

**Washington County Public Safety Radio Communications System
National Park Service/Keep Tryst Site
Thursday, October 4, 2007**

Attendees

<u>County</u>	<u>National Park Service</u>
Pete Loewenheim – Project Manager	Lynne Wigfield - NPS-CHOH Compliance
Joe Kroboth – Director, WCDPW	Dennis Frye – NPS-HF Chief Cultural Res.
Bardona Woods – Communications Chief	Bill Hebb – NPS-Res. Manager
Tina Rupert – Admin. Assistant, WCDPW	Don Owen, NPS Appalachian Trail
John Latimer, Director, WC Emer. Mgmt.	Will Kenyon – NPS-CHOH
Capt. Charles Summers, Hagerstown Police	David Reus – NPS Appalachian Trail
Ray Parker – Project Mgr. Motorola	Scott Bell, NPS-C&O Canal
James Jenkins – Lead Engineer	
Bob Kirk – MH Consulting	
Tammi Eckels - Motorola	
Craig Meier, Project Mgr., Motorola	
David McCobin - Consultant	
Ronnie Gray, Potomac Valley Fire Co.	

Joe Kroboth started the meeting at 1:05 PM by introducing himself, reviewing the restructuring of the Division of Public Works office, thanking the National Park Service for taking time to meet with the County and beginning introductions around the room.

Joe Kroboth stated that the intention of this meeting is to try to hone in on issues as they pertain to this project, the Public Safety Communications System for Washington County. Washington County has contracted with Motorola for this project. Motorola has been lead on the Keep Tryst site, but it is a Washington County tower/site. There will not be any commercial service on the tower. The County is willing to put covenants on the deed to that affect. The County has and will cooperate with NPS to protect historical issues as well as safety. The NPS agencies are here to protect the historical value of the area. The County's role is to provide for the safety for our Life Safety staff. The County cannot and will not jeopardize the safety of County fire personnel, police, rescue workers and citizens. Throughout the process we are open to solutions, suggestions, and/or tower configurations to help solve the problem. But, there are fire fighters in basements, hanging from rocks, in the river, etc. and they need to be able to communicate. Police officers are often dealing with situations themselves and need to communicate back to the home base/office. The County's consultant, Dave McCobin from L. Robert Kimball Associates, will review the County coverage criteria. Based on Dave McCobin and Pete Loewenheim's experience, the County's coverage criteria is typical with the rest of the Country. Then, James Jenkins,

Motorola Project Engineer, will review the sites suggested at the August 30, 2007 meeting with the NPS and show how those sites compare to our criteria.

Dave McCobin discussed the high-level overall requirements of the County's system, explaining that it should be helpful for everyone to understand why the system is being configured the way it is. This is a public safety grade two-way radio system with paging, mobile data and other items built in. Coverage in this (Southern) area of the County is particularly challenging. Two items were considered in system design, coverage and performance.

Coverage is dependent upon the location of the towers and how robust the system needs to be. Reliable unrestricted access for two-way radios for emergency response and other agencies for interoperable communications is necessary. The County's requirement is 95% coverage for mobile and portable radios. Closer to the towers, coverage will be higher. That means that in 95% of Washington County, 95% of the time the radios will work. This area, the Keep Tryst area, was chosen to enhance coverage along the river and down in this (Southern County) area. Dave McCobin presented the County's coverage requirements map, which required the river be covered. This was a challenge due to how steep the area is. This coverage requirements map is what the vendors saw as requirements, and how they determined where sites needed to be. The current system design meets the requirements driven by the County.

Performance Objectives – reliability – there is a big difference between this system and a cellular system. This system requires 99.999% reliability, which equals a 30 second outage per year. Microwave and fiber are needed in this type of network. This is not achievable in commercial facilities. This system is part of a larger network within MD, the MD Public Safety Network. Hot standby microwave is needed, as well as the diverse fiber loop. James Jenkins will discuss the Keep Tryst site and the viability of each site suggested by the NPS to meet the County's criteria.

James Jenkins began by explaining that Motorola's original proposal did not include a site in this area and the impact of no site in the area resulted in no coverage for South County. This did not meet the County's coverage requirements so Motorola looked at multiple locations in this area and chose the Keep Tryst site. The coverage map, with the Keep Tryst tower, bounded by political borders of Washington County, was shown. The coverage does propagate outside Washington County. With the Keep Tryst site, Motorola meets the County's coverage requirements. James explained that the white areas on the map represent less than 95%, but they do not mean no coverage at all.

Three NPS locations – all propagation maps shown with 120' towers (coverage maps shown):

IDC – This site provides improved coverage west of Maryland Heights ridge, but does not cover other areas specified on Washington County's coverage requirements map.
120' antennas

Grand View – This site provides the same coverage west of Maryland Heights as the IDC site, and less than the IDC site to the east.

Nash – This site provides very similar coverage as Grand View.

Manning School – This site is well to the South of Washington County and was causing destruction in the system due to height and distance (signal arrives out of phase in simulcast system).

Why the Sidling Hill site did not cause the same interference in the system as Manning School was questioned. James Jenkins stated that the Sidling Hill site is shielded from the center of the County by Fairview Ridge, preventing the same type of destruction caused by the Manning School site, which has a direct line to the center of the County.

Six or seven sites would need to be added to the system to mitigate the holes created by the Manning School site. Also, there would be interference problems with Washington DC.

Ray Parker reviewed the site analysis spreadsheet, showing the sites, RF tower height, microwave dish height, RF coverage requirements, advantages and disadvantages.

Keep Tryst – the height of tower is driven by RF coverage requirements – 190' tower. The microwave is at 85' on the tower.

IDC – RF propagation run at 120'. Per MIEMSS, the microwave would need to be at 350'. This site does not meet RF requirements.

Grandview – RF propagation run at 120'. Per MIEMSS, the microwave would need to be at 1000'. This site does not meet RF requirements.

Nash - RF propagation run at 120'. Per MIEMSS, the microwave would need to be at 1000'. This site does not meet RF requirements.

Manning School and Loudon Heights were not viable sites due to interference.

Maryland Heights – undeveloped area – not an existing site.

BDA are not a viable alternative, due to insufficient isolation to achieve coverage.

The microwave heights were determined communicating with the most efficient site with lowest microwave dish height.

Q. Dennis Frye questioned the MIEMSS microwave dish heights and the need to be that high to hit the Sharpsburg site. A. The calculations are those provided by Rich Berg from MIEMSS. Pete Loewenheim believes Rich accounted for Sharpsburg in the matrix. Sharpsburg is 155' but sits down in a depression. The three sites offered by NPS are lower than Bolivar Heights.

Q. What tower heights were used in propagations at Keep Tryst? A. James started at 120' and went to 190'.

Q. The NPS requested the propagation results for various heights at Keep Tryst. A. They will be provided, but the maps do not represent the County's required 95% coverage. That requirement for coverage is what is driving the 190' tower height at Keep Tryst.

The NPS requested a copy of the PowerPoint presentation.

Q. Joe Kroboth stated that the analysis of sites presented today was based on sites provided by the NPS at the last meeting and asked if there were any other sites? A. Lynne Wigfield stated that the NPS was waiting to see what was presented today and then they would have an internal discussion.

Don Owen displayed a photo of the crane as seen from Weverton Cliffs, at end of Appalachian Trail. This location is on the cover of a book on the Appalachian Trail, it is where visiting dignitaries are taken, and is the most prominent view from the Trail. Mr. Owen stated that there is land up the valley $\frac{3}{4}$ mile to a mile, where the tower would be out of site from Weverton Cliffs.

Dennis Frye stated that Don Owen's suggestion would put it right in the view from the Stone Fort in Harper's Ferry Park and they would not be okay with that.

Q. Pete Loewenheim asked if there was camouflage that would be acceptable to the NPS? A. The NPS has dealt with 35 different sites and has worked out a solution almost every time.

Don Own stated that the NPS worked with State at Lamb's Knoll. Pete Loewenheim stated that this tower is only 10' higher than the one at Lamb's Knoll. Mr. Owen stated that Lamb's Knoll was a no net loss solution; originally there were two towers, they removed both and put up one tower.

Q. The shorter tower is brown and blends in, if it were extended 100' would it be visible? A. Yes, because the vertical nature is out of contrast with the horizontal linear landscape. Gray is more invisible than green or brown.

Pete Loewenheim mentioned that the crane is more line with a monopole, than a lattice tower, which is what the County is proposing. NPS - Monopoles are actually a little less visible. At a distance, the legs of a lattice tower come together and you lose the background. Pete stated that this tower has three legs close together and narrows very quickly into a pole.

Dennis Frye stated that the height of the tower is the issue. If it was a 120' tower, we might not be having this discussion, we're (NPS) looking for alternatives heights.

Q. James Jenkins asked what height would be acceptable, so he can run the studies and show the County. A. Don Owen stated that an 85' tower is acceptable. James Jenkins stated that an 85' tower wouldn't work; antennas require vertical separation.

The NPS people took James coordinates and ran coverage maps. There is a VHS system at Lamb's Knoll at 45' and they have great coverage. Pete Loewenheim stated that it is really at 1745' on Lamb's Knoll due to the elevation.

Dennis Frye stated that he doesn't know if 100' works or 120' works, but he knows that 190' doesn't work for any of the NPS. Mr. Frye drives across the Route 340 bridge everyday and doesn't see the cell tower at Keep Tryst because it blends in so well. He can find it if he looks for it, but it is an environmentally friendly monopole. Mr. Frye also stated that they

(NPS) are not looking for invisible, they are looking to make it less visible. The height is an issue. A lower height would be visible, but not as significant.

The County will put a package together, including the maps requested, the PowerPoint presentation and the analysis beginning at 120' and then at regular intervals up to 190'. James has many hours of work to do on analyzing the various heights.

Q. Don Owen asked if it was possible to take those numbers down to 85', start there and move up? Somewhere there is going to be a point where the degradation is acceptable.

Q. Dennis Frye asked if due to the separation requirements, what the possibility was of having two towers at much lower elevations? A. Joe Kroboth stated that the site is so small, that horizontal separation probably could not be achieved.

Q. What distance in separation is required, can the water tank be one tower and then build another? Would that help reduce height problem. A. James Jenkins stated that any distance could be done, but degradation would be less as they move further apart. Joe Kroboth stated that the water tank at Keep Tryst tank does not have structural capacity to hold any antennas, etc.

Q. James Jenkins asked what if its one 130' towers vs. two 100' towers? A. Don Owen stated that two 85' towers would be preferable.

Q. Pete Loewenheim questioned the color, what if the crane had not been white, it probably would not stand out the way it does. During defoliation does mountain become brown? A. Don Owen stated that in the winter the mountain will be primarily white and as the seasons change, brown or gray can stand out just as much as white.

Dennis Frye stated that the NPS represented are willing to compromise on height and that they understand the advantage of a County owned site and the County's coverage requirements. Mr. Frye also thanked James Jenkins for his consideration of two towers vs., one. Joe Kroboth stated that the site is just not big enough for two towers; it is barely big enough for a tower and shelter. The site is .76 acres.

Q. Dennis Frye asked if was possible to acquire more land at Keep Tryst site for a second tower? A. Joe Kroboth stated that it was not feasible; the County has rejected a subdivision plan submitted by the landowner, so we are not on good terms.

The Keep Tryst site plan was reviewed. Joe Kroboth stated that one possibility is that the County terminate its lease with the cell tower company.

Dennis Frye mentioned one other area, access to Maryland Heights via Clark Road, a dead end road near a power line. It is federal property and about same elevation as Keep Tryst. Mr. Frye believes it could shoot through the ridge to Marlu. Q. How far away from power line does the tower need to be? Q. 110% away from power line. 190' tower – 210' away from power line.

Pete Loewenheim stated that the Maryland network wanted to use the Keep Tryst site as a direct line to Marlu for the microwave.

Joe Kroboth questioned how high in federal government the approval level would you have to go on any federal sites that might be considered? Bill Hebb stated that his immediate superior would have the authority to approve a federal site, Don Campbell. The Lands Officer in our region is the only one authorized to lease land. R/W is Regional Director. The work is done at this (local NPS) level and paperwork is sent for their approval and signature. Joe Kroboth questioned the time line for this process. Don Owen stated that for them the lands processing time would take longer than an Environmental Assessment. The NPS might be interested in an exchange for land they might be interested in, such as Pen Mar, this would take 12 months - equal value exchange. R/W is a limited time basis, maximum of five years, and then run concurrently for five-year intervals. It could be set at 10 years.

Dennis Frye pointed out the sites he mentioned were for the option of two lower towers. Not interested in a 190' tower anywhere.

The County will reschedule their Radio Meeting to Friday, Nov. 2, 2007, so we can meet again with the NPS on Monday, Nov. 5th, 2007 @ 1:00 PM. The location will either be the C&O Canal Headquarters on the Dual Highway or the EOC Conference Room, depending on availability of the rooms?

Dennis Frye thanked everyone for coming down and for their interest in cooperation and coordination.

Meeting adjourned at 3:15 pm.