

**SPECIAL MEETING  
Of  
CITY COUNCIL**

7:00 p.m., Tuesday, January 18, 2011

The City Council of the City of Isle of Palms held a Special Meeting on Tuesday, January 18, 2011 in Council Chambers of City Hall, 1207 Palm Boulevard, Isle of Palms, South Carolina. Attending the meeting were Councilmembers Bergwerf, Bettelli, Buckhannon, Duffy, Loftus, Piening, Stone, Thomas, Mayor Cronin, City Administrator Tucker, City Attorney Halversen, Assistant to the Administrator Dziuban and City Clerk Copeland. Invited guests were Allen O'Neal, Charleston County Administrator, Dickie Schweers, District 2 County Council Representative, Bill Tunick, Walt Smalls and Donnie Giacomo, from Charleston County, Kevin Henry and Keith Powell representing Crown Castle and Greg Malcolm and Greg Saylor of Motorola.

1. Mayor Cronin called the Special Meeting to order and acknowledged that the press and public had been notified of the meeting in accordance with the Freedom of Information Act.
2. **Discussions with Charleston County Regarding Options for Improving Reliability of 800 Radio System**

Mayor Cronin commented that the City has been in discussions with Charleston County for quite some time about the persistent and erratic communications problems experienced by the City's public safety personnel since the activation of the digital radio system. The Mayor stated that the issue remains one of great concern to the island and that he was hopeful that Council would have all of its questions and concerns resolved as a result of this meeting. Mayor Cronin then asked that Administrator Tucker provide background on the City's communications systems that have led to this meeting.

Administrator Tucker recounted that initially the island communities had used VHF radios to communicate with one another; the City had its own dispatch systems and communicated using walkie-talkies. Having experienced a major natural disaster in the Charleston area, the need for inter-operability, the ability for any local government in the county to be able to communicate with any other local governments via radio, became evident. As the majority of entities in the County were in agreement, a County-wide analog radio system was established. As with any change, problems occurred with the analog system, but the problems were infrequent, typically occurred at the same time of year and predictable at certain locations, such as with a "dead space" for cell phone reception. In general, the analog system provided mostly reliable communications and, in the instances where the communications were not reliable, the users knew how to anticipate them.

The Administrator continued that, when the conversion to digital was made, the City experienced communication problems from the onset. Initially the problems were thought to be hardware related, and considerable time was spent sending the radios to the shop for adjustments, but the problems continued and were compounded by their unpredictability.

More in-depth investigation into the digital system ensued, and the findings were that the digital system, as configured today, does not offer the reliability necessary for "public safety personnel

to communicate adequately and consistently in all situation and the inability to predict when and where the system is going to fail.”

Charleston County, Motorola and Crown Castle committed to identifying and resolving the problems more than two (2) years ago, and the City has been in discussion with the County since that time to determine what the best decision is to correct the problems, to have reliable radio communications and to ensure the safety of public safety personnel, residents and visitors to the Isle of Palms.

As the lead entity, Charleston County has spear-headed the project, and tonight the full body of City Council will have the opportunity to ask questions, hear the presentation by the County's staff and tower and communications experts. Administrator Tucker noted that the Public Safety Committee has had multiple meetings with Charleston County personnel, Motorola and Crown Castle where they reported on the progress being made and possible solutions.

Administrator Tucker introduced Charleston County Administrator Allen O'Neal, who thanked the City for the opportunity to appear before Council and introduced County Council member Schweers and the members of his staff who were present to respond to the City's queries, and the representatives of Crown Castle and Motorola who were present as well.

Walt Smalls, Assistant Administrator for General Services for Charleston County, began the PowerPoint presentation (copy attached to historical record of the meeting) by stating that, in November 2010, County Council authorized the County staff to sign a contract with Motorola in the amount of eleven million thirteen thousand dollars (\$11,013,000) to correct the deficiencies with the digital radio system. The Motorola contract has three (3) phases, but Phase III has not yet been funded by County Council and has no timeframe. In addition to the Motorola contract, the County signed lease agreements for tower space with Crown Castle, Verizon, The American Tower Corporation and the State Ports Authority (SPA). L.R. Kimball, an independent consultant, evaluated and validated the Motorola proposal to solve the problems; Kimball will also perform project management and implementation for Phases I and II.

Mayor Cronin commented that the report from Kimball that validated the Motorola proposal has not been released to the general public and asked if the City could get a copy. Mr. Smalls responded that the City would receive a copy of the engineering portions of the Kimball report.

Administrator Tucker asked what the estimated costs of Phase III were; Mr. Smalls stated that the estimates were in the neighborhood of six to seven million dollars (\$6,000,000-7,000,000).

Councilmember Stone asked what the initial investment to change to the digital system had been and was told that the cost had been seventeen million dollars (\$17,000,000).

Mr. Smalls remarked that Charleston County had executed the contract with Motorola on December 9, 2010 and had executed the contract with Kimball on January 4, 2011. The pre-construction conference is scheduled for January 25, 2011 where the specifics of the project will be reviewed.

Responding to Councilmember Thomas' question about whether vendors other than Motorola had been asked to submit proposals; Mr. Smalls noted that Motorola was a sole source vendor to maintain consistency in hardware and eliminate a potential problem of compatibility. Mr. O'Neal added that Motorola is the company in the forefront of digital communication in the public safety arena.

The leases with Crown Castle for tower space at Folly Beach, Six Mile Road and Highway 17 at Sewee will be finalized on January 26, 2011.

Mayor Cronin asked whether the existing tower at Six Mile was to be used or a new tower erected. Mr. Smalls explained that, at that location, the existing one hundred ninety-foot (190 ft.) tower would be expanded to a two hundred ninety-foot (290 ft.) tower with simulcast capabilities.

Continuing with the presentation, Mr. Smalls reported that Phase I of the contract with Motorola focuses on the east of the Cooper River area, Folly Beach and North Charleston. Included in the contract are considerations for the Isle of Palms that include the following:

- Should the City decide against a tower, the equipment can be used elsewhere in the County;
- Should the City decide to proceed with a tower, the equipment cost is included in the contract; or
- Should the City delay its decision about a tower, Motorola will re-mobilize at the appropriate time to construct the tower at no additional costs.

In the fall of 2010, the City suggested the Motorola engineers look at the existing tower site at 41<sup>st</sup> Avenue to determine whether it could be used to satisfy the island's need for a tower to resolve its communication problems. On December 1, representatives of Charleston County, Motorola engineers, representatives of Crown Castle, who owns the tower, IOP's Chief Graham and representatives of Wild Dunes met at the 41<sup>st</sup> Avenue site for a review. Keith Power, of Crown Castle, presented the results of that study indicating that the location is as good, or better, than other locations considered on the island because the tower would be located closer to the most densely populated area of the island. In addition, the presence of other leases on that tower requires that the tower's height be increased from approximately one hundred twenty (120) feet to one hundred ninety (190) feet, but the tower would not require a light since it would be under the two hundred (200) foot threshold for tower lights. Mr. Powell noted that Crown Castle would need to lease additional land from Wild Dunes Property Management and relocate a water and sewer line to accommodate the footprint necessary for the taller tower. The location is in a flood zone; therefore, the structure housing the equipment and backup generator would have to be elevated as it is currently.

Councilmember Stone questioned why the existing height of one hundred twenty (120) feet was not sufficient to meet the communication needs of the island. Greg Malcolm, engineer for Motorola, explained that, at present, Verizon, T-Mobile, Cingular and others lease space on the tower and do not leave enough vertical "real estate" to accommodate the County's antennas; the County will add five (5) antennas to the tower, three (3) to transmit and two (2) to receive, that are eighteen or nineteen (18 or 19) feet each.

Mayor Cronin noted that the majority of the towers being proposed exceed two hundred (200) feet, and Mr. Malcolm commented that he would prefer to see a tower two hundred thirty (230) feet tall on 41<sup>st</sup> Avenue, but he did think the proposed one hundred ninety (190) feet would be satisfactory. Mr. Malcolm explained that, in recent years, towers have been constructed lower to the ground to overcome interference and to provide better in-building coverage.

Councilmember Stone questioned whether the extended tower at 41<sup>st</sup> Avenue as proposed would be a “guaranteed fix” to the City’s radio communications; Mr. Malcolm answered that the coverage maps included in the presentation illustrate the “guaranteed coverage predictions” provided in the proposal to Charleston County. Mr. Malcolm commented that the maps show “extremely good coverage for this area for both on-street and in-building.”

Mr. Malcolm explained that Motorola has worked with the end-users and understands that one source for the problems being experienced is the level of interference in the summer months and in the fall when the area experiences temperature inversions and varying atmospheric conditions over land and the ocean. To compensate for these issues, Motorola has raised the noise floor to give additional protection on the coverage maps.

Island resident John Ghindea asked whether guywires would be required with a one hundred ninety (190) foot tower; Mr. Powell answered that guywires would not be required because the tower would be a self-supporting monopole, similar to the tower that is there now.

Greg Malcolm explained the coverage maps included in the presentation; he stated that the blue areas indicate portable, on-street coverage areas with ninety-five percent (95%) reliability, while the white spaces indicate reduced or no coverage areas. The white areas shown are not on the island. Mr. Malcolm replied to Administrator Tucker’s query that the coverage maps assume that the improvements have been made to the Six Mile tower, as well as the other changes proposed for Mount Pleasant.

Councilmember Duffy asked Mr. Malcolm whether the proposed design was the optimal one from an engineering perspective. Mr. Malcolm recalled that Charleston County and Motorola had looked at the tower placement at the water tower originally and later at the Recreation Center, but he repeated that the 41<sup>st</sup> Avenue site actually provides better coverage to the densely populated area of the island and better in-building coverage for the condominiums in Wild Dunes. He also pointed out that with the 41<sup>st</sup> Avenue location, the towers in this constellation, including Mount Pleasant, Six Mile, the Sewee site and Awendaw, are approximately eight (8) miles from each other. From what is in place today, this constellation represents two to three (2 – 3) additional sites in between existing ones that provide very good in-building coverage and very good, or seamless, roaming; Mr. Malcolm stated that he was “very happy with the design.”

Mayor Cronin asked whether interference was a natural occurrence or whether it was caused by other people transmitting at or near the frequency range. Mr. Malcolm responded that the interference was likely attributable to both situations; the issue is that the interference is coming from locations far enough away that a phenomenon referred to as ducting is happening in the transition months of the spring and summer when temperature inversions occur, i.e. the atmosphere

generates almost a cable for the signal to ride, which explains why the signals are coming from Florida, for instance.

Mr. Malcolm commented that, if the engineers could isolate the one (1) particular transmitter or site that was creating the interference, they could work to stop it, but the second best option is to overpower it with signal, which is what Motorola is doing with the island tower. The Mayor then asked whether the addition of systems along the East Coast would generate more interference to the system; Mr. Malcolm expressed confidence that the new tower configuration would provide more than sufficient protection.

Councilmember Loftus inquired whether the City would have guaranteed coverage in metal-roofed residences; Mr. Malcolm stated that public safety personnel would have coverage based on the maps. Mr. Malcolm added that part of Motorola's contract with Charleston County is to perform subjective audio tests – Motorola will go into buildings and on streets to test the signal – at times of year when interference is at its highest levels. He did note that the closer a structure is to the tower site, the stronger the signal will be; conversely, an interior room on the lowest level of a 20 db structure, like The Villages in Wild Dunes, will experience a diminished signal.

At Councilmember Loftus' request, Mr. Malcolm explained that a 6 db structure would be represented by a one-story residence; a 12 db building would be a two-story residence or a convenience store; and, at 20 db, the structure would have poured concrete walls and would describe the high-rises in Wild Dunes.

County Councilmember Schweers asked Mr. Malcolm to locate Dewees Island on the coverage map to demonstrate that all of the large buildings on the island would receive good coverage.

Referring to gaps in coverage on the maps, Administrator Tucker stated that, since the same engineering would have been done when the digital system was first put in place, Motorola could have informed the City that communication problems would occur. Mr. Malcolm concurred and explained that the difference between then and now was that a 20 db noise floor was not added to the equation because Motorola did not realize the level of interference coming from the ocean. In preparing the upgrades proposed now, Motorola hired an independent company to take measurements of the level of interference on two (2) separate occasions; another change is to the audio quality based on the end-users' requirements.

As a follow-up question, the Administrator asked whether there were any other pieces of data that would be added to the mix to reduce the white, or non-coverage, areas, and Mr. Malcolm stated that he was not aware of any. He commented that the 20 db noise floor has been applied only to the coastal areas of Charleston County that are impacted by the system upgrades.

Mr. Smalls returned to the presentation to review the timeline for Phases I and II that concludes with final systems acceptance in mid-September 2012.

Mr. Tunick summarized the actions scheduled to be included in each phase as follows:

Phase I

- Addition of towers Highway 17 at Sewee and the Isle of Palms;
  - Higher tower with simulcast upgrade at Six Mile Road;
  - Higher tower at Folly Beach and the Isle of Palms; and
- 
- Re-locate equipment from Summerville to a Verizon tower on Otranto Road.

Phase II (to occur simultaneously with Phase I)

- Higher towers on Johns Island and Edisto.

Phase III

- Upgrade McClellanville tower to simulcast capabilities;
- Additional towers between Awendaw and McClellanville and on Highway 165; and
- Re-installation of Summerville tower.

Mr. Smalls concluded the presentation by stating that the County's network increases from eight (8) to sixteen (16) towers at the completion of all three (3) phases.

Councilmember Buckhannon expressed a degree of skepticism in accepting the proposed upgrades as the solution to the island's communication issues since the City had been given a similar presentation in years past that caused the City to buy into the digital radio system.

Councilmember Stone asked Motorola for other locations in the country where like systems were installed, whether these systems were working according to specifications and whether other local governments had been resistant to the construction of two hundred (200) foot towers. Greg Saylor, Senior Account Manager for Motorola for this geographical area, answered that there are hundreds of similar, yet unique, systems across the country. On the subject of the present tower requirements, Mr. Saylor explained that the need is primarily rooted in the end-users' requirements for the type of coverage and the required specifications; Mr. Saylor indicated that in the original digital radio specifications from Charleston County, in-building coverage was not included.

Councilmember Thomas inquired whether performance guarantees were included in the Motorola contract; Mr. Malcolm explained that the contract includes functional guarantees that the system features will work, an extensive acceptance plan will ensure the functionality of the systems and a very in-depth coverage acceptance test plan for the system is included - ultimately the expansion is about coverage and audio quality. As explained earlier, Mr. Malcolm noted that Motorola engineers will be all over Charleston County, in buildings and on the streets, in the hottest summer conditions to provide assurances that the coverage meets the contract specifications that were set by the end-users; this testing will also identify any problem areas that may exist for public safety personnel.

Responding to Councilmember Duffy's question about coverage testing in 20 db buildings, Mr. Malcolm indicated that such testing was not a part of the contract, but could be done to provide real data to the public safety personnel.

Councilmember Loftus noted that the island has forty-foot (40 ft.) tall houses with tin roofs and asked what guarantees were going to be given to personnel that they will be able to communicate in these structures in an emergency situation. Mr. Malcolm replied that the system would function well "in the majority" of those homes; to which Councilmember Loftus emphatically responded that majority was "not good enough" – "it must be one hundred percent (100%)!"

Mr. Malcolm stated the following:

"If you look at the industry standard for communications and reliability, you are not going to see somebody that can guarantee that, yes, you can talk one hundred percent (100%) of all of the buildings, one hundred percent (100%) of the dirt. It's not . . . The laws of physics and the atmospheric conditions and just anomalies that are going on . . . It's not going to happen. I mean, to increase the reliability from where it's at to the next level exponentially increases the number of sites and RF that have to go out there, and then it becomes totally not cost effective at all. Believe me, as an engineer, I don't like something doesn't work. I have been doing this for twenty-one (21) years now, and I want to know that those guys, when they risk their lives, that they can communicate. . . We do everything we can to make these systems work, and they are reliable, they are safe, they are easy to use - all the things that goes into a radio communication network so that they can do their jobs; the last thing they need to do when they come up on a scene is worry about the communications – they have plenty of other things that they need to be focused on."

Mayor Cronin commented that Chief Graham has been very quiet through the meeting and asked whether she had any comments; Chief Graham wanted to say for the record that she "strongly believes that we (the City) needs this tower; we have had several close calls; we have had issues where we did not get a call when we needed to go. I got probably well over a thousand (1,000) documented, for lack of a better term, complaints where I have actually documented situations where we had a problem, and I sent it in. And, for the thousand (1,000) that I have sent in, I guarantee that there is probably well over a thousand (1,000) that I didn't send in, and that's just Isle of Palms."

Councilmember Stone re-phrased a question from earlier and asked, of the thousands of Motorola systems in the field, how many have required retrofits or have been designed with these one hundred eighty and two hundred (180 and 200) foot towers. Mr. Malcolm commented that he did not consider the proposed work to be retrofitting, but upgrades, additions and enhancements to the Charleston County system. He noted that changes to a system are required when population centers change, or communications needs change, or buildings are added – these local governments may need additional channels or additional sites.

Councilmember Buckhannon complimented Charleston County and Motorola on their presentation and commented that he had learned that Motorola had built a system to specifications, but those specifications might not have been complete.

John Ghindea, a resident of Sea Cabins, asked what would happen to communications if a storm took down one (1) or more towers in the constellation; Mr. Malcolm responded that communications would not be lost entirely – there would be mobile phones and, likely, on-street coverage. The City could not expect to have the same level of coverage as before the storm, but this is one (1) of the advantages of a simulcast system.

Debbie Jones, an island resident, commented that, despite the seventeen million dollar (\$17,000,000) expenditure for the digital system, it is not reliable and asked whether guarantees had been in the original contract. Mr. Malcolm stated that the contract did include coverage guarantees, but in-building coverage had not been a requirement of the contract. She expressed concern about the reliability of the systems even after the upgrades.

Dean Surrett of Dewees Island asked whether the RF estimates took into consideration the Nextel re-banding that has been completed and how much of an impact that had on the system. Mr. Malcolm remarked that they had one (1) site that was creating a lot of noise problems, but it has been re-banded and helped the issue. Mr. Malcolm reported that a study had found that the issue was the general noise floor rise, not a particular frequency.

Administrator Tucker asked about the budgetary impact to the City with respect to the per-radio fees paid to Charleston County. Mr. Smalls indicated that Charleston County, at this time, plans to absorb the additional costs for the balance of this fiscal year and will recommend to County Council to do the same for FY12. The City should anticipate an increase per radio of approximately eleven dollars (\$11) in January 2013 for Phases I and II; the completion of Phase III will bring another increase, but the amount is not yet known.

Chief Graham commented that the City would have the price increase whether or not the City approved the tower recommendations for the island.

Councilmember Stone thanked the County for the presentation and stated that he now understood that, had the system specifications originally been what they are today, the project would have cost thirty million dollars (\$30,000,000) not seventeen million dollars (\$17,000,000).

Councilmember Duffy noted that this was a situation where the end-users should have been more involved in the design phase.

Councilmember Bettelli, speaking as the Chair of the Public Safety Committee, related that he has met with the majority of the County, Motorola and Crown Castle representatives multiple times in the past year or so where the City asked some hard questions; he expressed appreciation for the answers provided at this meeting. He also thanked Chief Graham who brought the problems to the forefront and has been involved from the beginning to identify the problem and working toward a solution.

Mayor Cronin asked that Councilmembers deliberate on the information they have received from this presentation and be prepared to discuss the City's options at the Council meeting on Tuesday, January 25.



Administrator Tucker reminded the Council that, in order to proceed with the tower on 41<sup>st</sup> Avenue as discussed in this meeting, the City must amend the zoning ordinance to allow for a tower of the height required. The ordinance will require two (2) readings; it must go through the Planning Commission and a Public Hearing.

Charleston County Administrator O'Neal thanked Council for the opportunity to attend the meeting and to respond to Council's questions and concerns. He urged the Mayor and City Administrator to feel free to contact him or Mr. Smalls with any additional concerns that might arise. He added that he feels very responsible for where the County is on this matter and that he believes that good decisions are being made.

### **3. Adjourn**

**MOTION: Councilmember Bettelli moved to adjourn the meeting at 8:22 p.m.; Councilmember Bergwerf seconded and the motion PASSED UNANIMOUSLY.**

Respectfully submitted:

Marie Copeland  
City Clerk