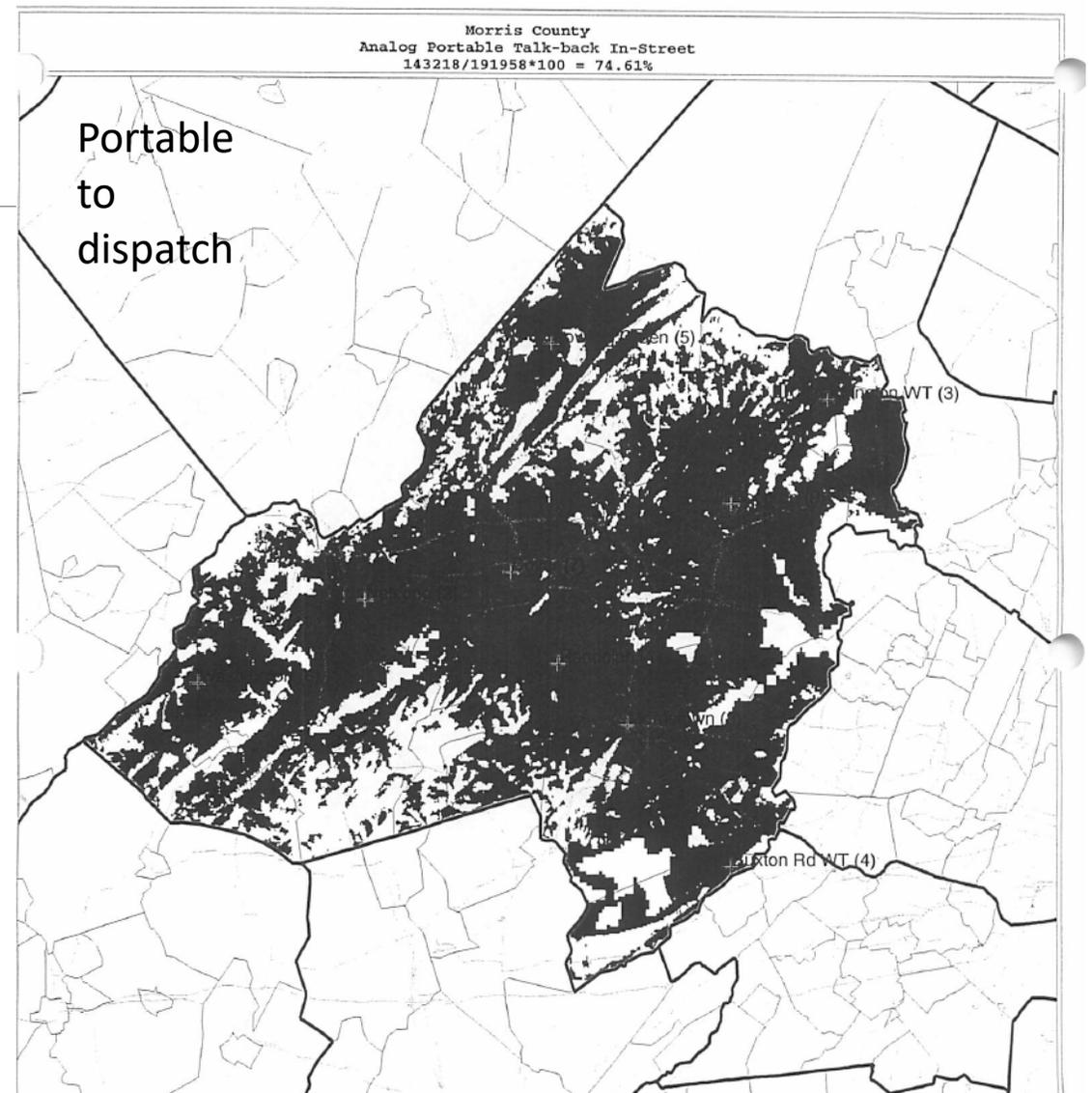
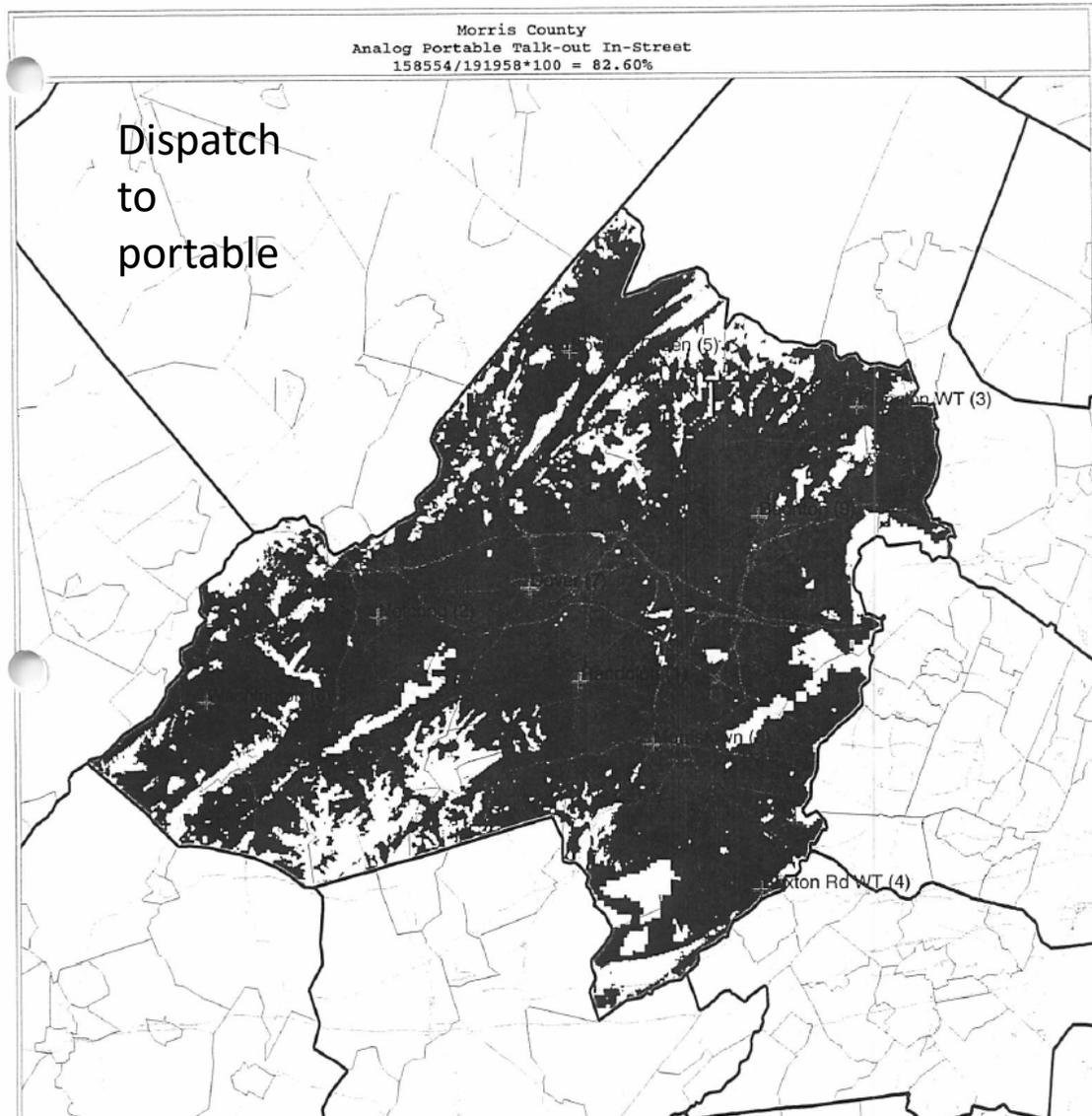


Morris County Radio System Coverage Progression

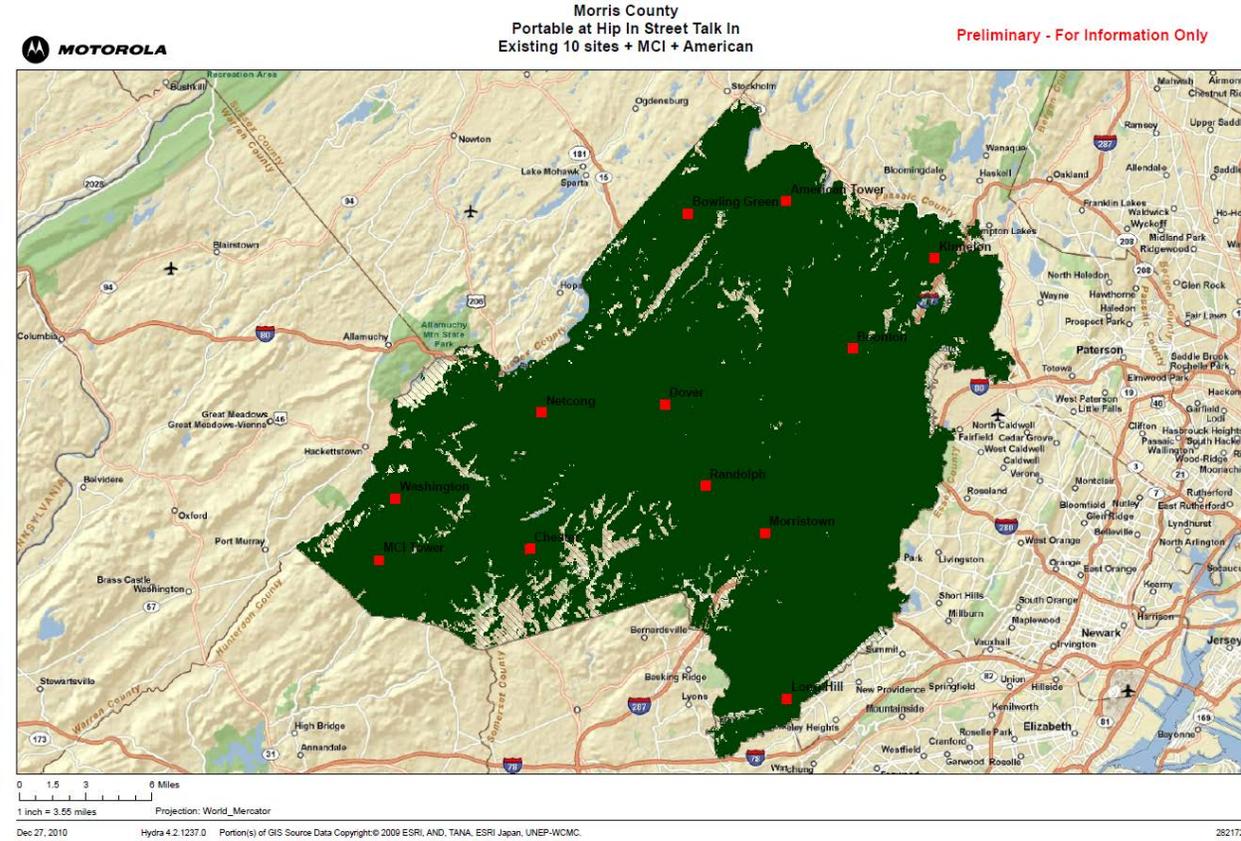
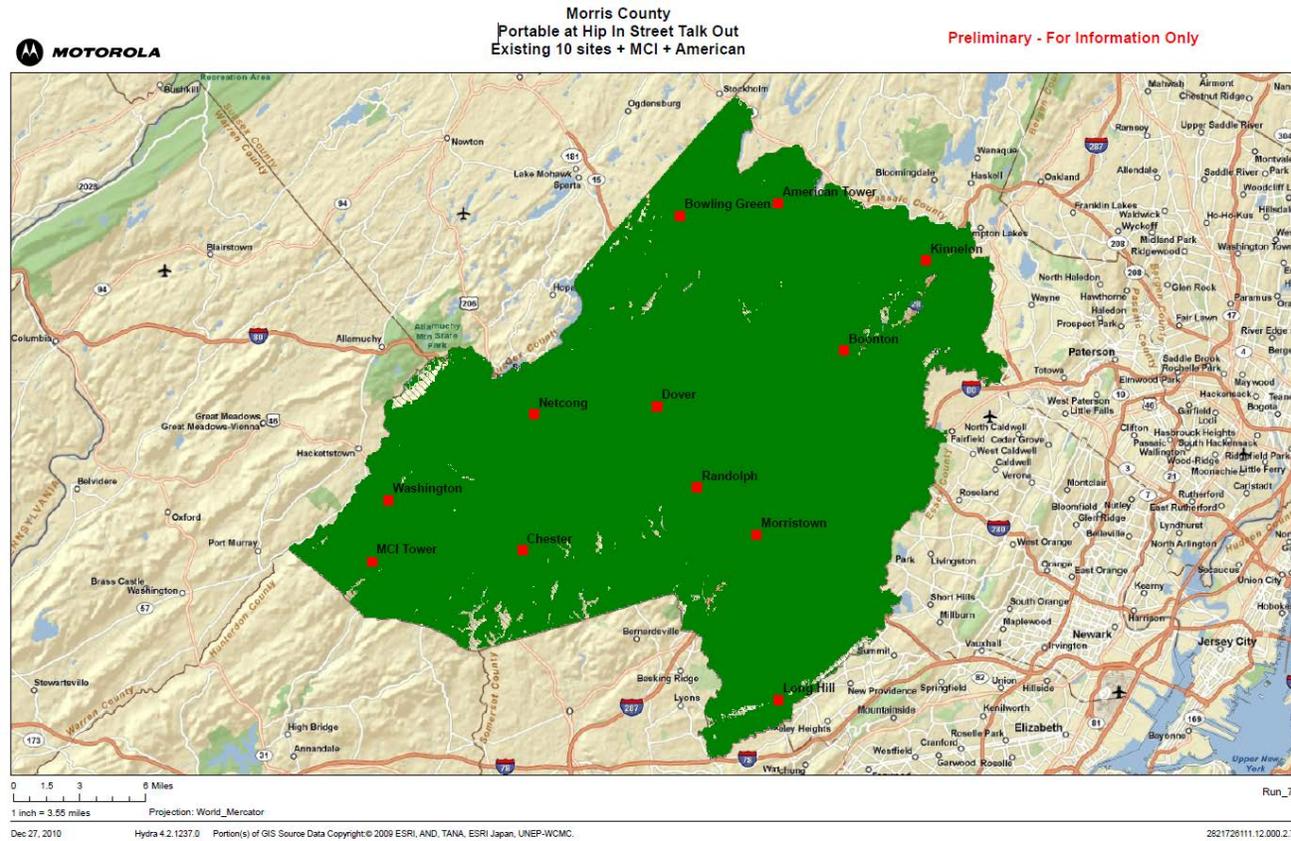


2001 - 2022

Initial 9 sites (2001)



Long Hill, MCI, Rockaway added (2010)



Added Riker Hill, Livingston (2012)



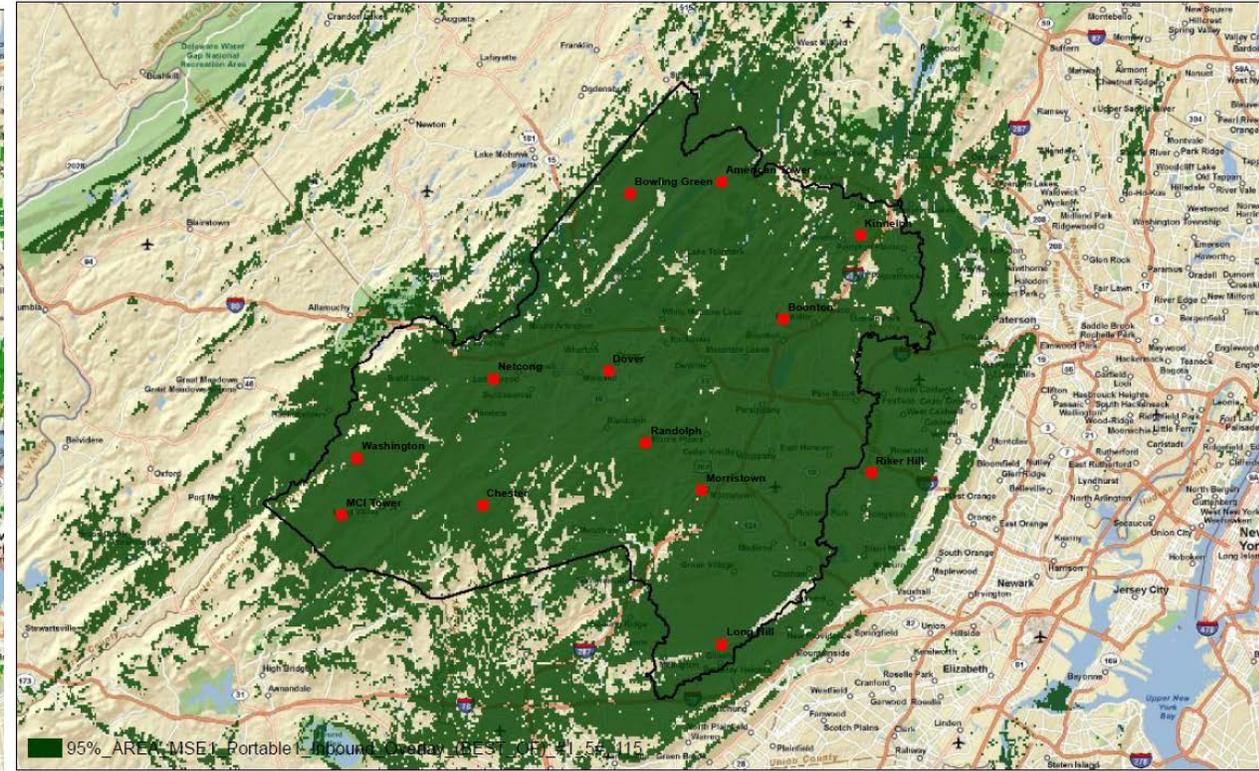
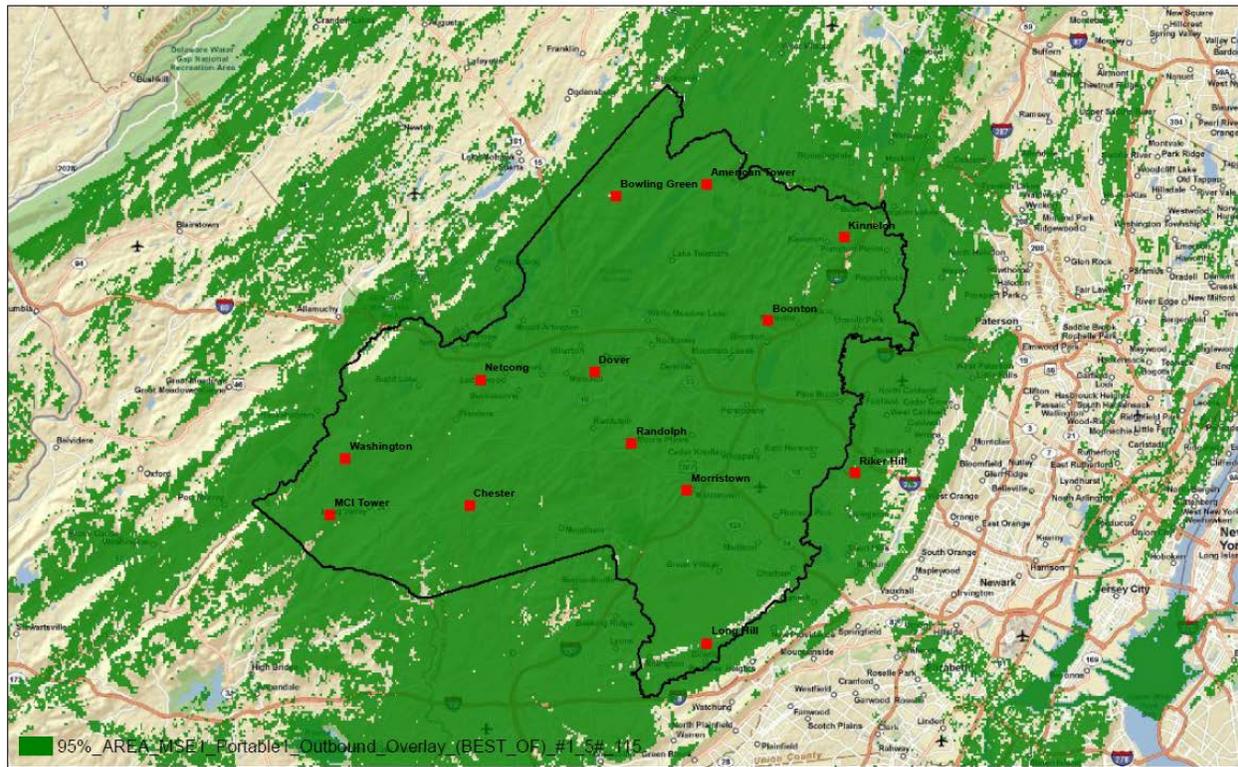
Morris County
13 Site Simulcast System
Portable Talk Out @ Hip On Street DAQ 3.0

Preliminary - For Information Only



Morris County
13 Site Simulcast System
Portable Talk In @ Hip On Street DAQ 3.0

Preliminary - For Information Only



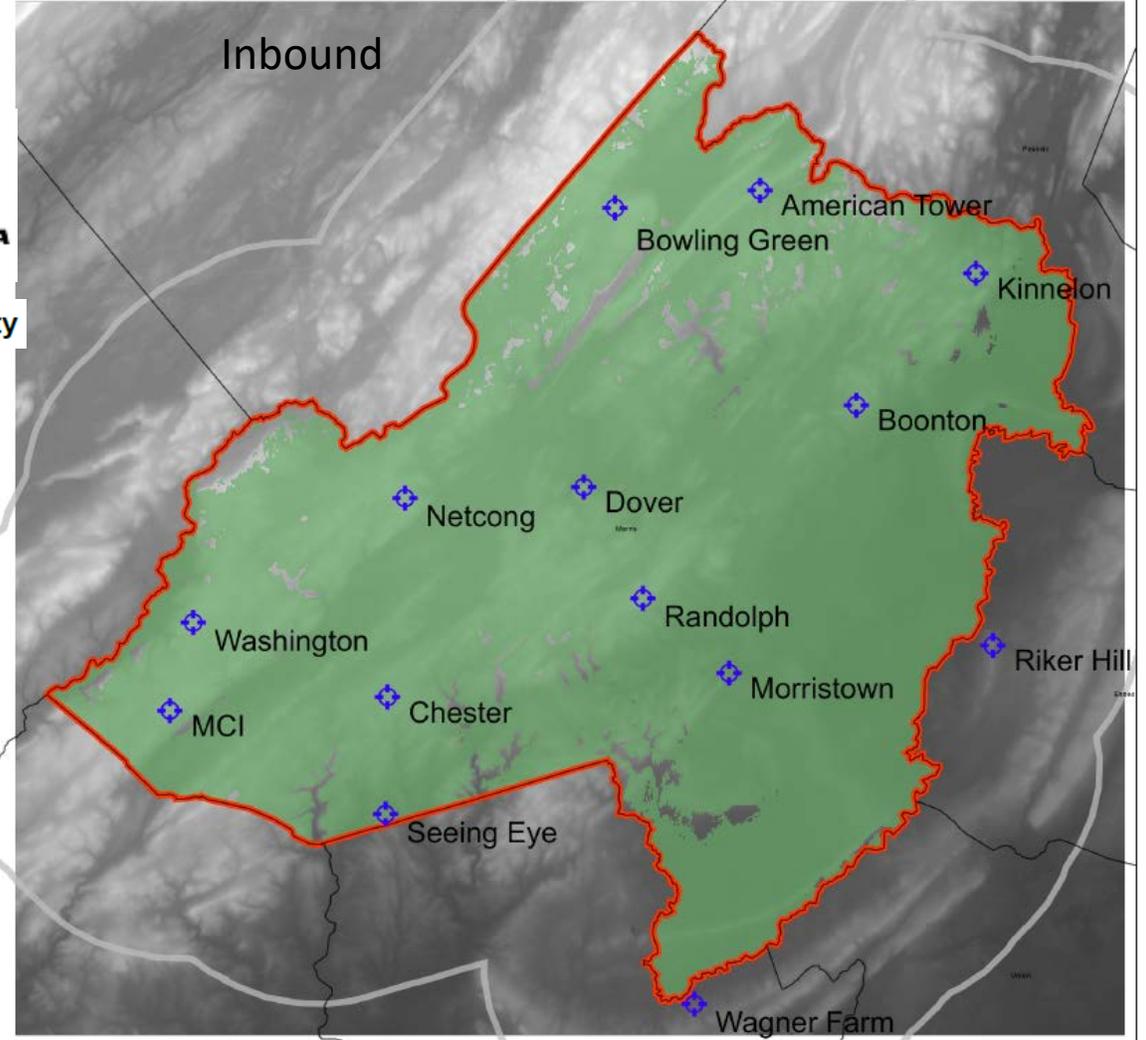
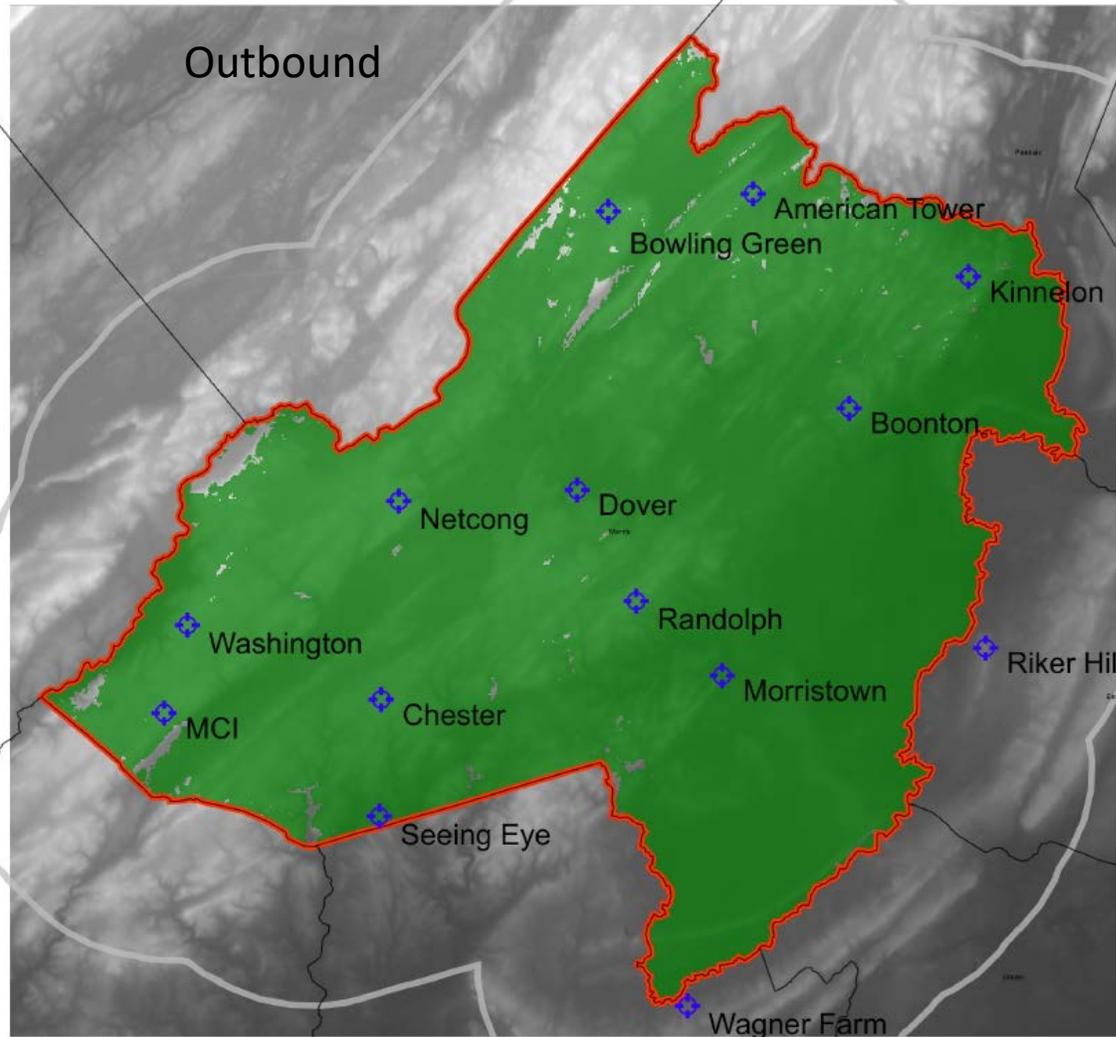
0.51 2 Miles
1 inch = 5.78 miles
Projection: World_Mercator

Run_115

0.51 2 Miles
1 inch = 5.78 miles
Projection: World_Mercator

Run_115

Anticipated 700 system (2022)



Terrain

95% Area outbound Subjective 805m APX 4000 Outdoor

Terrain

95% Area inbound Subjective 805m APX 4000 Outdoor

This map is intended solely for the equipment configuration stated above.
Coverage can vary significantly if different configurations are used.

- **Prior to December 2004** - Long Hill Township operated their own public safety answering point inclusive of a UHF radio system for police and a low band paging and radio system for fire and EMS.
- **December 2004** - Long Hill Township communications consolidated their communications function with Bernards Township operating on a VHF radio system for police fire and EMS. The VHF radio system was licensed by Bernards Township with a main transmit site located at the Bernards Municipal Complex supported by several received voter sites located both Township's. The radio system covered both Townships with excellent coverage. The cost of the consolidation was shared by both Township at a cost to Long Hill of **450k per year**
- **February 2008** - then Township Administrator Rich Sheola contacted the County of Morris inquiring about dispatch services. He was advised that there was no capacity to assume dispatch services
- **March 2009** - then Township Committeeman Jerry Aroneo, contacted County Administrator John Bonanni to discuss the County of Morris assuming dispatch services. At the time the County did not have the capacity to assume dispatch services. It was agreed that once capacity increased a follow up discussion would take place

- April 22, 2010 the following Long Hill representatives met with Mike Peoples and Scott Di Giralomo.
 - Rich Sheola- Township Administrator
 - Guy Roshte- Township Committee
 - Dan Hedden- Long Hill Township Police Chief of Police
 - Sean Brown- Lieutenant Long Hill Police
 - Ken Fullagar- Long Hill OEM
 - Dennis Lockwood- Millington Fire Company
 - Gene Starr- Millington Fire Company
 - Mike Smith- Long Hill Township First Aid
 - Doug Macadam- Long Hill First Aid Squad
 - Louis Aroneo- Long Hill Fire Official
- Discussion took place relative to the County Communications function. Significant conversation took place concerning the radio coverage in the Township. It was agreed that local first responders would conduct radio coverage tests and follow up with the results.
- The County stressed to Long Hill Township officials that the County radio system is designed for on the hip portable coverage and not in building radio coverage. Although the County radio system maintains robust in building radio coverage, designed specification maps are based on the hip portable coverage. The County never represented that the radio system would provide in building coverage.

- **January 2011** radio coverage tests took place by first responders. Results below:

January 10, 2011

County Portable Problem Areas

Millington Area

- Northfield Road
- Millington Train Lot
- Clover Hill Road
- Circle Drive
- Brookside Road
- Greenwood Drive
- Heritage Drive
- Deer Run
- Indian Run
- Somerset Street

Gillette Area

- Long Hill Road from Mitchell east to Chatham Township line, Gillette
- Valley View Road, Gillette
- Jodi Lane, Gillette
- Apple Hill Drive, Gillette
- Long Hill Road by Mountain Avenue, Gillette
- Mountain Avenue by Morristown Road, Gillette
- Lower Overlook Drive, Gillette
- Delaware Avenue by Country Lane, Gillette
- Mitchell Road, Gillette
- Daugherty Avenue, Gillette
- Milton Road, Gillette

Stirling Area

- Somerset Street
- Main Avenue by the Stirling Train Station

- Morris County made clear that the County would not make any commitments and will be under no obligation to improve radio coverage. Below is an exact copy of the contract language contained in the Long Hill Contract

6. The primary purpose of the County Radio Infrastructure is to satisfy the needs of the County of Morris, and provision of access to this system by the **County** to the **Municipality** is purely voluntary. Accordingly, the quality of reception in all geographic areas of the County cannot be guaranteed to the **Municipality**. Therefore, the **Municipality** acknowledges that this agreement covers the use of the system as it is established for the County of Morris and the **County** is not obligated to alter the system in any way to improve access in any geographic area within the **County** where reception is inadequate for the purposes of the **Municipality**.

- Despite the pre-identified portable reception areas, the Township of Long Hill elected to proceed with the transition to County dispatch on April 1, 2012 by way of an authorizing Township resolution. The time between the authorizing resolution and service date was required in order to provide Bernards Township with the required notice to dissolve the shared service agreement with Bernards Township.

- Shortly after transition to County Dispatch, Long Hill Township Police reported portable reception issues in the same areas as previously identified areas. County asked Long Hill Township to provide a list of the affected areas. County worked with Motorola to make adjustment to the radio system in order to increase coverage. The modifications included realignment of antennas. There was some improvement.
- During a planned upgrade to the radio system in 2012, the County engaged the radio vendor and identified a radio tower site in Livingston that would enhance coverage in the Township. The County constructed the site at a cost of approximately \$500,000.00. Coverage increased. However, the west part of the Township still suffered from sporadic portable coverage. The County added this site while under no obligation to do so and at no cost to Long Hill.
- Long Hill Police Chief Michael Mazzeo, contacted the County expressing concerns that the portable radios did not work in three elementary schools. The County worked along with Chief Mazzeo to install three repeater radios in the schools that would transmit on the County radio system. It was agreed that once the radios were installed, at County expense, it was the Township's responsibility to maintain the repeaters in a state of operational readiness. Although under no obligation to provide in building coverage, the County developed a solution and installed repeaters in the schools at the expense of the County.

- Chief of Police Mazzeo was also concerned about the lack of portable coverage in some areas of the Township. The County offered, at County expense, to install portable radio extender microphones in the patrol vehicle. The extender microphones utilize the vehicle radio to transmit. Extender microphones were installed. However, after a short period the extender microphones were abandoned by police department, despite the fact that the equipment greatly improved the portable coverage issue. It is important to note that there is 100% coverage on mobile radios in the Township.
- **Late 2020** - PSE&G notified the County that the radio antenna and transmit site, that was positioned on the electrical tower in Long Hill near Hickory Tavern Road, would need to be abandoned by September 2021 as PSE&G was replacing the towers.
 - Rather than moving the radio equipment to the new PSE&G tower, the County immediately engaged in conducting coverage studies to determine if a different location was available to construct a new radio site in association with the County radio upgrade to enhance coverage in Long Hill.

- The County located a tower site in Warren Township at Wagner Farms. Coverage studies conducted by Motorola show this site would greatly improve coverage throughout Long Hill.
 - Leasing of the new site required lengthy negotiations with Warren Township and SBA (tower owner)
 - Rental of the tower space would cost the County an additional \$11,000 annually.
 - Additional capital costs using the new tower instead of replacing equipment on PSE&G Site **\$450,000**
 - Warren Township would be provided \$200,000 in radios in lieu of 5 years of their share of tower lease.
 - A delay in tower construction would impact radio coverage since there was a hard decommissioning date for the PSE&G tower demolition.
- The County choose to proceed with this new tower with the belief that long term it would significantly improve the coverage in Long Hill. The new site would also allow us to include a generator for backup power. Note that this site primarily serves Long Hill. The PSE&G site supported the Chathams and Harding as well as Long Hill.
- The plan was to have the Warren Site in operation prior to the decommissioning of the PSE&G Site. The County included the UHF equipment in this new site solely to support Long Hill during the radio upgrade. Unfortunately, the negotiations, site design, and supply chain issues caused a significant delay in the site construction.

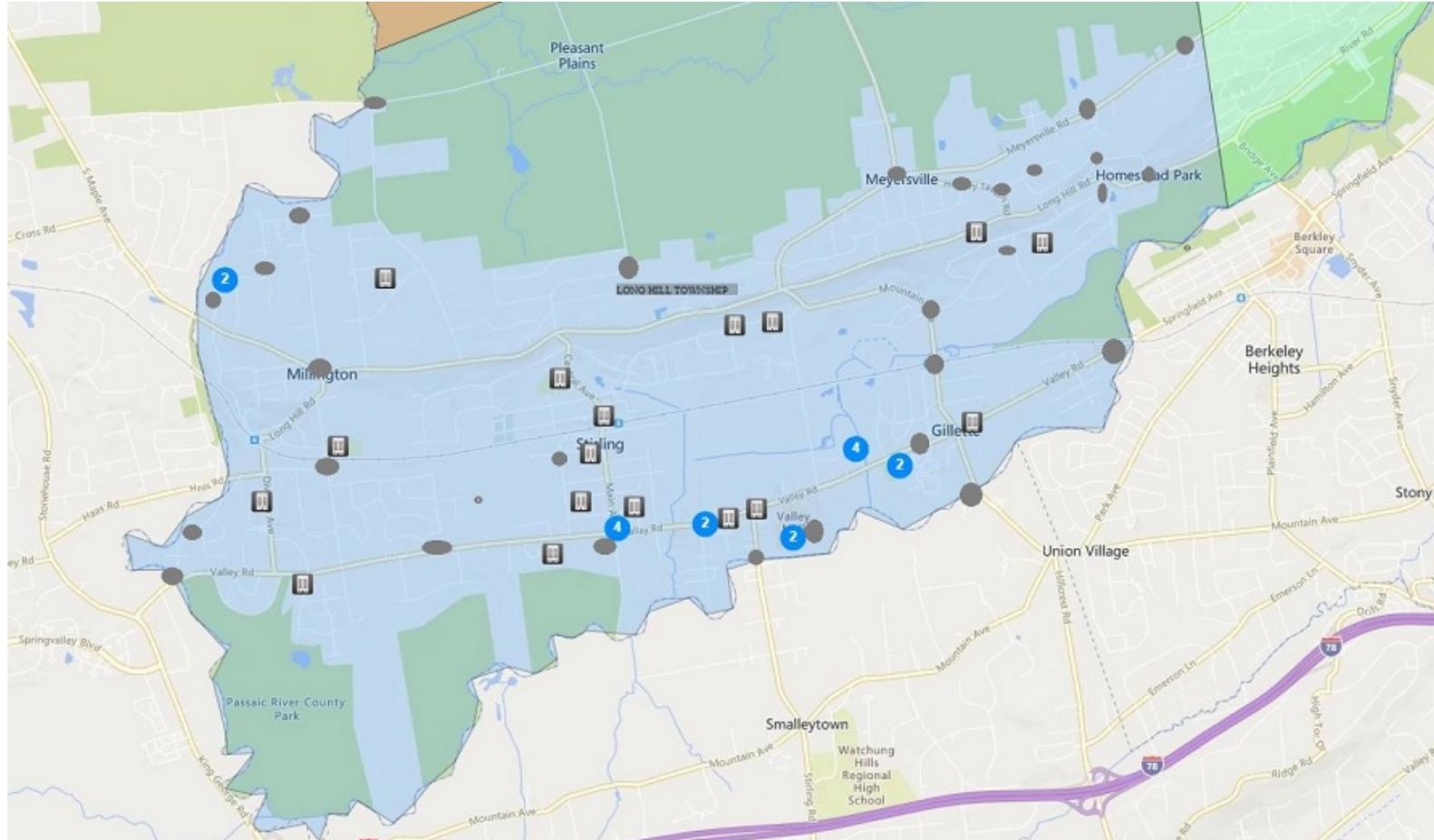
- **August 2021** - When we determined that the site would not be on-line prior to the PSE&G site decommissioning, the County developed a contingency plan knowing that coverage in the area would be impacted.
- **Later 2021** - the County arranged with the State of New Jersey to place portable radio affiliation with a State tower located in Watchung, a site just south of Long Hill. This required that Long Hill officers operate their portable on a specific channel. Coverage improved but there were still reported coverage issues.
- **2022** - The County became aware of several Long Hill Council Session in which the radio system was discussed

January 19th Council Meeting - The Chief of Police noted to the Council that he was very concerned about lack of radio coverage in the schools which “keeps him up at night”.

- The County previously installed repeaters in all 3 schools with Long Hill responsible to maintain those repeaters in a state of readiness.
- Our understanding is one of those repeaters is currently not operational
- In October 2020, in preparation for the new radios, Long Hill PD returned a survey form to the County with the radio channels that they were requesting to be included in their new radios. Long Hill PD did not include the school repeater channel in their request. Since June of 2021, the the current police portable and mobile radios are unable to connect with the school repeaters because the channel was not included in their radios. Last week was the first time that Long Hill Police inquired about the repeater channel not being in their radios.

- Discussions during the meeting of continued lack of police portable radio coverage in many areas of the Township. Police Officers have been making dispatch entries when they had “no comms”.
 - The Police Department was instructed to have officers portables set to the State Radio Channel as the state system provides better coverage while we are constructing the new site.
 - County personnel proceeded to conduct portable radio coverage on 3 different occasions during February 2022. County personnel could not duplicate the radio coverage issues identified by Long Hill Township. The last coverage test occurred on February 24, 2022 and was recorded.
 - During the tests, we had successful portable coverage in the areas detailed on the “No-Comms” reports.
 - A radio affiliation report was generated. It was determined that in a 2-month period Long Hill officers operated on the wrong radio channel 750 times.

Coverage tests on state 700 system



Long Hill Police Portable Radio Affiliation on Police 4

December 18, 2021 to February 17, 2022*

Officer	Alias	USER ID	Total Push to Talks	RMS Reports/Complaints
Newschwander	P30-27NEWSCHWN	1430218	14	0
Marczewski	P30-49MARCZEWSK	1430202	5	0
Scala	P30-51SCALAJ	1430201	47	3
Thompson	P30-53THOMPSON	1430215	2	0
Roberts	P30-54ROBERTS	1430209	34	0
Schlaer	P30-57SCHLAER	1430204	114	2
Hartmann	P30-58HARTMANN	1430211	209	3
Novotny	P30-59NOVONTY	1430205	72	0
Engel	P30-61ENGEL	1430206	98	4
McGuire	P30-62MCGUIRE	1430221	14	4
Geresi	P30-63GERESI	1430219	18	4
Robol	P30-65ROBOL	1430203	123	4
		TOTAL	750	24

Long Hill Township was paying \$450,000.00 per year when participating in the shared services with Bernards Township. Below are the annual County costs for the period 2012-2022:

- 2012- (April-December) \$167,316.00
- 2013- \$217,758.00
- 2014- \$220,015.00
- 2015- \$222,703.26
- 2016- \$224,718.00
- 2017- \$226,753.00
- 2018- \$226,753.00
- 2019- \$227,153.00 (\$1,000 increase due to additional radios)
- 2020- \$227,153.00
- 2021- \$227,153.00
- 2022- \$227,153.00

Total County Costs - \$2,414,628.00

Total Bernards Costs- \$4,500,000.00

Savings- \$2,085,372.00 over a ten-year period (Additional savings would be anticipated as the cost comparison with Bernards did not assume any operational cost increases over the 10-year period).

Long Hill Township - Hourly Dispatch Cost Analysis

Annual Service Fee:	\$ 205,553.00
Radio Fee (\$200/radio):	<u>\$ 21,600.00</u>
Total Annual Cost:	\$227,153.00

$\$227,153.00 / 8,760 \text{ hrs. (365} \times \text{24)} = \25.93 per hour

- Long Hill pays \$25.93 an hour for full-service dispatch services provided by the County, inclusive of 9-1-1 equipment, CAD, RMS, Police, Fire, and EMS Mobile Data Terminal Software.
- Since 2012, **the County has expended over \$1,000,000.00, beyond the contractual obligation of the County,** to improve coverage in Long Hill, and the County has not requested any additional dollars from Long Hill Township.