



## TOWN OF FREEPORT, MAINE


Town Manager's Office  
30 Main Street  
Freeport, ME 04032

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ITEM #132-20  
RADIO COMM. BID

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### MEMORANDUM

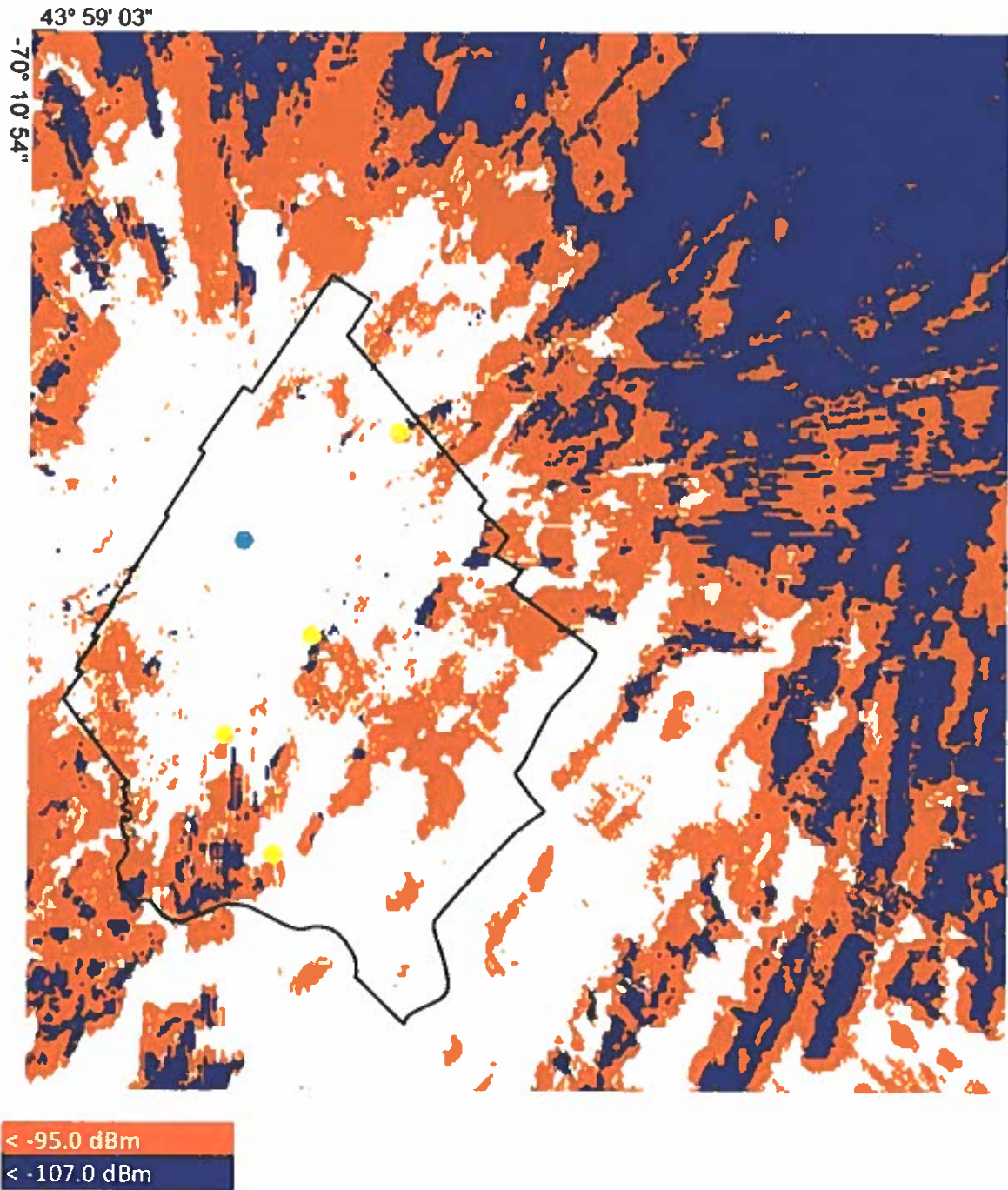
TO: Freeport Town Council  
FROM: Peter Joseph, Town Manager   
DATE: 07/30/20  
RE: Radio Communications Network Upgrade

This recommended award of the radio communications network upgrade serves to upgrade the current radio network used by the Police, Fire, Rescue, and Public Works Departments from a network with 2 sites (Beech Hill, Winslow Park) to a network with 4 sites (Beech Hill, Quarry Ridge, Stagecoach/Lookout, and Winslow Park).

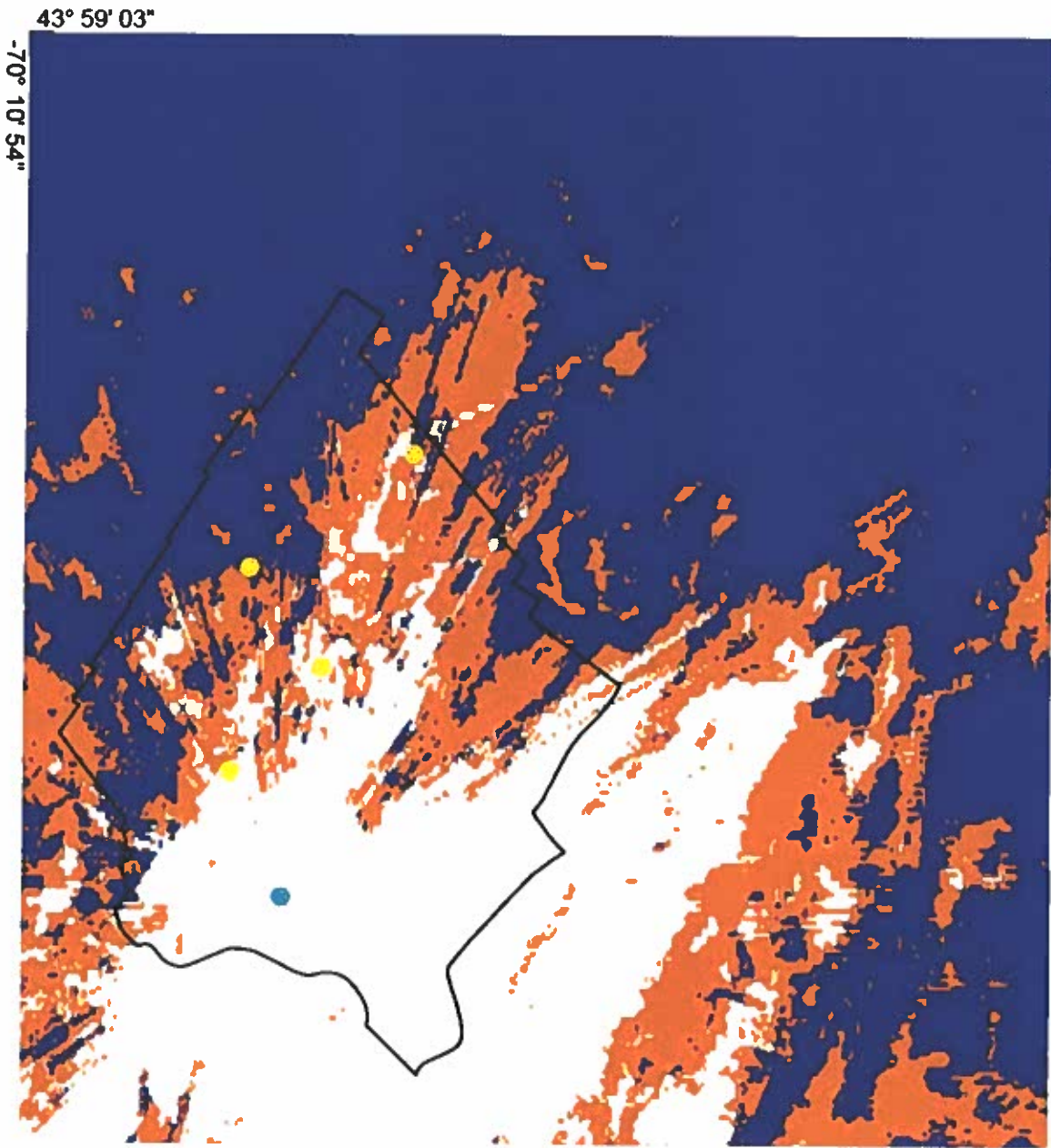
Currently, the two site radio network has satisfactory coverage while transmitting to reach most locations in Town. However, in several areas of Town, the lower-powered individual portable and mobile radio units used by employees in the field do not have sufficient capability to call back to either the Beech Hill or Winslow Park sites under all conditions. This leads to "dead zones" where employees can usually receive most transmitted messages but cannot always reply to these messages. The proposed two additional antenna sites will eliminate nearly all dead zones within Freeport. Three modeled maps are attached showing the "talk-in" coverage from the individual existing Beech Hill and Winslow sites, and the expected coverage from the four antenna site network. It can be easily seen that the 4 site network will eliminate many of the dead zones in the West Freeport (Granite/Webster neighborhoods) and East Freeport (Pleasant Hill/Wolfes Neck/Flying Point Rd. toward Brunswick) areas.

The proposed network upgrade would also upgrade the network infrastructure from an existing analog-only network to a digital and analog compatible network. It is expected that the Police Department would transition immediately to digital radios (as their existing equipment is digital capable), and the Fire, Rescue, and Public Works Departments would continue using the existing analog radios unless a decision was made to upgrade in the future.

5.3.2 Beech Hill Portable Talk-in (EXISTING LOCATION)



5.3.3 Winslow Park Portable Talk-in (EXISTING LOCATION)



< -95.0 dBm  
< -107.0 dBm



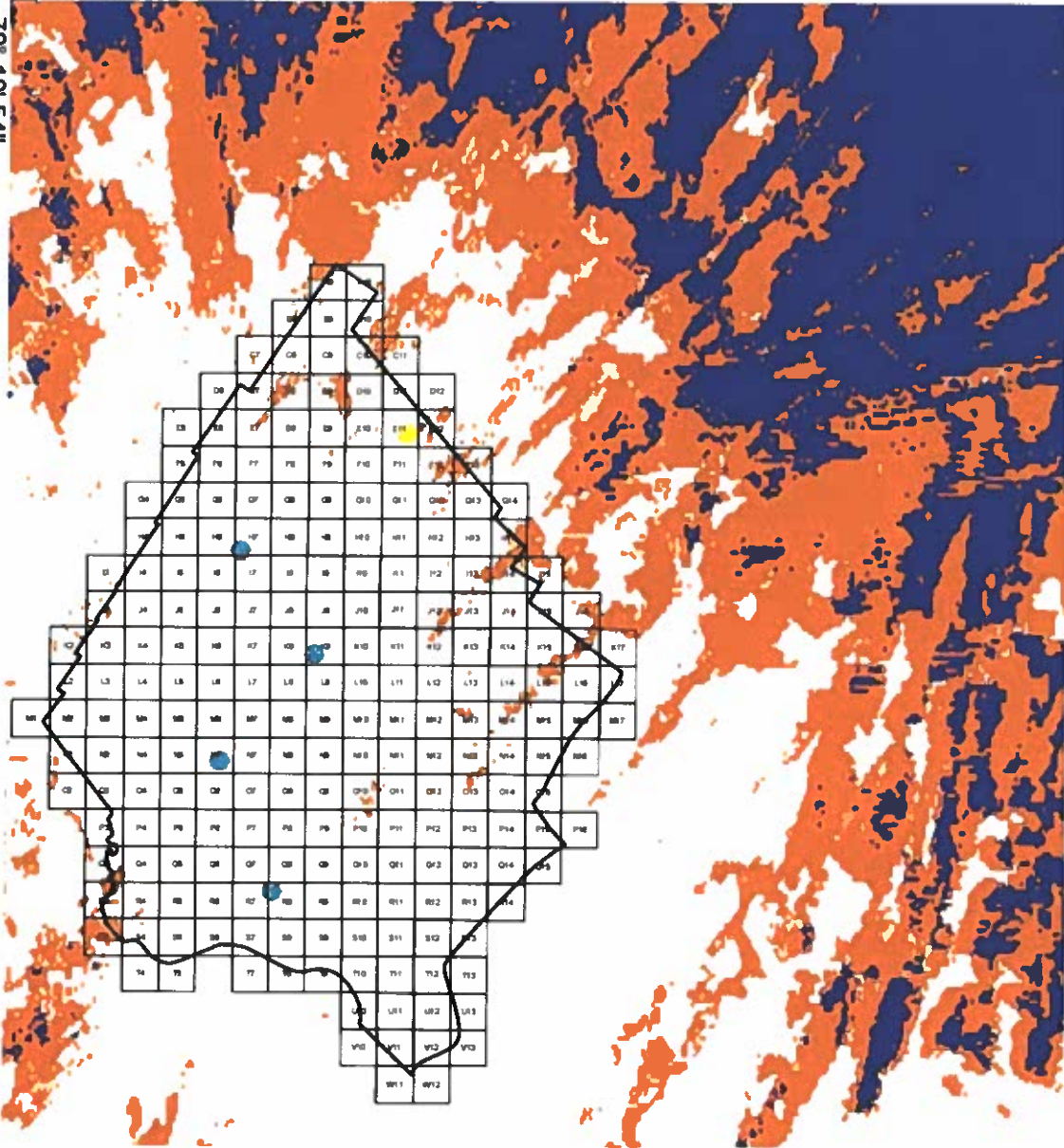
5.3 Individual Site and System Coverage Maps

5.3.1 System Portable Radio Talk-in (4 Sites)

(PROPOSED w/ 2 NEW SITES)

43° 59' 03"

-70° 10' 54"



< -95.0 dBm  
< -107.0 dBm

- Upgrade (2) existing Police and Fire base radios currently used for dispatch to DMR capable radios. This would be used as a back-up for Fire and Police DMR TAC channels in the event of a console failure.
- Add (2) new DMR base radios at Brunswick. This is highly recommended for use on Fire and Police primary channels should the console or network fail between the system and Brunswick. If these are not in place, Brunswick will have no way to talk on DMR should there be a network or console failure.
- Add Route One North Tower site. In our system design, to meet the RFP requirements the Route One North tower was not required, as the (4) proposed sites will give required coverage on the street. To increase in building coverage, it is recommended this site be added.

## System Pricing Summary

Project Management/System Design & Configuration	\$14,200.00
Network and System Management	\$6,773.33
Beech Hill	\$35,398.51
Winslow Park	\$49,098.44
Bow Street Water Tower	\$56,367.52
Lookout Drive Water Tower	\$53,381.29
Microwave	\$76,401.39
(29) Kenwood NX-5700-5A FM Mobile radios with installation *** With P25C Feature ***	\$49,203.02
Avtec Console Upgrades and Connection to Radio Network	\$8,593.00
Training	\$640.00

**Total System Pricing \$350,056.51**

### Annual Maintenance Agreement (System Equipment After Year 1)

Extended Warranty- Parts/Equipment Year 2 and 3 (annually)	\$20,434.14
ECOS-D/Selex System Management software (annually)	\$5,000.00

**Total Annual Pricing \$25,434.14**

**Optional Cost Saving Items**

*** Cost Reduction- P25 Feature in Mobile Radios ***	(\$391.00)	Deduct for each radio
Remove P25C Feature from (29) Kenwood NX-5700 <del>xx</del> mobile radios	(\$11,339.00)	Deduct for (29) radios
*** Cost Reduction- Microwave ***	(\$5,547.00)	Deduct each link
Substitute PTP 820C radios with PTP 820S & delete 256 AES	(\$16,641.00)	Deduct for (3) links
*** Cost Reduction- Radio System Equipment ***		
Substitute Leonardo/Selex RBS 4000 with Kenwood Kairos System	(\$20,528.00)	
(29) Kenwood NX-5700-5ABM vs. NX-5700-5AFM Mobile radios		
*** With P25C Feature ***	Total Cost for (29)- \$42,316.80	(\$6,886.22)

**Optional Items**

Kenwood NX-5700K Mobile radio with installation (each)	
*** With P25C Feature ***	\$1,171.80
Kenwood NX-3720HGK Mobile radio with installation (each)	\$558.96
Add ARC 4 Encryption- NX-5700 and NX-3720 Mobile Radios (each)	\$27.20
Upgrade (2) existing PD/FD base radios to DMR (total)	\$4,045.60
Add (2) DMR base radios Brunswick Dispatch for PD/FD (total)	\$8,606.56
For improved indoor coverage, add US Route One North Tower simulcast site and microwave link to Bow Street Water Tank	\$73,265.76

8.2 Detailed Price Pages

**Project Management/System Design & Configuration**

Part Number	Description	Cost Each	Cost Ext
RCM	Project Management	\$6,400.00	\$6,400.00
RCM	System Design/Engineering	\$3,000.00	\$3,000.00
RCM	System Configuration	\$4,800.00	\$4,800.00
			<b>\$14,200.00</b>

**Network and System Management**

QTY	Part Number	Description	Cost Each	Cost Ext
1	ECOS-D Connect	ECOS-D/Selex System Management software *** \$5,000.00 annually after year 1 ***	\$5,000.00	\$5,000.00
1	Misc-item	Server PC for ECOS-D Software	\$1,133.33	\$1,133.33
1	RCM	Technician Labor- Configure ECOS-D server	\$640.00	\$640.00
		<b>Total</b>		<b>\$6,773.33</b>

**Beech Hill**

QTY	Part Number	Description	Cost Each	Cost Ext
2	RBS4000H	RBS4000H-V3110-W-A0C1-4W0E100-S1-V2-G1 BASE - 110W VHF (136 - 174 MHz), V2 VOCODER, SINGLE GPS, 48 VOLT	\$14,563.75	\$29,127.50
2	RM2548	48 Volt Power Supply	\$869.43	\$1,738.85
1	GPS-TMG-40NMS	GPS PERMANENT MOUNT ANTENNA, TNC(F), WHITE	\$217.37	\$217.37
1	GPS200	GPS Splitter	\$166.67	\$166.67
2	TWS240NMSM-3'	Jumper cable	\$24.80	\$49.60
1	DGX2 06NFNF-A	GPS LINE PROTECTOR	\$133.91	\$133.91
2	TC-400-TM-X	TNC(M) LMR400	\$11.09	\$22.19
40	LMR-400	3/8" Cable	\$1.23	\$49.07
24	SCF12-50J	1/2" Superflex Cable	\$1.61	\$38.72
8	15560751	N(M) connector for SCF12-50J	\$27.87	\$222.93
1	SB556084XUAL	19" Aluminum Rack	\$219.57	\$219.57
1	Installation Kit	Installation Material	\$133.33	\$133.33
1	RB3011UIAS-RM	RouterBOARD 10xGigabit Ethernet	\$206.60	\$206.60
1	SMT1500RM2UC	Smart-UPS 1000W/1440VA	\$1,119.56	\$1,119.56
8	RCM	Installation Crew- 2 Men	\$130.00	\$1,040.00
8	RCM	Technician Labor	\$80.00	\$640.00
1	UPS	Shipping	\$272.64	\$272.64
			<b>Total</b>	<b>\$35,398.51</b>

**Winslow Park**

QTY	Part Number	Description	Cost Each	Cost Ext
2	RBS4000C	RBS4000C-V3025-W-A100-4W0E100-S1-V2-G1 BASE- 25W VHF (136 - 174 MHz), V2 VOCODER, SINGLE GPS, 12 VOLT	\$11,302.50	\$22,605.00
1	RM5012	12 Volt Power Supply	\$475.84	\$475.84
1	74-37-20023-LR	TX/RX Multicoupler/Combiner	\$19,050.00	\$19,050.00
1	GPS-TMG-40NMS	GPS PERMANENT MOUNT ANTENNA, TNC(F), WHITE	\$217.37	\$217.37
1	GPS200	GPS Splitter	\$166.67	\$166.67
2	TWS240NMSM-3'	Jumper cable	\$24.80	\$49.60
1	DGX2 06NFNF-A	GPS LINE PROTECTOR	\$133.91	\$133.91
2	TC-400-TM-X	TNC(M) LMR400	\$11.09	\$22.19
40	LMR-400	3/8" Cable	\$1.23	\$49.07
1	SD212-SF2P2SNM	138-174MHz 5dBd 2 Element Dipole Antenna	\$845.33	\$845.33
2	Misc-item	Antenna mounting and installation hardware	\$540.00	\$1,080.00
18	SCF12-50J	1/2" Superflex Cable	\$1.61	\$29.04
6	15560751	N(M) connector for SCF12-50J	\$27.87	\$167.20
1	IS50NX-C2-MA	Polypahser	\$68.85	\$68.85

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1	SB556084XUAL	19" Aluminum Rack	\$219.57	\$219.57
1	RB3011UiAS-RM	RouterBOARD 10xGigabit Ethernet	\$206.60	\$206.60
1	SMT1500RM2UC	Smart-UPS 1000W/1440VA	\$1,119.56	\$1,119.56
8	RCM	Installation Crew- 2 Men	\$130.00	\$1,040.00
16	RCM	Technician Labor	\$80.00	\$1,280.00
1	UPS	Shipping	\$272.64	\$272.64
			<b>Total</b>	<b>\$49,098.44</b>

**Bow Street Water Tower**

QTY	Part Number	Description	Cost Each	Cost Ext
2	RBS4000C	RBS4000C-V3025-W-A100-4W0E100-S1-V2-G1 BASE- 25W VHF (136 -174 MHz), V2 VOCODER, SINGLE GPS, 12 VOLT	\$11,302.50	\$22,605.00
1	RM5012	12 Volt Power Supply	\$475.84	\$475.84
1	74-37-20023-LR	TX/RX Multicoupler/Combiner	\$19,050.00	\$19,050.00
1	GPS-TMG-40NMS	GPS PERMANENT MOUNT ANTENNA, TNC(F), WHITE	\$217.37	\$217.37
1	GPS200	GPS Splitter	\$166.67	\$166.67
2	TWS240NMSM-3'	Jumper cable	\$24.80	\$49.60
1	DGXZ 06NFNF-A	GPS LINE PROTECTOR	\$133.91	\$133.91
2	TC-400-TM-X	TNC(M) LMR400	\$11.09	\$22.19
40	LMR-400	3/8" Cable	\$1.23	\$49.07
1	SD212-SF2P2SNM	138-174MHz 5dBd 2 Element Dipole Antenna	\$845.33	\$845.33
2	Misc-item	Antenna mounting and installation hardware	\$700.00	\$1,400.00
200	LCF12-50J	1/2" Cable	\$1.59	\$317.33
1	NM-LCF12-D01	1/2" N(M) Connector	\$22.48	\$22.48
1	NF-LCF12-D01	1/2" N(F) Connector	\$22.60	\$22.60
18	SCF12-50J	1/2" Superflex Cable	\$1.61	\$29.04
6	15560751	N(M) connector for SCF12-50J	\$27.87	\$167.20
1	IS50NX-C2-MA	Polypahser	\$68.85	\$68.85
1	SB556084XUAL	19" Aluminum Rack	\$219.57	\$219.57
1	RB3011UiAS-RM	RouterBOARD 10xGigabit Ethernet	\$206.60	\$206.60
1	SMT1500RM2UC	Smart-UPS 1000W/1440VA	\$1,119.56	\$1,119.56
16	RCM	Installation Crew- 2 Men	\$130.00	\$2,080.00
16	RCM	Technician Labor	\$80.00	\$1,280.00
2	Rental	120' Man Lift	\$1,866.67	\$3,733.33
1	UPS	Shipping	\$272.64	\$272.64
1	Subcontractor	Tower Crew- Install VHF antenna/cabling	\$1,813.33	\$1,813.33
			<b>Total</b>	<b>\$56,367.52</b>

**Lookout Drive Water Tower**

QTY	Part Number	Description	Cost Each	Cost Ext
2	RBS4000C	BASE- 25W VHF (136 -174 MHz), V2 VOCODER, SINGLE GPS, 12 VOLT	\$11,302.50	\$22,605.00
1	RM5012	12 Volt Power Supply	\$475.84	\$475.84



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1	74-37-20023-LR	TX/RX Multicoupler/Combiner	\$19,050.00	\$19,050.00
1	GPS-TMG-40NMS	GPS PERMANENT MOUNT ANTENNA, TNC(F), WHITE	\$217.37	\$217.37
1	GPS200	GPS Splitter	\$166.67	\$166.67
2	TWS240NMSM-3'	Jumper cable	\$24.80	\$49.60
1	DGXZ 06NFNF-A	GPS LINE PROTECTOR	\$133.91	\$133.91
2	TC-400-TM-X	TNC(M) LMR400	\$11.09	\$22.19
40	LMR-400	3/8" Cable	\$1.23	\$49.07
1	SD212-SF2P2SNM	138-174MHz 5dBd 2 Element Dipole Antenna	\$845.33	\$845.33
2	Misc-item	Antenna mounting and installation hardware	\$700.00	\$1,400.00
200	LCF12-50J	1/2" Cable	\$1.59	\$317.33
1	NM-LCF12-D01	1/2" N(M) Connector	\$22.48	\$22.48
1	NF-LCF12-D01	1/2" N(F) Connector	\$22.60	\$22.60
18	SCF12-50J	1/2" Superflex Cable	\$1.61	\$29.04
6	15560751	N(M) connector for SCF12-50J	\$27.87	\$167.20
1	ISS0NX-C2-MA	Polypahser	\$68.85	\$68.85
1	SB556084XUAL	19" Aluminum Rack	\$219.57	\$219.57
1	RB3011UIAS-RM	RouterBOARD 10xGigabit Ethernet	\$206.60	\$206.60
16	RCM	Installation Crew- 2 Men	\$130.00	\$2,080.00
16	RCM	Technician Labor	\$80.00	\$1,280.00
1	Rental	120' Man Lift	\$1,866.67	\$1,866.67
1	UPS	Shipping	\$272.64	\$272.64
1	Subcontractor	Tower Crew- Install VHF antenna/cabling	\$1,813.33	\$1,813.33
			<b>Total</b>	<b>\$53,381.29</b>

**Microwave**

Parts Required per path

QTY	Part Number	Description	Cost Each	Cost Ext
1	C110082L027A	PTP 820C 11GHz HI	\$4,266.67	\$4,266.67
1	C110082L028A	PTP 820C 11GHz LO	\$4,266.67	\$4,266.67
2	N000082K027B	PTP 820 AES Key	\$1,493.33	\$2,986.67
2	N000082L014	PTP 820 Glands_x5_KIT	\$27.84	\$55.68
2	N000082L016A	PTP 820 CAT5E Outdoor 100m drum	\$250.56	\$501.12
2	C000065L002C	PoE Injector	\$364.80	\$729.60
1	N000082L073	PTP 820 GBE_Connector_kit	\$22.08	\$22.08
2	N000082L116	PTP 820 GROUND CABLE FOR IDU and ODU	\$14.40	\$28.80
2	N000082L123A	PTP 820 Activation key for 100M Capacity	\$328.53	\$657.07
4	N000082L173A	PTP 820 Grounding Kit for CAT5e F/UTP 8mm and Cat6A Cable. Add 2 additional kits per PoE Injector that is installed outdoors	\$19.20	\$76.80
2	N110082D072A	PTP 820 2' ANT,SP,10_11GHz,RFU-C TYPE&Std UBR100	\$528.00	\$1,056.00
2	N110082L082A	PTP 820C OMT KIT 10-11GHz	\$432.00	\$864.00
2	N110082L092A	PTP 820 RFU-C 10_11GHz OMT Interface-Andrew	\$106.56	\$213.12
1	WB3659	FCC M/W Freq Coordination Service	\$1,008.00	\$1,008.00

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2	Mounting	Dish Mounting Hardware	\$466.67	\$933.33
8	RCM	Technician- Configure at RCM	\$80.00	\$640.00
1	UPS	Shipping	\$272.64	\$272.64

Total per path            \$18,578.24  
**Total 3 Microwave Paths       \$55,734.72**

**Beech Hill Microwave Labor**

QTY	Part Number	Description	Cost Each	Cost Ext
2	Subcontractor	Tower Crew	\$1,813.33	\$3,626.67
8	RCM	Technician	\$80.00	\$640.00

**\$4,266.67**

**Bow Street Tank Microwave Labor**

QTY	Part Number	Description	Cost Each	Cost Ext
3	Subcontractor	Tower Crew	\$1,813.33	\$5,440.00
24	RCM	Technician	\$80.00	\$1,920.00

**\$7,360.00**

**Lookout Tank Microwave Labor**

QTY	Part Number	Description	Cost Each	Cost Ext
3	Subcontractor	Tower Crew	\$1,813.33	\$5,440.00
16	RCM	Technician	\$80.00	\$1,280.00

**\$6,720.00**

**Winslow Park**

QTY	Part Number	Description	Cost Each	Cost Ext
8	RCM	Installation Crew- 2 Men	\$130.00	\$1,040.00
16	RCM	Technician	\$80.00	\$1,280.00

**\$2,320.00**

**Microwave Labor Total       \$20,666.67**

**Microwave Parts and Labor Total   \$76,401.39**

**(29) Kenwood NX-5700-5AFM Mobile radios with installation**

QTY	Part Number	Description	Cost Each	Cost Ext
29	NX-5700BK	50W, 136-174 MHz, RF DECK ONLY	\$499.80	\$14,494.20
		FULL FEATURE REMOTE KIT INCLUDES: KCH-20RM, KRK-15BM, KCT-71M2, KCT-23M3, KMB-33M, KES-5, KCT-27M		
29	5AFM		\$625.06	\$18,126.62
29	KWD-5100CV	LICENSE KEY FOR P25 CONVENTIONAL	\$391.00	\$11,339.00
		LICENSE KEY FOR DMR TIER II CONVENTIONAL. INCLUDES LABOR TO UPDATE FIRMWARE & FEATURE IN THE RADIO		
29	KWD-5300CV		\$40.80	\$1,183.20
29	Install Kit	Installation parts	\$25.00	\$725.00
29	Installation	Remove old radio and install new and connect to vehicle repeater	\$200.00	\$5,800.00
-29	Rebate	End User Rebate for purchases before 3/31/2020	\$85.00	-\$2,465.00
			<b>Total</b>	<b>\$49,203.02</b>

**Avtec Console Upgrades and Connection to Radio Network**

1	SSW-VPG-DMR3-16-SK	Avtec DMR Talk-Group AIS License (16-Pack)	\$7,183.00	\$7,183.00
16	RCM	Technician Labor	\$80.00	\$1,280.00
2	Install Kit	Installation Parts	\$65.00	\$130.00
			<b>Total</b>	<b>\$8,593.00</b>

**Training**

QTY	Part Number	Description	Cost Each	Cost Ext
8	RCM Training	User Training	\$80.00	\$640.00
			<b>Total</b>	<b>\$640.00</b>

**Optional Items**

**Coverage Testing (if required)**

QTY	Part Number	Description	Cost Each	Cost Ext
1	RCM	<u>Labor</u> - 2 men/3 days Drive Testing and Monitoring - 1 man/1 day Documentations and Report	\$4,480.00	\$4,480.00

**For improved indoor coverage, add US Route One North Tower simulcast site and microwave link to Bow Street Water Tank**

QTY	Part Number	Description	Cost Each	Cost Ext
2	RBS4000C	RBS4000C-V3025-W-A100-4W0E100-S1-V2-G1 BASE- 25W VHF (136-174 MHz), V2 VOCODER, SINGLE GPS, 12 VOLT	\$11,302.50	\$22,605.00
1	RM5012	12 Volt Power Supply	\$475.84	\$475.84
1	74-37-20023-LR	TX/RX Multicoupler/Combiner	\$19,050.00	\$19,050.00
1	GPS-TMG-40NMS	GPS PERMANENT MOUNT ANTENNA, TNC(F), WHITE	\$217.37	\$217.37
1	GPS200	GPS Splitter	\$166.67	\$166.67
2	TWS24ONMSM-3'	Jumper cable	\$24.80	\$49.60
1	DGXZ 06NFNF-A	GPS LINE PROTECTOR	\$133.91	\$133.91
2	TC-400-TM-X	TNC(M) LMR400	\$11.09	\$22.19
40	LMR-400	3/8" Cable	\$1.23	\$49.07
1	SD212-SF2P2SNM	138-174MHz 5dBd 2 Element Dipole Antenna	\$845.33	\$845.33
2	Misc-item	Antenna mounting and installation hardware	\$700.00	\$1,400.00
200	LCF12-50J	1/2" Cable	\$1.59	\$317.33
1	NM-LCF12-D01	1/2" N(M) Connector	\$22.48	\$22.48
1	NF-LCF12-D01	1/2" N(F) Connector	\$22.60	\$22.60
18	SCF12-50J	1/2" Superflex Cable	\$1.61	\$29.04
6	15560751	N(M) connector for SCF12-50J	\$27.87	\$167.20
1	ISS0NX-C2-MA	Polypahser	\$68.85	\$68.85

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1	SB556084XUAL	19" Aluminum Rack	\$219.57	\$219.57
1	RB3011UiAS-RM	RouterBOARD 10xGigabit Ethernet	\$206.60	\$206.60
1	SMT1500RM2UC	Smart-UPS 1000W/1440VA	\$1,119.56	\$1,119.56
8	RCM	Installation Crew- 2 Men	\$130.00	\$1,040.00
16	RCM	Technician Labor	\$80.00	\$1,280.00
1	UPS	Shipping	\$272.64	\$272.64
1	Subcontractor	Tower Crew- Install VHF antenna/cabling	\$1,813.33	\$1,813.33
				<b>\$51,594.19</b>

**Route One Tower Microwave Equipment and Installation**

QTY	Part Number	Description	Cost Each	Cost Ext
1	Microwave	Microwave RT 1 Tower site to Bow Street	\$18,578.24	\$18,578.24
1	Subcontractor	Tower Crew	\$1,813.33	\$1,813.33
16	RCM	Technician	\$80.00	\$1,280.00
Microwave Link Total				<b>\$21,671.57</b>

**Total Cost to add Route One Tower Site \$73,265.76**

**Add ARC 4 Encryption- NX-5700 and NX-3720 Mobile Radios (each)**

QTY	Part Number	Description	Cost Each	Cost Ext
1	KWD-5500EE	LICENSE KEY FOR DMR ARC4 ENHANCED ENCRYPTION *** NX-5700 ***	\$27.20	\$27.20
1	KWD-3502EE	LICENSE KEY FOR DMR ARC4 ENHANCED ENCRYPTION *** NX-3720 ***	\$27.20	\$27.20

**Remove P25C Feature from (29) Kenwood NX-5700xx mobile radios**

29	KWD-5100CV	LICENSE KEY FOR P25 CONVENTIONAL	-\$391.00	-\$11,339.00
				<b>-\$11,339.00</b>

**(29) Kenwood NX-5700-5ABM vs. NX-5700-5AFM Mobile radios**

QTY	Part Number	Description	Cost Each	Cost Ext
29	NX-5700BK	50W, 136-174 MHz, RF DECK ONLY	\$499.80	\$14,494.20
		FULL FEATURE REMOTE KIT INCLUDES: KCH-20RM, KRK-15BM, KCT-71M2, KCT-23M3, KMB-33M, KES-5, KCT-27M		
29	5ABM		\$387.60	\$11,240.40
29	KWD-5100CV	LICENSE KEY FOR P25 CONVENTIONAL	\$391.00	\$11,339.00
		LICENSE KEY FOR DMR TIER II CONVENTIONAL. INCLUDES LABOR TO UPDATE FIRMWARE & FEATURE IN THE RADIO		
29	KWD-5300CV		\$40.80	\$1,183.20
29	Install Kit	Installation parts	\$25.00	\$725.00
29	Installation	Remove old radio and install new and connect to vehicle repeater	\$200.00	\$5,800.00
-29	Rebate	3/31/2020 *** Minimum (5) radios to qualify ***	\$85.00	-\$2,465.00
Total				<b>\$42,316.80</b>

**Kenwood NX-5700K Mobile radio with installation (each)**

QTY	Part Number	Description	Cost Each	Cost Ext
1	NX-5700K	VHF (136-174MHz), 50 Watts NXDN Conventional / TYPE-C (Gen1/Gen2) Trunking	\$680.00	\$680.00
1	KWD-5100CV	LICENSE KEY FOR P25 CONVENTIONAL	\$391.00	\$391.00
1	KWD-5300CV	LICENSE KEY FOR DMR TIER II CONVENTIONAL. INCLUDES LABOR TO UPDATE FIRMWARE & FEATURE IN THE RADIO	\$40.80	\$40.80
1	Install Kit	Installation parts	\$25.00	\$25.00
1	Installation	Remove old radio and install new	\$120.00	\$120.00
-1	Rebate	3/31/2020 *** Minimum (5) radios to qualify ***	\$85.00	-\$85.00
<b>Total</b>				<b>\$1,171.80</b>

**Kenwood NX-3720HGK Mobile radio with installation (each)**

QTY	Part Number	Description	Cost Each	Cost Ext
1	NX-3720HGK	VHF (136-174MHz), 50 Watts, 512 CH, 128 Zones	\$473.96	\$473.96
1	Install Kit	Installation parts	\$25.00	\$25.00
1	Installation	Remove old radio and install new	\$120.00	\$120.00
-1	Rebate	End User Rebate for purchases before 3/31/2020	\$60.00	-\$60.00
<b>Total</b>				<b>\$558.96</b>

**Upgrade (2) existing PD/FD base radios to DMR (total)**

QTY	Part Number	Description	Cost Each	Cost Ext
2	NX-5700K	50W, 136-174 MHz (Dash Mount)	\$680.00	\$1,360.00
2	KWD-5300CV	LICENSE KEY FOR DMR TIER II CONVENTIONAL. INCLUDES LABOR TO UPDATE FIRMWARE & FEATURE IN THE RADIO	\$40.80	\$81.60
2	Install Kit	Installation parts	\$25.00	\$50.00
2	OUTPOST KENWOOD-MOBILE	Kit to add support for (1) each Kenwood mobile endpoint. Includes Software License. Cable included at no charge; Outpost purchased separately.	\$962.00	\$1,924.00
2	Installation	Add additional channels to Avtec console Install base radios and antennas	\$400.00	\$800.00
-2	Rebate	3/31/2020 *** Minimum (5) radios to qualify ***	\$85.00	-\$170.00
<b>Total</b>				<b>\$4,045.60</b>

**Add (2) DMR base radios Brunswick Dispatch for PD/FD (total)**

QTY	Part Number	Description	Cost Each	Cost Ext
2	NX-5700K	50W, 136-174 MHz (Dash Mount)	\$680.00	\$1,360.00
2	KWD-5300CV	LICENSE KEY FOR DMR TIER II CONVENTIONAL. INCLUDES LABOR TO UPDATE FIRMWARE & FEATURE IN THE RADIO	\$40.80	\$81.60



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1	OUTPOST-2R	Radio Controller, VoIP, 2 Ports, 12VDC input	\$2,123.33	\$2,123.33
2	OUTPOST KENWOOD-MOBILE	Kit to add support for (1) each Kenwood mobile endpoint. Includes Software License. Cable included at no charge; Outpost purchased separately.	\$962.00	\$1,924.00
2	BA1012-1	154.174 UNITY GAIN VHF BASE ANTENNA	\$357.29	\$714.59
200	LMR-400	3/8" RF Cable	\$1.23	\$245.33
2	RFN-1005-3I	N Male Connector for LRM-400	\$4.43	\$8.85
2	RFN-1027	N Female Connector for LRM-400	\$5.57	\$11.15
2	IS-50NX-C2-MA	Polyphaser	\$68.85	\$137.71
2	Install Kit	Installation parts	\$45.00	\$90.00
16	Installation	Install (2) new base radios and antennas	\$130.00	\$2,080.00
-2	Rebate	3/31/2020 *** Minimum (5) radios to qualify ***	\$85.00	-\$170.00
			<b>\$8,606.56</b>	

**Extended Maintenance**

QTY	Part Number	Description	Cost Each	Cost Ext
2	Extended Maintenance	<b>Years 2-3 (cost per year)</b> Labor and repair parts, includes on-site and 24/7/365 Emergency <b>*** On included System Equipment only ***</b>	\$20,434.14	\$40,868.28
1	Software Agreement	Leonardo/Selex ECOS-D Annual Software Support (Annual after year 1)	\$5,000.00	\$5,000.00

**Recommended Spare Parts**

QTY	Part Number	Description	Cost Each	Cost Ext
1	RBS4000H	RBS4000H-V3110-W-A0C1-4W0E100-S1-V2-G1 BASE - 110W VHF (136 - 174 MHz), V2 VOCODER, SINGLE GPS, 48 VOLT	\$14,563.75	\$14,563.75
2	RM2548	48 Volt Power Supply	\$869.43	\$1,738.85
1	C110082L027A	PTP 820C 11GHz HI	\$4,266.67	\$4,266.67
1	C110082L028A	PTP 820C 11GHz LO	\$4,266.67	\$4,266.67
1	N000082L022	PTP 820 PoE Injector all outdoor, redundant DC input, +24VDC support. Requires either a DC supply or AC/DC Power Adapter	\$480.00	\$480.00
1	N110082D072	PTP 820 2' ANT,SP,10_11GHz,RFU-C TYPE&Std UBR100	\$528.00	\$528.00

**Microwave Optional item**

QTY	Part Number	Description	Cost Each	Cost Ext
6	EW-E4PT820C-WW	PTP820C Extended Warranty, 4 Additional Years (Per Radio Total of 5 years)	\$460.80	\$2,764.80