator when the coordinator from before retired.

RA: Were you actually instrumental in the creation of this particular facility?

SN: We were engaged in at least the aspect of what our segment was going to be. We are technically a tenant.

RA: I see.

SN: This facility is in a separate department and we are a tenant in the facility.

RA: I see you don't manage the facility itself you just utilize the service?

SN: We utilize space and the utilities from them and some of the other services. For a disaster response it makes a good location because what they do for 911 call service and dispatching of emergency services out into the community is important to what we do when a major disaster occurs. So it is beneficial to both of us for us to be in a joint location.

RA: What about yourself Terry, how did you manage to evolve into this place?

TM: Well I came out of high school and immediately went into the fire service.

RA: Oh okay.

TM: I did about 17 years in Albuquerque, New Mexico Fire Service and EMS and paramedic and neonatal flight para medicine?

RA: Are you a pilot?

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TM: No I was a flight paramedic for our neonatal flight transport team. I was involved with the federal disaster medical assistance teams out of New Mexico, our Urban Search and Rescue Task Force so I got to deploy to Hurricane George and some of the other natural disasters. I got to play with some of the larger wild fires in New Mexico, the big one notably was Sara Grande that threatened Los Alamos National lands and then in 2001 I needed to or wanted to do emergency management more seriously and to do that and to be good at it you've got to go someplace that has disasters and there's no place better than here. So I came to Houston to take on the role of mitigation and the big focus at that time was flood mitigation right after tropical storm Allison. Being from the dessert I was amply qualified. When Sharon got promoted as the coordinator here I stepped into her role doing Metropolitan Medical Response using my paramedic background and then when Carina my predecessor who was the Deputy Coordinator retired I stepped into that role so I have been fortunate here as well.

RA: That's very good that's a great... Both of you have a tremendous history for this kind of thing.

SN: We've been around a while.

RA: What was your education like you said Mary Heart at Baylor, Human Resources which is really a good general field I imagine for learning how to deal with.

SN: Behavioral science is an interesting, for me is an interesting degree plan for someone who is an emergency management coordinator. Most of the folks who are coordinators are former military or they come out of one of the first responder areas, fire or police. Consequently they have a different mind set.

RA: Sure.

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SN: I tend to look at things more from a standpoint of how does the public react to what is going to happen not you wanted them to do but they are really going to do?

RA: You mean you are looking at how they are going to react to what is going on?

SN: That's exactly right. I'll give you an example.

RA: What would the other people do, the military would say, "We want you to do..."

SN: "We want you to do this" and that's what they expect them to do.

RA: Very direct.

SN: They build plans based upon the public behaving the way they instructed them to behave not necessarily building plans based upon, "I'm going to instruct them to do this. I need to also have this contingency plan when they go do this instead."

RA: Okay so they were not really prepared to shift as much as they might need to.

SN: They just shifted based upon what they observe. It's make a decision and then move on. The other thing for us is perceptions because what I have said all along is your perception of something becomes your reality of it. If your perception is incorrect then the onus is on us to do a better job at adjusting that through the programs that we do. The only way we can do that is through education programs. Better planning, better tools to help you make decisions for you and your family.

TM: If you want to have long term gains in that you have to attack younger generations, because when you look at major campaigns to change human behavior...

RA: Give me an example.

TM: The seat belts.

RA: Okay very good, excellent.

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TM: It takes a generation for that to fully take hold. So when we start influencing behavior about why a person would or would not evacuate and how they make that decision we have to educate high school age and college age individuals and continue to educate that generation because as time progresses that's the next decision makers coming to the forefront.

RA: Let me give you a hypothetical. I was here during Rita. Everybody left town terrible, awful situation trying to get to Austin or get north or whatever. I didn't go I stayed at the downtown Hilton where they had kind of a survival center down there and it was really great. But most other people left. When Ike came there wasn't much of a migration and I stayed myself in my house and had a terrible, terrible evening. I think of had there been a worst wind and I had huge oak trees I would have been seriously hurt. I could have been hurt easily. All of the people in my neighborhood could have been. So how do you get the right kind of mix so that the people will do what you want them to do?

SN: Part of that is based on one, assessing what it is that the public did. Why did they do it, and what information was or wasn't available that played into the decision that they made? We have from Rita learned that the public's reaction to what they saw in New Orleans was being applied to Houston. That's one.

RA: That's true.

SN: Second, you tie on top of that a storm that reaches category 5 strength in the Gulf, well what if that doesn't change? That ties into the decision that they make. Third, the only information that was truly available that was scientifically based was the Corps of Engineers study about what areas could potentially receive storm surge or past

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experience. What flooded during Allison? So a lot of decisions were tied to that as well. Consequently, people got in their cars and more people left than what one, we had planned on for years.

RA: Oh really?

SN: For years the plan had always been that you were looking at just over 1.6 million, 1.9 million somewhere in there leaving for the entire region not just the city. Instead we ended up with almost 3 million people leaving, as far away as Katy and The Woodlands and Tomball. But again when surveys were done with those folks when they came back a lot of it was predicated upon them not understanding what their risk was. So how do you change that behavior so that it doesn't happen again? You do just what Terry says. We go out and we do a public education campaign and you learn why it is that people made the decisions to leave. One of them was "I thought I was at risk." Okay so we create a website called HoustonHideFromtheWind.org that would allow residents who lived outside of the storm surge area to be able to pull up by zip code what is a potential wind speed going to be for that particular storm. That was one tool. The other thing we did is we saw that the maps that the Corps of Engineers had produced for the storm surge risk area and that the state was pushing weren't clear about where you lived. You looked at it and you say, "Well I can't tell if I'm in the storm surge area or not" so we went to a zip code based evacuation map. It was also very clear that staggered evacuations were not something that worked very well in this region. Going to the zip code map and working with all of the jurisdictions and their legal folks and their chief elected officials we came up with a way to actually stagger the evacuation, determine potentially the load of the evacuation on the freeways, take the reverse contra flow that was done on 45 during Ike

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and actually determine when it needs to be done, if it needs to be done. All of those kinds of things lead to a different approach so that what the public understood now was, “I have a place where I can go get information about wind. I don’t necessarily need to get out on the road. I can wait until after the event happens and determine just how bad is bad if I am outside of the storm surge area.” All of that kind of stuff was put into play. So consequently you ended up with far less people leaving for Ike when it occurred. Now human behavior, going back to human behavior: that means that the pendulum between Rita and Ike swung from right to left and now as a result of Ike it will swing back to the right. The question will be when we have the next storm the public is going to behave based upon what happened with the last storm. They won’t remember Rita. They won’t remember Katrina. They won’t remember Allison, all of which played into what happened with Rita. They are going to remember being without power. So the next time we will be looking to see whether or not they all evacuate again and you’re not going to know until we see how much time goes by between Ike and the next storm and how much education plays a role in influencing what people do.

RA: Do you feel that what you did with organizing the information that people could get really kept a lot of people here rather than leaving, whereas people said it was just such an awful thing to get out on the highway during Rita that they just decided that whatever the case is they would rather not do it?

SN: Based upon the sampling of the surveys the indication is that that would have been the case. While we publicly thought that people were not going to evacuate because they didn’t want to be caught on the roadways, the sampling of the surveys that were done didn’t indicate that. The majority of people who left said that they would do it

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again if they believed that their risk was the same as it was then. So the object is how do you educate them about their risk? How do you make their perception of their risk match what is reality to their risk?

TM: With that comes “trusted agents” where you identify who they use as their trusted source of information.

RA: Fascinating and who did you find that they were?

TM: Well it can be public safety, meaning your police man and your fireman. It can be your religious leaders but probably the biggest influence that we continue to see, what did my neighbor do?

RA: Interesting, mine all stayed.

TM: That means we’ve still got to get to the neighborhood level to have effective change of behavior.

SN: You just made the comment that your neighbors all stayed.

RA: The first time they left, the second time they all stayed.

SN: Right. Okay so your neighbors all left the first time. You left your home and went to a hotel.

RA: Right, right.

SN: Your neighbors all stayed this time and what did you do? You stayed. Ask yourself in reality if they had all left would you have stayed?

RA: I might have.

SN: Might have.

RA: But I think I would have... but I might have done the same thing I did before.

Next time there is a hurricane like that I know that I’m going to get out of town. That

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was three weeks of really a lot of discomfort without the air conditioning and with the terror of the night before and all that kind of thing. I think I would probably reconsider and leave town.

SN: The question then becomes which zip code do you live in?

RA: 77061 right over by Hobby.

SN: Okay that is not an evacuation zip code or is it?

RA: No.

SN: It's not?

RA: It wasn't it was just a little bit short of it during Rita. I don't think it was no.

SN: So if it's not an evacuation zip code and you decide you are going to evacuate are you going to do it before the storm makes landfall next time?

RA: Yes I would think so yes.

SN: Okay then you would end up being one of those people who is going to get on the road when your risk by scientific information is actually less than the people who live south of you.

RA: So I'd be blocking them from getting out really?

SN: You would be one, you would be one person and you multiply that by the number of other people who would take the same approach. Is that a wrong decision? I don't know I can't make that for you but I can tell you what the ramifications of it are. You could potentially if we multiply your actions many times over, could be impeding the progress of the evacuation of those who are at higher rate which is in the storm surge areas.

RA: We were right next to 45.

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SN: Understood but it all comes down to whether your zip code is one of those storm surge areas.

RA: I know we were flooding.

SN: If it's not that's the argument that we are trying to educate people on.

RA: Interesting.

SN: If you believe that based upon your own experience that you didn't want to go through what happened after Ike then our piece of information is wait and see if the electricity goes off and if it does then leave.

RA: Oh interesting okay.

SN: Because now you are not impeding their means of getting out and you are determining and basing your decision based upon factual information as to whether or not the power goes off.

TM: 61 is in "C" so you are in an evacuation zone.

RA: I was?

TM: You are for a 4 or a 5.

SN: For a category 4 or 5 storm. So for you if we end up with a category 3 storm out there we always plan for one higher we would end up saying to the mayor, "Yes this is a zip code that we would want to go."

RA: We had lots of trees down and flooding. We were completely isolated we couldn't get in or out.

SN: But the real danger in our area is storm surge. Those are the people who need to get out first.

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RA: Well I think it is fascinating. I think you are really looking to me you are looking at mass behavior and trying to predict what a mass is going to do and what is going to set it off to be moving and I would probably suspect that a lot of people were very uncomfortable with this last storm. My kids all live in Austin. We actually bought a house in Austin so we will eventually be moving in that direction. But they wanted us to come for sure and we said, "No we don't want to do it." But I think next time we will really have to consider it. Because it was a terrifying night I want to tell you. Then you get up and it's just tough.

SN: Yeah it was terrifying for a lot of folks. You get up the next morning in the dark. There are no signal lights. Trying to traverse roadways with no signal ways in the dark and you think you remember where things are. Then you get out there and you are driving on the road and you go, "Hmm I just went through an intersection and there was a signal light there."

TM: Used to be.

RA: I used to live out in the country out in New Mexico and no lights. When the sun went down, well you know Albuquerque I used to live out west on the Navajo reservation a little bit southwest of Gallop. When the lights went off and the night went down there was no light. Well when I was in the hurricane driving back from downtown I had to take a friend to the hospital and came back home there was no lights anywhere. It looked exactly like New Mexico. There was not a single light anywhere. You just had no sense of any city being out there and the phenomenon of being in the hurricane and having no cell phone that worked, we didn't have a land line so we didn't have any way to get out. No TV, no computer. You were just... your whole life was just focused strictly around

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your neighborhood. What you could do with your neighbor and what they could do for you and you didn't know if any help was coming. You didn't know if any food was coming.

SN: That's exactly why we now have a program to educate people in neighborhoods. It's called CERT, Citizens Emergency Response Teams and they were actually created initially back in California as a result of earthquakes, specifically, the earthquake that resulted in the Nimitz Freeway collapse. If you go back and look at what happened, the people in the neighborhoods immediate to that freeway responded before first responders could ever get there. Then they became frustrated after the first responders got there and said, "You all need to move away" because they didn't have training on what to do. So we've across the country there is a desire in communities to create CERT teams at the neighborhood level because when you have disasters it is just what you said. We said earlier, we find that it is the neighborhood that drives what you do and just as you said when the disaster happens everything else is cut off the only thing that is stimulating you is what is happening in your little world, the neighborhood, which makes it important to have CERT teams available.

RA: Well I am trained by the Red Cross to do damage assessment and we have been trained to do a lot of other kind of things and actually I haven't done it but I am qualified to go off to other parts of the country and help with disasters and things like that. Is this the kind of thing you are going to have on these CERT teams?

SN: The CERT teams are actually trained to respond first to what are your disaster needs, your families, and your neighbors? You start with a core and you spread out. They cover things like, the first class which is what we do is on emergency management

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in general. Why there is a need to be prepared. They cover things like how to put out a fire, general first aid.

TM: Triage.

SN: Triage a whole lenty of things so that you can respond right there. So if... let's say that Ike hit and your neighbor's roof had come off. You would have actually been able to render first aid to him or her. While it may have been several hours before first responders could ever get there. But you would have been able to provide service to your neighbor.

RA: Excellent. How far is this program in implementation?

SN: In Harris County it has existed for several years. The Harris County Citizens Corp is one program underneath that is actually an award winning program for the nation for Citizens Corp stuff and in the city of Houston we have been doing CERT training now for two years.

TM: Three.

SN: It is, you just need to... if a neighborhood wants to do it they get enough people together and submit a request that they want to do the training. They all have to be committed to attending for so many weeks in order to go through all the training.

RA: That's an excellent idea.

SN: We've encouraged CERT training at businesses. There is CERT training on school campuses. We have met with U of H security.

TM: University of Houston.

SN: We have encouraged them to do CERT training. You see a lot of campuses where there have been shooting incidents that they have now developed CERT programs.

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RA: Well I think it is also something that could work through the neighborhood associations.

SN: Yes absolutely.

RA: I could just talk to them.

SN: Absolutely.

RA: Terry what has your experience been just sort of working this department, what has that been? What kind of things, how has that evolved?

TM: It is always a series of learning opportunities. I talked about coming to Houston, being from the desert and being thrust into doing flood mitigation, and I learned a little bit about hydraulics and how water moves and I learned a little bit about structural engineering and how you design flood walls.

RA: Where do you learn this?

TM: It's working with our public works departments. It's working... emergency management by it's very nature is a group of people who know how to bring others together, facilitate discussions and decisions and lay out a course of action to move forward to improve community disaster preparedness and ultimately disaster resilience.

RA: Okay it sounds very complicated.

TM: It can be but it's... there are lots of opportunities for you as an individual to learn and make yourself better. There are lots of opportunities to help you educate the community and your partners and your citizenry that we are here to serve and its something you never perfect. There are always ways to improve and make it better.

RA: When you are out there doing that and working with that particular... give me an example.

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TM: PODS, points of distribution after an event.

RA: Okay we remember those.

TM: Absolutely, everyone remembers those after Ike.

RA: MRIs.

TM: MRE's, meals ready to eat, horrible diet for people who have dialysis and hypertension because they are full of sodium. But that doesn't change the necessity to get the food out. But where do you locate them? So we have to go to our traffic planners and say, "Where are the best spots to put these?" Well somebody has already done that research. We call them malls.

RA: Malls?

TM: If there is a population center and you want to know who has looked at the traffic management and the demographics of an area and knows how to get in and out during high volume traffic it's a mall.

RA: I love this.

TM: But then you look to a big box retailer like an HEB or a Kroger or a Randall's and say, "If your store is without power and you are not able to provide the service that your community would go to you for normally, if we brought the resources, the commodities to your parking lot could we not utilize your workforce and your equipment to distribute those goods until you are able to reopen and once you are open the community returns to you and the commodities go away."

RA: I just love how clever this is. But you must have had some stores that were not, you must have had some issues with that. Did some stores not wish to participate?

TM: Well these are examples of...

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RA: Of ideas?

TM: Of lessons that we are learning from what we did during Ike. Because when we went, when we started this immediately following Ike, where can we get large groups of volunteers to help distribute this? Okay well the obvious choice is churches. We had a number of churches stand up and say, "We want to help our community" and did and they provided the volunteer work force to distribute that commodity. What we learned from that activity is, a church parking lot is designed for a specific congregation. It's not designed to receive 18 wheelers and have them turn sharply in their parking lot. So we've got to go to bigger parking lots, concrete instead of asphalt with tools available like forklifts and pallet jacks and have a work force ready to distribute the goods to the community and that's when you start thinking about, "Okay can we use, for traffic and volume there's nothing better than a mall." But you don't necessarily have the fork lifts. They've got the pallet jacks and the work force is dedicated to getting that activity back in operation. Where a retailer like an HEB or a grocery will bring work forces from other areas of Texas to assist and buy them some time to not only get their store back in operation but serve the community at the same time.

RA: I think that is a great idea. I know in Galveston they did that.

SN: Yeah it's a question of your family going on vacation and having not really planned it out real well. You knew where you were going but that was about it. You had all these lessons that you learned along the way so the next vacation you take...

RA: Is going to be organized.

SN: Is going to be well organized and you won't learn those same wonderful lessons over again.

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RA: What do you think in your case, what would you say Sharon is the focus of your work? What do you say you spend 90% or 80% or whatever of your time?

SN: 99% of emergency management's job is preparing everyone for that 1% of operation. It's not any different than Red Cross Disaster Preparedness. That organization does the same thing. It's preparing its volunteers and its work force to be able to respond to that 1%.

RA: That raise questions does Red Cross work with you all?

SN: Yes.

RA: Do you all coordinate together?

SN: Yes. Classic example, hurricanes Houston, Harris County is a pass through area which basically means we don't open shelters here in advance of the storm. So everyone who is evacuating from those zip codes that have been ordered to evacuate are to pass through our area to go to shelters that are to the north of us. So that means Red Cross is not opening any shelters before hand but they do open shelters post event.

RA: What about Rita? Remember we had all those people... Katrina I guess it was.

SN: Katrina is a different story because they, in reality, they didn't evacuate here pre event they evacuated post event because of the cascading effect of the rainfall that came from that hurricane. Everyone refers to it as Hurricane Katrina but what really resulted in those thousands and thousands of people who evacuated to Houston was the flood event that occurred post event when the levies broke. If those levies had never broken those evacuees would have never have been here. So that is an entirely different set of circumstances.

RA: Different scenario.

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SN: We do work with Red Cross in regards to the sheltering post event. We work with Red Cross for flood events that are an unannounced event. We have to go in and take folks out of their homes. You are going to see OEM calling Red Cross saying, “We need a shelter site” in order to put them in it. They are one example of a non governmental agency or an NGO that we work with, Salvation Army is another, Seventh Day Adventist, we have an entire donations management piece and there are lots of NGOs that work with that, public, private sector that we work with. So 99% of our job is trying to think of every disaster potential that could happen in our community: natural, man made, technological, whatever that is and trying to identify what that is, what is the impact that it would have on the community and how do we plan to respond to it, how do we plan to mitigate it to either lesson its impact or to do away with its impact so that when 1% of the time that it happens.

RA: You are looking at a very complex issue. You are looking at how are we going to deal with tornado, hurricane, atom bomb, whatever. How do you get your input so you can come up with scenarios about how to procure...

SN: You use a combination of things. One is for weather events you go back to the National Weather Service. What has historically happened in this community? What has changed as history has moved forward? What has changed with the community that has changed the potential impact of those types of events? Flooding is a good example. It's the number one hazard for us is flooding. How has the growth population wise here increased or decreased our ability to flood?

RA: New housing developments and stuff?

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SN: Right, then based upon that information you also then have to go gather other information. What has changed building code wise? What has changed planning wise? Planning in the sense of community development and planning. How has that improved our ability to deal with flooding? Then how do you plan for that response? We go out and do education with the public and they will say, "The streets are always flooding." Okay, well we have a choice we either let the streets to become rivers to deal with the water...

RA: Or your house?

SN: Or your house. So we deliberately have created an environment where water is retained in retention ponds and the streets flood. What we need for the public to do is don't go get out in the street in your car.

RA: Well what about, what happened when Ike came through Terry what happened were you all prepared for it, what was your personal, I mean from your perspective what did you learn, what happened? What was the big picture?

TM: You bet. Hurricane Ike had some unique issues that we saw and I'll give you a couple of examples. The first one was the majority of our evacuation decision windows are based on tropical storm force winds arriving at the coast line. What we saw with hurricane Ike is we had storm surge impacts on Galveston Island 12 hours before we had tropical storm force winds. So what does that do? Well that means all of our decisions are 12 hours behind. So that puts a different urgency on things like the evacuation. I think as a community we were infinitely better prepared because we are communicating better between agencies, we have worked together as a collective to develop the zip code based evacuation to where not only the city of Houston is communicating better with its

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citizens but everyone between us and the coastline is also improving the communication with their citizenry. We have the ability to stagger that evacuation if decisions are made at their appropriate time windows, we are still resourced deficient. There are not enough ambulances; there are not enough busses to move the individuals with a transportation assistance requirement during an evacuation. There is still a gap in education and how people make their decision and what they base it on. We learned a lot from PODS, we learned about our facility and what we need here to survive and how we operate during a disaster. I mean...

RA: So you have to learn those things but what did you learn? What were the circumstances; what happened?

TM: We had 400 people sleeping or on shift.

RA: Here?

TM: Here so 200 people are down sleeping and 200 people are up working.

RA: Do you have a facility here for people to sleep?

TM: The hallways.

RA: Oh okay.

TM: We put up partitions and we segregated areas off and we arranged sleeping areas. It is not optimal but it gets the job done. Every time it is always about learning. So what did you not have that you needed during Ike; and how do prepare differently for the next one? I talked about PODS a few minutes ago as one of the big learning experiences we learned from the community. Well the "trusted agent" is another element and how you rely on your neighbors and why CERT becomes so important as Sharon talked about. We have got to get to that neighborhood level and remind every individual in Houston

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that you have a role in a disaster. The one that is given to you by default is victim. If you don't want to be a victim...

RA: That's a great statement.

SN: It's true.

TM: If you don't want to be a victim then it requires you to take some personal responsibility and preparedness activities so that you can, one, be prepared and once you are prepared then you can take the next step and be a responder and help other people through things like CERT, Red Cross training and be ready to not only have your family and yourself prepared but be someone that your neighbors can count on to assist them.

SN: Which augments the city's overall response plan; the more people who find themselves in the default of being a victim the more that detracts from the response plan.

RA: Okay so if everyone is a victim they are all asking for help there is no way, there's no one to help them.

SN: There are far more people asking for help in that case then there are resources available to provide the service.

RA: Well can you kind of give me an idea, tell me about, give me a scenario, what was it like being here and watching Ike come?

SN: Well I'll give you two things. One is there is a difference between being "on duty" and knowing where Ike is versus being "off duty" and knowing where Ike is and you are still in the building. When you are on in your shift you are so involved in discussions and decision making processes that are going on, you really don't know what is happening out there with that storm short of the next advisory that comes. That is all

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you know. Because you are too engaged in it right now. When you go off shift you find yourself looking at the radar and going, “Wow, that’s a pretty impressive storm!”

RA: And my house is in there!

SN: That thing’s pretty big. That’s true!

RA: Yeah I know.

SN: That is true and, “I’m locked in this building. I hope my family is okay.”

TM: I can’t turn my head off to go to sleep. That becomes an issue for us because I’ll give you an example. I was sleeping in my office opposite of someone else. When I would go in there I would turn on a western on the TV just so I have some white noise that has nothing to do with what is going on outside.

RA: You couldn’t separate yourself from it?

TM: Correct.

SN: You have to make yourself separate.

TM: That’s right you force a separation to where you can sleep when you need to sleep and when you are back on and you’ve had enough rest to where the decisions you are making are sound.

RA: Did you notice a sort of decline in people’s physical wherewithal while they were here?

SN: What you first notice, and again this goes back to this human behavior thing, what you first notice there are some who have not gained the ability to control the adrenalin rush that comes with “we are in this operation mode.” You see the evidence of that because when their shift comes to an end they don’t leave. You can’t get them out of the seat or if you get them out of the seat you find them some place else in the building or

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some place else in the operational area when they really shouldn't be there. They just can't remove themselves; they are too engaged. Then you have to have someone who is going to come along with the threatening pipe, "I'm going to beat you over the head if you don't leave. Literally I am going to play your mother, go to your room, go get some sleep" and we have people that we have to do that with. You have others who based upon their backgrounds and the number of disasters they have been through and their past life experiences understand the importance of controlling that adrenalin rush.

RA: I met people in the Red Cross that had been through a lot of crises and they were really a riot because they would be up and going and everything would be fine and they are off, boom, they out of there, they are in another place completely because they know how to survive.

SN: That's exactly right. Those who don't control it or who don't have someone help them control it forcibly will end up crashing, literally crashing and then they are...

RA: Then they are useless.

SN: That's exactly right. Now you've lost an asset to help you run your operation. So that was one of the things that we saw. The other thing that we learned very quickly is that when we go into a disaster mode we move to a 12 hour shift. So now everyone is working longer hours. So you are working 12 hour shifts and there is an overlap for me to brief him because he is going to do the night component the next morning. So the reality is you are probably working at a minimum 14 hours. You can only carry that out physically, mentally and emotionally for so long.

RA: How long do they think you can do it?

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SN: Well that's never been truly determined. But we clearly understood now that two weeks is too long. Somewhere post event we've got to identify a time frame when we get, we shift that 24 hour, 12 hour shift to a 24 hour 8 hour shift so that people can regain some more rest. They've got to recoup what they have lost. That is one issue. The other side of the coin is that post event we have to take care of our employees just like they have needs just like the citizens do. They are residents of the community, they have absolutely no idea what has happened to their home or what has happened to their family so their focus begins moving away from what is in front of them off to that. So that is the reason that the very first day that we had the opportunity after Ike in our staff meeting I said to everyone, "Everyone needs to make a call to your family. I don't care where they are you need to call them. You need to know they are okay and they need to know that you are okay." The next day it was, "Everyone needs to as some point during the next 24 hours go see your home."

RA: Now had most of their families left the city or were they at home?

SN: Some had evacuated to northern areas of Harris County, others were at home. I live in northwest Harris County so my family doesn't need to evacuate, they ride out the storm right there. His family was in Pasadena.

TM: They rode the storm out where they were.

SN: We had another staff person who was from Friendswood; his family was up in Tomball. We have a staff member who lives up in Cleveland, their family was at home. Their home was damaged. So we took the OEM staff and we walked them through every day.

RA: Mental health, how to keep them mentally healthy?

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SN: Yeah. On the third day it was, “Okay now how many people had damage to their home? I want you today to call your insurance agent.”

RA: But you really had to kind of tell them that?

TM: Oh absolutely.

SN: Yes.

RA: Amazing.

SN: But there are two reasons for that. One is, not that I don't think they wouldn't eventually think of those things on their own but they need to know that we need them 100% devoted to the job and in order to achieve that we understand that we need to be concerned about you and your family.

RA: Okay I like it. You were going to say something?

TM: Well I was just going to say that's where the more disaster experience that you have, I mean you truly become the gate keeper, the person that watches over the others to see what are your needs that are or are not being met; and how do we address that so I can get your head back where I need it which is the COC dealing with the event at hand?

RA: Well for me being the, to say the least a layman, or a victim, what... tell me what you do here. What are the seats they are sitting in where they are looking at something? What do you need them to be doing while they are here? What is an individual doing?

SN: The answer to that question depends on what the discipline is and where you are in the stage of the response. If it is police department they are doing a litany of things. One is working with controlling traffic relative to the evacuation that is taking place.

RA: That takes most of their resources I imagine?

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SN: It takes some of their resources it doesn't take all of them. From a P.D. standpoint you need to increase patrols in those zip codes that we have evacuated because people are concerned about whether or not somebody is going to take advantage of the situation and come and break in to their homes and take what they own. Well we don't want you staying because that is what you are fearful of. So what we need to do is increase patrols in that area. We need to be putting out the word so that criminals understand up front if we catch you doing something you are not supposed to be doing there is not going to be any breaks. This is the worst time to go and do something against society. We are not going to be very friendly about it. There are issues in regards to preparing their own employees. They have to recall all of their manpower because they are on this 24 hour operation period. So where are you going to shelter all of these people who normally work for you and go home when they are not on shift? Where are you going to place them? How about their family's safety? Where are they going to be because I need that police officer on the street to have his full, undivided attention on the job I've assigned him to not worrying about whether or not his family is taken care of, so I need to augment that. If there are refugees of last resort that end up opening then there is an issue of security. Because now you are pulling individuals from different parts of the community who normally don't live together, putting them in a confined space, in a stressful environment and expecting them to all get along. So you have to have some capability there. The evacuation hub where we pick up people who don't have transportation and we are going to assist them in moving out; again, traffic management around that site; again, traffic management around that site, security around that site. There are just lots of things in that particular area. Fire has their whole set of activities

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that they need to do, public works has their set. From Emergency Management what our staff is doing is what is up with the current storm? Take that information from the National Weather Service, push it into a software application that then creates this tool that the public can see that tells them what their risk is on this storm wind wise. Making information available to the mayor about when to order the evacuation for the zip codes in Houston, prepping staff for the evacuation hub operation, prepping for refugee of last resort operations if that becomes necessary, updating the state on what our status is. When are we potentially going to reach the point that we will need state or federal assistance? How do we put those requests in; getting those requests submitted and following up on them, working with non ambulatory folks who live in their homes. In today's society we don't keep people in hospitals as long as we used to. We tend now to push them into their homes. Well that poses additional burden, additional needs that exist out there. It is a whole litany of things.

RA: I guess in this particular structure, are you a function of this center or are you coordinating the operations of this center when there is an emergency who kind of holds it all together? Is that your job?

SN: Well first it is a clarification of what the Houston Emergency Center is.

RA: Very good.

SN: The Houston Emergency Center is a facility that was designed to handle and carry out 911 call service and dispatch of emergency services within the community on a day to day basis. That is what this facility is. When Allison occurred back in 2001, 911 was at one location, fire dispatch was at another location, police dispatch was at another location. This facility was designed to bring it together.

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RA: Then you have taken it to a different level?

SN: I haven't done anything with it. We as Emergency Management were located at a different location during Allison. That location was co-located with Harris County's Emergency Management. What we learned during Allison was that facility wasn't big enough for both of our operations. So when they began to create this consolidated emergency communication center, a decision was made to move the city's Emergency Operation Center into this same facility. We are just a tenant. What the Emergency Operation Center does when there is a disaster is it gains global awareness of what is happening in the city and how the city needs to respond to that disaster that is either imminent or has already occurred. That is what we do.

TM: Right and to give that a little illustration. If you think about what Emergency Management does, okay, the police department, the fire department, the public works, the health department, our private sector resources, Centerpoint, AT&T, our volunteer organizations, Red Cross and Salvation Army make up an orchestra. The mayor selects the music that the orchestra is going to play and the Emergency Management takes the role of conducting that orchestra to carry out that activity.

RA: I love this guy he comes up with the neatest analogies.

SN: We do that a lot don't we?

RA: Well it really helps make it very clear. Tell me something on a personal level Terry how did Ike affect you what was your personal story about that?

TM: Ike was actually, I was very fortunate during Ike. We had some roof damage at home but the structure stayed in tact. We lost a big tree in the back yard, took out some

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fencing but in the grand scheme of things being as south as we were without power less than seven days.

RA: That's nice.

TM: We had to cut up one tree, replace a little fence and a bunch of shingles; in the grand scheme of things very, very fortunate.

SN: I live out northwest up by Willowbrook Mall. I was without power for 14 days only on my side of the street, the rest of my subdivision all had power. When the power kicked back on I lost the refrigerator and a deep freeze due to the surge. I lost some fish in my aquarium that was about it.

RA: I'm sorry about that.

SN: That was about it.

RA: Well a refrigerator and an ice box that is a lot or a freezer.

SN: And the food that was in it.

RA: Does insurance cover that?

SN: It's not really worth filing the insurance and having it on your record given what the deductible was. The other portion of my experience with Ike is that I observed my staff fulfill a job and their roles at a quality level that was unbelievable, not one complaint, not one moment of significant tension between anyone. They held together emotionally and mentally and they performed well beyond what most people would have expected.

RA: Can you tell me from your perspective how did the storm come in, what was it like from your global perspective up here?

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SN: I think it was not unlike any other storm that approaches, that gives you lots of warning. The part that I think things became quite interesting and challenging is one when you have a plan that says someone is supposed to do something at a certain time and they don't do it. We to this day still don't understand why Galveston was delaying their decision. It could be a whole lot of speculation. It doesn't matter. It is a lesson that we learned from it. For some reason they delayed their decision and that ends up impacting a lot of people upstream. I think the other issue with Ike in particular is that given it's magnitude in size and the uncertainty with its track what we observed was the state knew that we were going to have a storm that was going to have significant impact along the Texas coast but they did not know where. So consequently they were reacting based upon what the forecast said the end result was going to be about where it was going to make landfall and they literally chased this storm from the upper Texas coast to the valley and then they turned and chased it back. Now what I mean by that, Terry said earlier, one of the short falls that we have in resources is ambulances. You take that limited asset and you literally move it along the Texas coast to try to get it to where you think the storm is going to be...

RA: You take your resources to where you think it is going to be.

SN: Only to turn around and move it back this way. Now what you have done is you have taken a crew and you've had them on the road way too long. If you use that crew and put a patient in that ambulance and that crew hasn't had any sleep and they have been on the road for 30 hours, you now not only put the crew at risk, you put the patient at risk. So that was one of the lessons that was learned from this event.

RA: Why did they do that?

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SN: Because there one, wasn't enough resources to stage assets along the entire gulf coast and then converge to wherever the landfall occurred. I do believe that is where they are going to head in the future instead of chasing one of these things up and down the coastline.

RA: That's interesting I've never heard of that story.

SN: Ultimately it ended up making landfall in about the general region of the state that initially they said it was going to make landfall in. But if you go back and look you will see that this was here, then it was Matagorda Bay, then it was Corpus Christi, then it was south of Corpus and then it comes back this direction. That is something we can't control. Science is not great yet at forecasting landfall with least amount of error when the storm is well out in the Gulf or even further off then that. The reality is that we have to make decisions about public safety just because of the magnitude volume wise of the population when the error ratio is high. When you reach 48 hours that really, that cone of uncertainty, that error ratio about where it is going to go gets much smaller and the weather service can be fairly certain about this area between here and here. But when you are talking about something that is 90 hours out, 72 hours out that is the dilemma.

TM: Plus or minus 250 miles.

SN: That's a big error.

TM: That could be here or that could almost be to Brownsville or that could be to New Orleans.

RA: Terry there is no way to focus that more?

SN: Not yet.

TM: Not yet.

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RA: Science isn't there yet?

SN: Science isn't there yet.

TM: Science isn't there yet.

RA: Were there other issues because of inability to marshal resources or whatever that had other consequences?

SN: Yeah.

RA: Galveston, the whole situation with Galveston was somewhat unexpected wasn't it?

SN: What was unexpected to us was for them to delay their decision about evacuating.

RA: Yeah that is real interesting.

SN: And we really don't know why that was done. I assume...

RA: That may be why they aren't so eager to interview.

SN: Well there are a lot of things that are going on with Galveston right now. One of them in all honesty is their desire to get back to a state of normalcy as quickly as they can. We are in the middle of hurricane season. So to them they don't want to dwell on what happened with Ike they need to move forward.

RA: Right.

SN: Otherwise, if they get hit with another storm this year things can be a lot worse than they are. They are in a recovery mode.

TM: You've also got to remember everything you heard about this storm was, "Okay this is a category 2." Well what does that mean? You, as opposed to evacuating, you had people going to Galveston Island saying, "Oh we are going to have a hurricane party. We

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are going to ride out this storm in this beach house.” Well this category 2 storm produced a 17 foot storm surge because of its size.

RA: It was the biggest...

TM: Absolutely. I mean from the edge of tropical storm force winds across the diameter was almost 500 miles. That pushes a huge wall of water in front of it. So you saw people, I mean there are great pictures of the waves coming up on the seawall and the streets being flooded. Well why are there pictures of that?

RA: Why are there people taking pictures?

TM: That’s absolutely right. You shouldn’t be there. We should not have the cool pictures we’ve got of Galveston Island. Those people should have been gone. Until we get to a point where we can change that human behavior, we’ve got a lot of work to.

RA: They said that the people I talked to in the parks service said they were actually considering changing the way they identify a storm category 2 might be raised to a different category because of its size. They had never seen a hurricane this large before. It covered this huge area.

SN: The reality is that number one the science is not there on the forecast errors when the storm is further out. The other side of the coin is the categorization of hurricanes is based only on wind. It is not based on storm surge. There were some debates on whether to change that and I think the outcome is that we are going to see two different sets of products. We are going to see the categories will remain predominantly the same for wind and you are going to get another set of products that are pushed out to us that are related to storm surge because they are two separate risks and there is no way to take the storm surge and apply it to the categorization based on wind. Because there are too many

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variables, a category 2 with a storm surge that is equivalent to what you might see with a 4 or a 5 so what do you call it? What is going to come now is two sets of products, one for wind and one for storm surge. The other thing that is going to happen is we have said for years that it is extremely difficult to get the public to take action and begin to move out of a storm surge risk area when the sun is still shining.

TM: That is exactly right.

SN: It is absolutely impossible. If you wait until you put up a hurricane warning based upon the time table that is established to do that then there is not enough time left to move all of these people that need to be moved. So the other thing that is going to happen from this experience at a national level is the watches and warnings are going to come out earlier. Eventually, if not this year, probably next year, you are actually going to see another type of warning that is going to come out and it will say, "Storm surge warning area." One of the comments that I made post Ike was education is the key to getting people to do over time what it is that you need them to do. But anytime you take a break in that education cycle, people begin to lose what they learned. If you don't use it, you lose it. If it's not reinforced you lose it. What we saw with Ike is not any different than what happened with Camille in Mississippi.

RA: Oh yeah they didn't get out of there.

SN: They didn't get out of there, they had a storm surge and you saw basically a very similar pictures, I can put them side by side and we've... history is deemed to repeat itself, well it did. It really did. We had people on Boliver Island, Boliver Peninsula that decided they were going to have a hurricane party just like the people did sitting in that hotel in Mississippi and that hotel ended up flat with nothing but a concrete slab. Boliver

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Peninsula for the most part is just sand. Okay, somewhere in there a disservice was done in continuing to educate the public about the ramifications of storm surge. So now we have to use not just one of these storms but both of these storms to reiterate that message to the public.

RA: What about when you look at the population, you go down to Galveston I was down there with a friend of mine with the parks service right after the storm but there is just so much housing up there going up, new stuff going up. Some of the stuff that's been hit really badly by the hurricane they are just rebuilding and sticking right there. Three story buildings already up two stories on stilts, is there no way... do you guys have any effect on influencing that kind of, I don't know if it is legislation or rules or zoning or anything like that where people don't rebuild where they are going to be annihilated?

SN: We here in the city of Houston can only address what happens within the city of Houston and provide guidance to our elected officials here. That is first and foremost. Secondly, we can only provide input based upon experiences at the federal level and attempt to influence whatever happens at the federal level. I was at an international Emergency Managers Associations conference last November and specifically speaking about hurricane Ike and lessons learned. One of the questions that was posed at the end was do you think Galveston should rebuild? My comment back to them is if they don't rebuild what message got sent? If they do rebuild what message gets sent? There are a lot of people that that is their home. Galveston was rebuilt after 1900 storm and they took some mitigation efforts to elevate the island, at least that portion of it that is behind the seawall. The issue is not whether or not they rebuild, the issue is how do they rebuild?

RA: I remember that...

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SN: I think it would be sad to say they don't rebuild. It comes down to how do they rebuild?

TN: Galveston has done some things in some relatively recent building code changes that should make that community more resilient moving forward. Does that mean history won't repeat itself? No. I mean every disaster is a little different. There is a new set of threats, a new set of impacts and the best you can hope for is that you learn from them quickly, you get the appropriate restriction regulation in place to make your community better than it was before. I'll give you another example of something that we have done here in Houston. The National Flood Insurance program rates communities on their flood preparedness and how they have gone about reducing their flood risk. In 2001 the city of Houston was a 9 on a 1 to 10 scale.

RA: 10 being the worst?

TM: 10 being the worst. Okay? Since 2001 the city has taken some very aggressive steps to improve our flood warning, preparedness, our storm water management, our retention and we have changed several building codes to improve our flood risk. We were recently reevaluated and we have progressively gotten better. But we are now to a 5. What does that mean? Well it means the average home owner has seen a 20% reduction in their flood insurance premium. That is meaningful, that is dollars in the community's pocket. But it also means we have the lowest rating of a major metropolitan city in the United States and we are not stopping at a 6.

SN: Or a 5.

TM: Or a 5, we are continuing to get better.

RA: What about Galveston are they?

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SN: I don't know. Another lesson learned in how things apply and then you have to relearn lessons. Hurricane Alicia resulted in windows being blown out, damaged downtown. The lesson they learned there is pea gravel roofs is a "no, no." Wind has a very good knack for picking up pea gravel and sending it everywhere. The building code was changed. No pea gravel roofs downtown. We've had storms since then and we've not had any huge amounts of window loss downtown. We did during Ike so the question becomes, "Alright what was it?" We have to examine it.

RA: We don't know?

SN: No we know but you have to examine why it happened and it is something that can be mitigated? Those buildings that lost windows you can actually see that it is above a certain window that the windows were lost and it is below a certain level.

RA: How interesting.

SN: It has to do with the wind tunnel effect. When one window breaks, what came out of that office that got into that wind tunnel and was now ramming into other windows because it was above a certain level on the street, it wasn't at the street level. It was above a certain level and below another level. So from an engineering standpoint, for people who study wind; that is an interesting piece of information to learn from Ike. Now you go about mitigating that. Okay it's not what is on the roof now that is the issue we need to seriously reinforce windows, protect those windows between a certain floor to another set of floors and that is the activity that the city is now working with and that those private businesses are working towards.

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RA: Any other things that was interesting out of this that you picked up? How would you define, I mean you had so many houses that were without power. Wasn't that kind of a major thing here in Houston? Has it ever been that much of a power loss before?

SN: That was the largest power outage not only in Houston but in the state of Texas historically. The interesting thing to me is that everybody out there in the public reacts, "Boy can you imagine that that really happened?" But earlier in the summer we did a hurricane town hall meeting at the GRB [George R. Brown Convention Center] and Centerpoint Energy did a presentation that basically said, "For this size storm: here is how long the electricity could be out for you. For this size storm here: is how long it could be out for you." They were on the mark. In fact, they restored the majority of the power back in less time than what they said it was going to take.

RA: Yes I was really impressed.

SN: But there were a lot of folks out there who were like, "I can't believe that all of these folks were without power." Well it's not that they weren't told. It was nobody believed that it would happen. We have the slide in one of the presentations that we do, one of the things that is imperative is to get rid of a certain belief that exists within communities one, "It won't happen to me," two or no, "it won't happen, the event won't happen," two, "if it does happen it won't be as bad as everybody says it is," three, "if it is as bad as they say it is, somebody else is going to take care of it. Either the folks in academia will come up with a solution or government will take care of it. If they can't then there was nothing any of us could do about it anyway." That is the mentality that results in not being prepared.

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RA: If you were, just on an average level, if you were going to tell a normal Joe out there in the street, what would you want him to do so he could be more useful? What would he need to be prepared and be more useful in this process?

SN: I think he needs to take the three step piece for being ready. He needs to become informed. He needs to take the preparedness actions to be ready and he needs to act when it becomes necessary to act. There are steps in between on all of those that will help him get there. Now some people are going to be more apt to go out for example, today and put their disaster kit together because they have the resources readily available to do all of it today. There are others, on the other end of the spectrum who can't. What we do is educate them on how do you put that disaster kit together over time? There's a set of the population that we are attempting to reach again now about if you are going to need assistance you need to register. You need to tell us up front that you are going to need the help so that we can ensure in that planning process that we have the right resources available to provide the help instead of waiting until the event happens and then hollering, "I need assistance."

RA: Terry, is this going to happen again in Houston?

TM: Sure! I mean look at Houston in its history. I started this presentation when I told you about me and why I came here. If you are going to be good at disaster management you've got to go someplace that has disasters.

RA: Go to Houston!

TM: Absolutely. Since they started tracking Presidentially declared disasters Harris County has had 35 Presidentially declared disasters. Texas tops the list when you look at the 50 states. But if you were to put Harris County on that same list, Harris County

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would be number 6. We have had more Presidentally declared disasters in Harris County than 43 of the 50 states. We get a lot of practice at what we do. This is an incredibly disaster resilient community. We do not wait for someone to come and put the pieces of the puzzle back together again. We start assembling it on our own, we rely on our neighbors for assistance and we help each other.

RA: Our neighborhood was cleaned up a day or two days after the hurricane completely with the neighbors all helping each other out.

TM: Absolutely! I can't get the tree out of my backyard or your elderly neighbor can't get the tree out of their back yard but how many people in the neighborhood brought their chain saws down, helped chop it up in little bits and get it to the curb to where the city can pick it up? It's neighbors helping neighbors and that's the key to a disaster resilient community.

SN: That's a really good example of it because we the city absolutely cannot go on that property and cut that tree down, we can't. But if the neighbors help get it we can get it out of the neighborhood.

RA: We had huge piles of stuff on the street.

TM: Right but as soon as it is on the curb we can deal with it. But getting it to the curb it requires neighbors and each other to, every person has a role in disasters.

RA: Was Ike, just rounding up a little bit, was Ike compared to other hurricanes was it a more serious, did it have a more serious effect in Houston than the others had or was it just one of many?

SN: Every disaster has cascading impacts. The cascading impact for Houston from Ike was a significant wide spread power outage.

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RA: Yeah okay.

SN: When the lights go out it is more than just dark. There are lots of issues to deal with and they vary from one family to another. Yours may be that you just don't have power at night to turn on your light. Your neighbor next door to you, it's that they don't have the power for that oxygen generator to put oxygen in that oxygen bottle that they need to continue to breathe with. It is the whole gamut in between. Without power, there's a difficulty in pushing water from a water source into the pipes that come into your homes so that you have drinking water. But it also means that there is no water to push to the pipe to that person who needs dialysis and can only live so long without it. There is the issue of having enough water pressure through the pipes to put out a fire. There is the issue of when all the water did come back on and everybody begins to use their toilets, most people don't know how the system works once you flush that toilet. It is all fed by gravity and at some point it's got to be lifted up and moved to the next pipes to go down by gravity. Well if a lift station doesn't have any power...

RA: It doesn't lift it up.

SN: It doesn't lift it up and what happens to the pipe? It begins to fill up and eventually it can end up in your home.

TM: That's right.

SN: That's just the way it works.

TM: Some things just don't run up hill.

SN: That's right some things just don't run up hill. We were fortunate with Ike. Most people don't realize that there were two events. Ike was one, the other was the cool front that came through right afterwards that resulted in some flooding in the area.

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RA: Oh the cool front did?

SN: Yes.

RA: It also helped us all survive.

TM: Absolutely.

SN: Right and that was my point. The loss of power meant you didn't have any air conditioning in the area. If you go back to what happened during Allison we had...

TM: Or Rita.

SN: Yeah or Rita we had heat stroke issues with high humidity and high temperatures. But we lucked out. On one side of the coin you ended up with a bad storm that took out the power and there was no electricity but then on the other side of the coin a cold front comes through and makes it quite nice that we can all sleep in our homes with our windows open.

RA: Yeah it was great, it was a miracle.

SN: The flooding was called by the debris that was thrown around with Ike. There was lots of stuff.

RA: You know that they say in talking to the archeologists that were looking for things to clear away the rubble underneath Galveston, they said that there were... one of the major obstacles was hot tubs that got thrown into the water.

TM: Sure.

RA: Hot tubs and water heaters and stuff like that. They found a bunch of ships, three or four ships underneath here really great.

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SN: Well one of the interesting things with Ike was that it did resurface some stuff. I mean there was a Civil War vessel that was found in Galveston Bay that was not there before Ike.

RA: There was... let's see I have a picture of it but I don't think I've got it right here. I have a picture of that, the guy who had done that, the naval historian had taken that. They had done side looking radar and there was this ship, just outlined in the water.

SN: It wasn't there before.

RA: No they had never seen it before.

SN: Just like Terry said this is a community that has lots of disasters and stuff. It's what drives a lot of folks when we have openings in Emergency Management to apply for the positions and we often ask them in interviews, "Why this city and this organization?" and what you tend to get back is, "You are a city that is very willing to be up front about what were the lessons learned and not only to identify them but to turn around and put in things to address them before that happens again. You are a city that has done things that no other cities have done."

RA: I have been impressed with the city during the hurricanes and even the judge, the mayor and the other people... I mean I think they have done a good job in creating an image for the people in the city but I think you did all the work.

SN: That's nice. Somebody has to be behind the scenes putting stuff together.

RA: I know somebody has to be doing it all. But I agree there has to be a spirit of the city that's just really remarkable. Remember the... were you here when they had the fireworks show before the power companies changed and they had the 4th of July I guess it was, it was a huge fire works show they had downtown. Everybody was just so happy

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and it was just, it was such a spirit of the city. I think that is a unique thing about Houston.

SN: I've always described it as a city that has a "can do" attitude.

RA: Yeah I think so. I think it is actually better in a crisis than in a non crisis.

SN: Well I think the only difference is that when the crisis comes there is more urgency put on the need to get the results versus going through the debate. That is the only difference.

RA: What about in the future Terry first what do you think, do you think the city has learned it's lessons are they more prepared now or are there areas that it has to work on for the future?

TM: Yes. We have learned a lot of lessons. We are more prepared today than we were during Ike. We have more work to do. We have more lessons to learn that will be taught to us by future events. An interesting nugget looking back at Ike that I think economists will have a field day with in years to come is with the global recession that was going on did Ike help minimize the impacts on Houston? Because did it raise the bottom by creating all the reconstruction and rebuilding that had to go on following the event to where we didn't have the same impacts that were felt elsewhere in the country?

RA: That is a great question, very interesting.

SN: And the odds are the answer is yes.

RA: Because Houston has really been surprisingly untouched by all of this.

TM: Absolutely.

RA: What about you what do you think? Are you more prepared?

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SN: I know the city is more prepared. But I also know from personal experience that Murphy comes to visit in every event.

RA: Murphy's inevitable law.

SN: Murphy is the one that results in presenting the challenges that weren't planned for but Murphy is also the one that gets the credit for presenting lessons from those challenges. The question is whether or not any jurisdiction is open enough and honest enough to look at those lessons and take whatever actions they can to mitigate them or to improve upon them in the future. When you don't, Murphy comes back around during the next even and puts it back on the table again for you.

RA: That's Louisiana, New Orleans.

SN: Yes and that's the classic example. When you were asking me about Galveston and when I said the person at this conference asked me about it. My comment was, "Did you ask that question in regards to New Orleans?" Lesson learned from New Orleans, they needed to rebuild the levies so that they wouldn't flood again. There is no doubt that the promise was made to rebuild the levies. The question is whether or not it was done at a state that would prevent the same event from happening again if the same set of scenarios or the same set of conditions existed. The answer to that is no.

RA: Really?

SN: It is because of cost. It is the same issue for the city of Houston. While we are mitigating our flooding capability and improving our rating score, the real way to jump that score way up would be to create a storm drain system that could handle 40 inches of rain in an hour.

TM: Absolutely.

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SN: You could do it...

RA: But you couldn't afford it.

SN: You couldn't afford it.

TM: They will never pay for it.

SN: So you have to look at other avenues.

RA: Well in New Orleans for instance, if they built the levies to so that they wouldn't be able to defend themselves from the issues that they had to rebuild them for, is that a statement of saying, "Don't rebuild"?

SN: No.

RA: It's just a crapshoot?

SN: All of these events and the decisions that are made post event for what might happen in the future is the roll of the dice to a certain extent. The bottom line was the federal government was the one that was going to have to deal with the rebuild of those levies. The question was could they afford to put the money into it? The answer was no. So they have rebuilt them to the same state that they were in. But at the same time are there some other things that they could do to mitigate it? The hardest hit area for the flooding, do you rebuild homes there? Maybe they did and maybe they didn't. Time will tell. The whole make up of New Orleans because the population that is coming back into that community is not the same that went out.

RA: Demographics have changed.

TM: Absolutely. I never can remember the statistic but I want to say it was in the 70th percentile that lives within 50 miles of a coastline, 70% of the population of the United States lives within 50 miles of a coast. So that means you are either threatened by a

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hurricane, you are threatened by north easterns, you are threatened by earthquakes, or you are threatened by volcanoes. That is seven out of ten of us. We are willing to live in risky areas. Are we willing to take the steps necessary to be ready for what happens?

RA: Well I also think according to what people are saying with the ice caps reducing and the water level rising you are going to have a lot more flooding issues anyway over the next 50 to 100 years if that turns out to be accurate.

SN: There is weather historical studies that are done that are pushing that direction. There are ramifications for that. Unfortunately, Emergency Managers are so busy dealing with the disasters of today that we are not having the opportunity to be able to look further down the road at the disasters of the far out tomorrows. We are looking at what is the disaster for next year, not what is the disaster for twenty or thirty years from now. The other side of the coin is that is one piece that is influencing what happens, ozone is another potentially, we see it every year with El Niño and it's implications. Things are changing. Weather patterns are changing. It is odd to have been sitting down here in the midst of a drought, hot as all blazes, and northeast is sitting up there in the 50's and 60's and raining for 14 days.

RA: Even worse than that I was in the Yucatan last week and it was cooler in the Yucatan near the equator and rained every day and cooler then it was in Houston, Texas. I don't know how to explain that one.

SN: There are ramifications.

RA: Well I want to... anything else you would like to add? Any other nuggets or information or anything you would like to share for historical purposes?

TM: I can't think of any.

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SN: No.

RA: I really appreciate it. You know sometimes, trying to get a picture of Ike this is a really interesting perspective from here and I think you gave me a lot of good information on just sort of certain things. You have given me a very mechanistic approach. If you do this, this happens so it is really a very cause and effect and it was really very interesting and I think it is very easy for people to understand. So I appreciate it and, and I really thank you for your time.

SN: I think the only other piece of information that I would give is there is a concern that Katrina, Rita, Ike are all storms that were created out in the Atlantic and provided ample, ample warning and preparatory time for people to take action. The fear is look at the results of that and what happens if we have the same type of storm suddenly appear in the gulf and you don't have all of that time.

TM: The prep time.

RA: That could happen?

SN: Yes that could happen.

RA: Okay so you are saying these happen farther out?

TM: Absolutely.

RA: So it can form just in the gulf.

TM: Absolutely.

SN: Opal, hurricane Opal is a storm that occurred in the Bay of Campeche and was moving northeast across the Gulf of Mexico towards Florida. Florida declared that the evacuation, some of the jurisdictions declared that the evacuation wasn't needed until the next morning giving the size of the storm and the forward movement speed. They got up

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the next morning to find that the storm had doubled in size and doubled in its forward movement speed. It was moving forward faster than the evacuation traffic was moving on the roadways.

TM: I mean 1983 here in Houston a very slow year, 4 names stormed. The first one in late August was Alicia, formed in the Gulf of Mexico 48 hours later it is in Houston, Texas as a category three and causing significant damage. So we can't overlook it. It only takes one storm to cause an impact. We hear every year, "it's going to be a busy season" "it's going to be a slow season."

RA: It doesn't matter.

TM: It doesn't matter it only takes one.

SN: It only takes one and if we can't as individuals prepare ourselves to deal with one they gave us hours and hours and hours and days and days of advanced notice then what are we going to do when that storm suddenly appears and we only have a matter of hours to do everything we need to do?

RA: Then it's a mess.

SN: If you talk to Bill Reed who is the head of the National Hurricane Center and who used to be the head of the National Weather Service office here he will tell you that that is a valid concern. There is a concern about emergency managers, chief elected officials of jurisdictions putting so much emphasis and energy and time into planning for these storms that give them days of notice and less emphasis on how do you accelerate all of that preparatory work in order to get it done when the storm forms in the Gulf instead out in the Atlantic.

RA: Interesting well that will keep us up.

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TM: Absolutely.

RA: Well thank you very much. I really enjoyed it, very enlightening.

End of Interview.

