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Reasonable Necessity for
Eminent Domain Action – Tuttle Property

Final Report

PREPARED JANUARY 2018
FOR BROWARD COUNTY, FLORIDA

Background

Broward County, Florida, (County) is in the process of implementing a new 800 megahertz (MHz) Project 25 (P25) digital land mobile radio (LMR) system, which will provide improved voice and notification communications capabilities to law enforcement, fire/rescue, emergency medical services (EMS), and emergency management agencies and first responders. The new system will replace the County's aging communications system that dates to the early 2000s and utilizes equipment that no longer is supported by the manufacturer. The new system is expected to be in place for 15 to 25 years.

Reliable signal coverage, to allow 95 percent or better system reliability at all locations in the county, requires a network of radio towers. The County's contractor, Motorola Solutions, and the County's consultant, Mission Critical Partners (MCP), have determined that a 300-foot tower is needed in northwest Broward County to provide the required coverage to the first-responder agencies in the City of Parkland, the Everglades and surrounding jurisdictions. The need for a tower in Parkland was specifically identified to address the large number of new and planned developments in the area, which necessitate greater levels of in-building coverage.

Locations for this type of tower must first and foremost provide the required coverage levels, which limits the geographic area in which they can be placed. Within the acceptable area, locations are limited further by the availability of County-owned land, proximity to residential developments, and locations that will be compatible technologically with the other tower locations identified for this system. The County, along with its contractor and consultant, have identified property at 15490 Loxahatchee Road, in northwest Broward County—referred herein as the "Tuttle Parcel"—to be the optimal site for the location of the new tower. This location meets the criteria for delivering high-quality signal coverage, has the required land available for the tower site footprint of approximately 6,000 square feet, and offers good access, without impacting residential or environmentally sensitive property in the vicinity.

Public Health and Safety

No safety concerns exist to prevent the installation of the tower at this location in northwest Broward County.

The public safety of northwest Broward County residents and first responders will be improved with the installation of the proposed tower site, as it will provide greatly improved radio signal coverage to first-responder agencies operating in this area, and west into the Everglades.

The proposed tower will be constructed to meet the current revision of industry standard ANSI/TIA-222,¹ and current Florida building codes for tower structures for public-safety use, which are the most stringent

¹ American National Standards Institute/Telecommunications Industry Association.

standards. The tower and the attached antennas will be capable of withstanding Category 5 hurricane winds.

Electromagnetic radiation (EMR) studies will be conducted prior to tower commissioning and operation to verify that ground-level EMR from the operating radio and microwave antennas is compliant with Federal Communications Commission (FCC) standards for EMR exposure to the public.

The tower compound will be fenced, and security alarm systems installed.

The tower will be equipped with obstruction lighting in compliance with current Federal Aviation Administration (FAA) obstruction-lighting regulations.

Alternative Sites

There is no other available property that has been identified in northwest Broward County as being suitable for a 300-foot radio tower, equipment shelter, and the associated 75-foot x 110-foot fenced compound.

A significant effort has been made by County Real Property, County Office of Regional Communications and Technology (ORCAT), Motorola Solutions and MCP to identify and vet suitable tower locations. Several alternative sites to the Tuttle Parcel have been considered.

There is a tower of similar height, located in Palm Beach County, across Loxahatchee Road from the Tuttle Parcel. This tower is owned by the South Florida Water Management District (SFWMD). While not in Broward County, this tower has been evaluated for use in the County's radio communications system. However, a tower loading and engineering study by Motorola Solutions' engineering firm has revealed that the tower, as currently built, cannot accommodate collocation of the antennas and antenna feedline needed for the Broward County system without major upgrades to the tower structural steel and components. Major upgrades to a tower owned by another governmental entity and located outside of Broward County have been found to be economically unfeasible. In addition, using a tower owned by another agency would limit Broward County's ability to install additional antennas in the future, and would present logistical challenges regarding site access and security.

The undeveloped areas north of Parkland in Palm Beach County that would provide suitable coverage were evaluated. These areas also are owned by the SFWMD, and while a land-use agreement could be reached, the areas require wetland mitigation to be performed by the Army Corps of Engineers. This mitigation is expected to last several years, well beyond the schedule for the County's radio system implementation.

A property, owned by Beasley Broadcasting, also was identified as a possible location for a County radio tower, as commercial towers already exist on the property—these towers support antennas for AM radio stations WHSR and WSBR. These towers are arranged geographically to meet FCC license requirements for a directional signal pattern. Because these towers support the antenna systems for the AM radio

stations, they are electrically “hot” with several kilowatts of radio frequency (RF) power; as such, they cannot be used for other purposes or colocation.

An additional tower on that property in the vicinity of the AM radio towers would result in the County having to “detune” its new tower with special equipment to mitigate any impact to the AM stations’ directional signal pattern. This would place an unreasonable burden on the County, as every time changes were made to the County tower—i.e., antennas added or moved—the detuning process would be required again. Proximity to these towers also could present a hazard to maintenance personnel accessing the County site. Further, the Beasley property is surrounded by residential developments. Development of a new tower which is significantly larger than the existing towers on the property will likely receive pushback from neighboring residents.

Property adjacent to the fire station on Hillsboro Avenue, as well as two other vacant land parcels on Hillsboro Avenue, were evaluated. However, they were deemed unacceptable due to a lack of sufficient land to place the radio tower and proximity to the adjacent residential developments. Little to no undeveloped property exists in this part of Broward County.

With all factors considered, the Tuttle Parcel is the optimal site for a radio tower in northwest Broward County.

Long-Range Planning and Future Needs

Significant development is occurring in northwest Broward County. As population increases, so will the calls for public safety services (law enforcement, fire/rescue and EMS). The proposed new tower is needed to provide strong signal coverage in Parkland, surrounding jurisdictions, and the Everglades. Strong radio signal coverage is required, both outdoors and indoors, in residential and light commercial buildings (strip centers and similar) for first responders, both today and in the future as the community grows.

A tower of the size proposed (300 feet in height) is needed to accommodate the six antennas needed for the new Project 25 digital radio system and for additional antennas that may be needed for system growth, fire station alerting, paging, and the evolving nationwide public safety broadband network (NPSBN) being implemented by the First Responder Network Authority (FirstNet). State and federal government systems that need coverage in this region of Broward County also may access this tower for their equipment.

The life cycle of the technology and equipment being implemented is estimated at 15 to 25 years. The life cycle of the tower and associated equipment shelter is forecasted at 25 to 50 years. This project considers having adequate space on the tower and in the equipment shelter to accommodate future technologies, as well as providing the capability to accommodate antenna and equipment space for the NPSBN.

With the high rate of land development in Broward County, securing land for radio towers in the future only will become increasingly difficult.

Environmental Factors

The area to the north and west of this location contains environmentally sensitive wetlands and water catchment areas. Development on the proposed Tuttle Parcel already has occurred. Constructing the proposed new tower on this parcel would cause little or no further environmental impact. Appropriate storm-water management, erosion control, and a National Environmental Policy Act (NEPA) Phase 1 environmental assessment will be conducted.

The site will be constructed with permeable gravel roads and gravel ground cover over a weed barrier. Disturbed vegetation will be replaced as appropriate. The emergency generator will employ double-walled fuel tanks to prevent fuel spills.

Given the history of this site, we do not anticipate any environmental issues or obstacles, nor do we anticipate any environmental impact arising from the ongoing operation of the site, once it is put in place.

The areas to the south and east of the property are high-end residential developments. There is a 0.4-mile forested buffer area between these residential developments and the proposed parcel.

The SFWMD has a tower, previously discussed, approximately 300 yards north of this parcel in Palm Beach County. This site would allow all towers to be clustered in one area.

Costs

Minimal site clearing and development will be required. The proposed parcel is utilized by Loxahatchee Everglades Airboat Tours and Rides, which occupies two small buildings on the parcel. All costs associated with the development of the land are within the budget for the radio project. Development of the land at this location will be comparable to other raw-land sites being developed for the radio project elsewhere in Broward County.