



Martha's Vineyard Public Safety Communications System

System Proposal Overview

Version 2018-12-11

Dukes County Sheriff's Office

Sheriff Robert Ogden (DCSO)

Major Peter Graczykowski (DCSO)

Deputy Anthony Gould (DCSO)

Deputy Steve Staffier (DCSO-SME)

Deputy Rob Verdone (DCSO-SERECC)

Motorola Solutions

- Jim McCone



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Dukes County Sheriff's Office



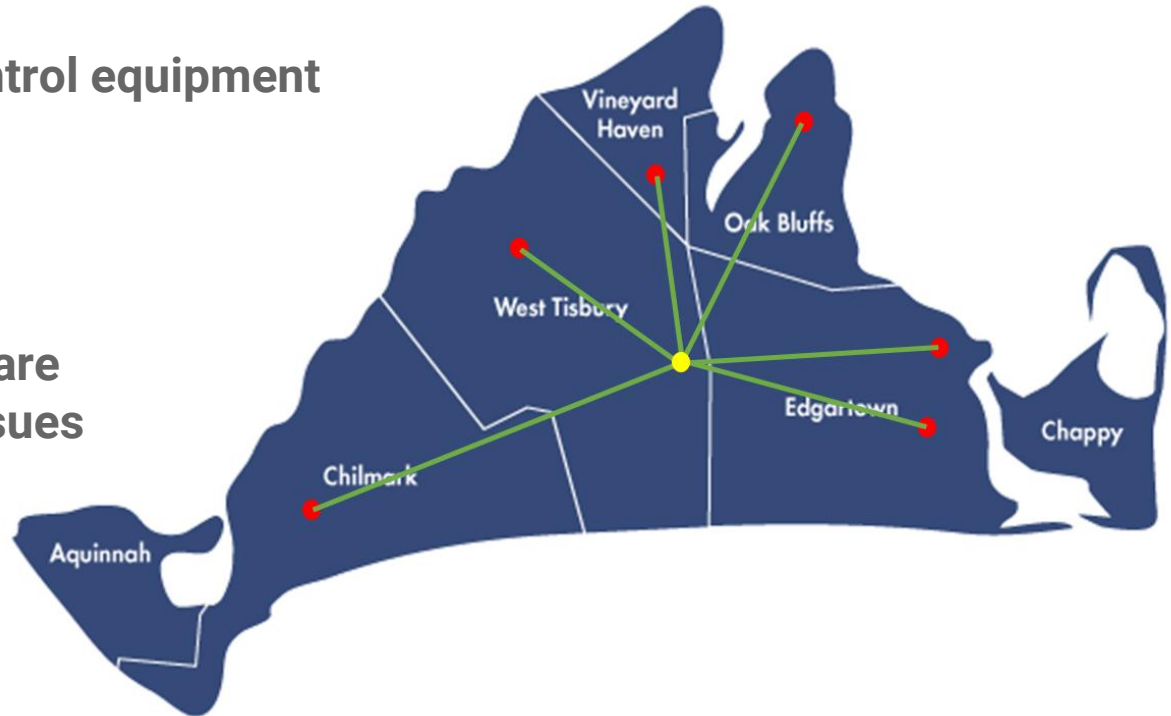
Regional Emergency Communications Center (RECC)

- 911 Center (PSAP)
- Provides service to 67 agencies
 - Fire
 - Police
 - EMS
 - State Departments
 - USCG
 - Emergency Management
 - Public Utilities
 - Animal Control
 - Parks & Recreation



Current Communications System

- RECC host's central control equipment
- Seven total sites
- VHF analog system
- RTNA line connectivity
- Consumer grade hardware
- Significant coverage issues
- No failsafe systems

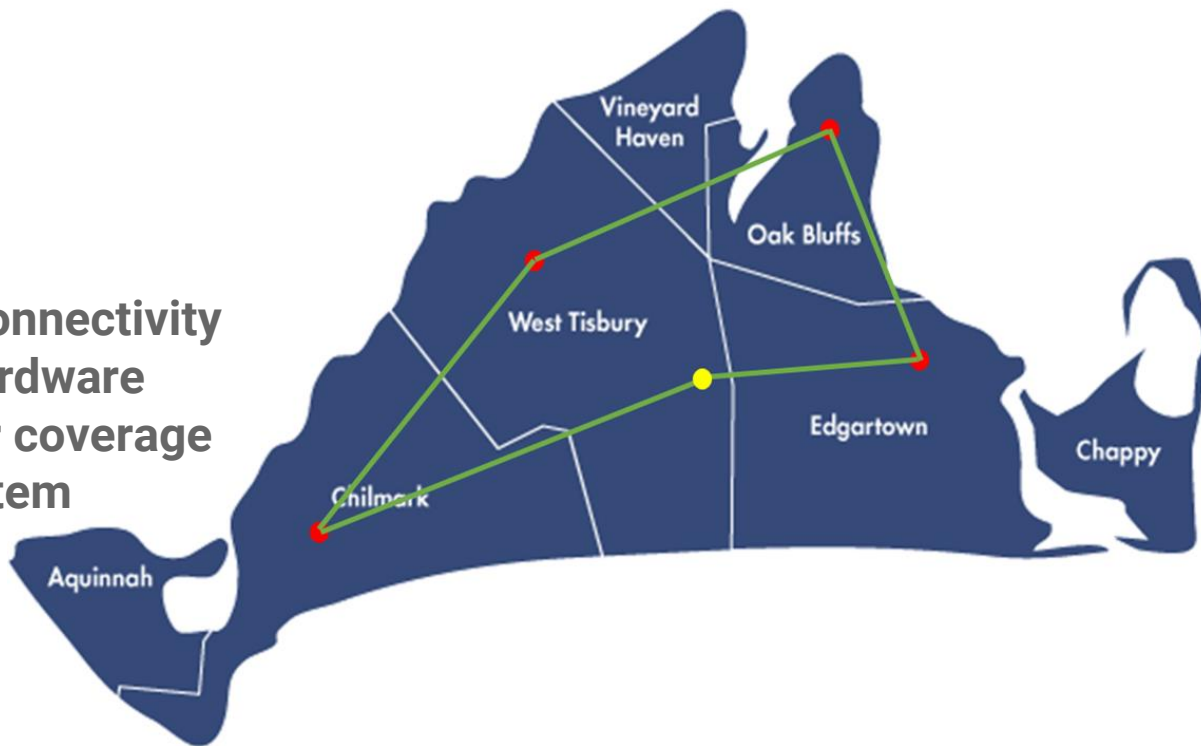


Proposed Communications System

● RECC

● Five total sites

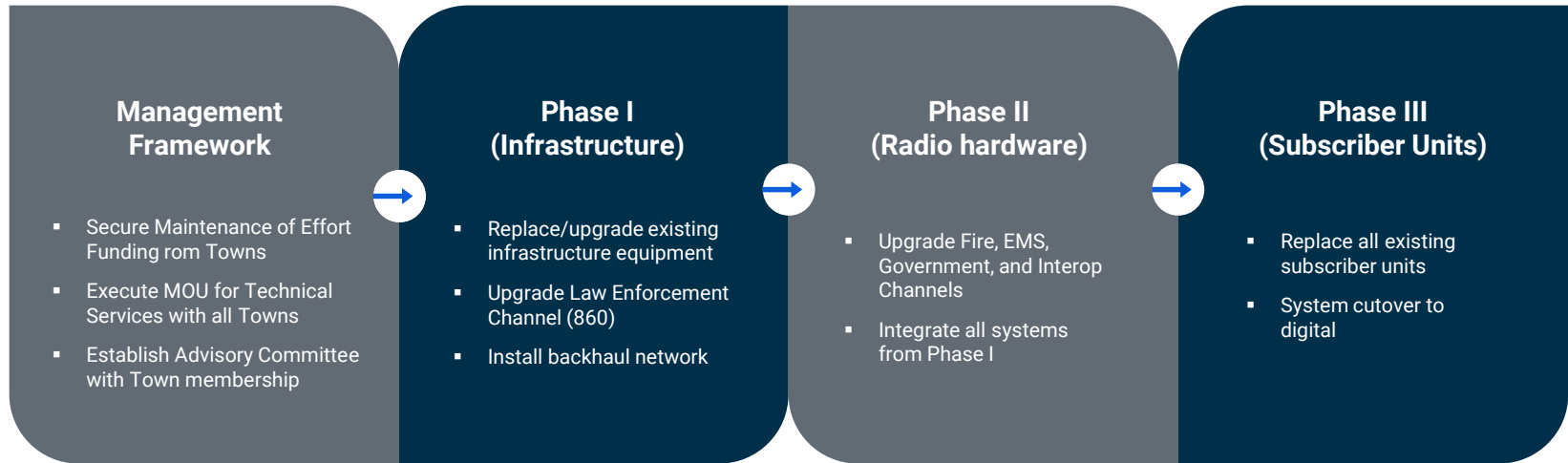
- Multicast system
- Wireless point-point connectivity
- Public Safety grade hardware
- Island-wide subscriber coverage
- Automatic backup system



Proposed Communications System

Phased Approach Timeline

Five Year Project Goals

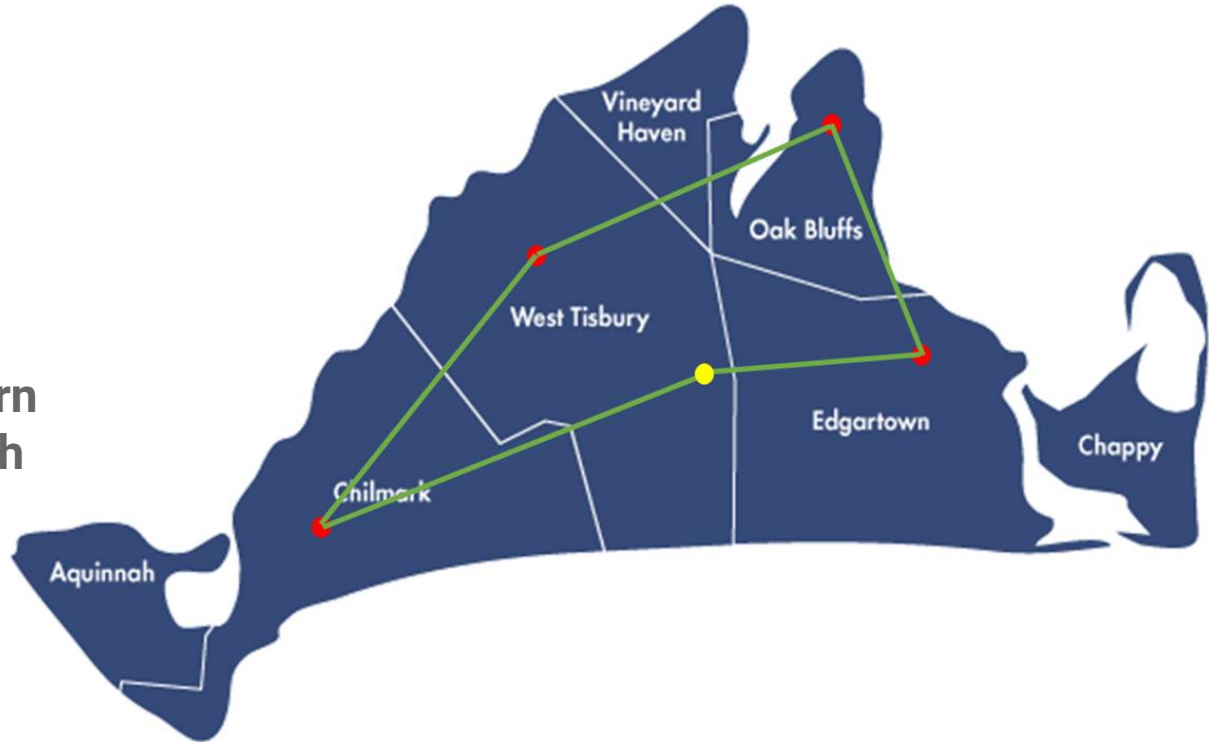


Phase I

Infrastructure Upgrades

Establish Five Sites

- RECC
- Peaked Hill
- DCR Fire Tower
- Oak Bluffs Highway Barn
- Verizon Pennywise Path



Phase I

Goals

Phase 1 (a) :

- Install Oak Bluffs Tower
- Replace/install equipment shelters and hardware
- Install backup power supply
 - Battery
 - Generator
- Establish paths for inter-site connection
- Replace and configure Law Enforcement dispatch channel
 - Island-wide end to end communications
 - Multicast system
- Reprogram law enforcement subscriber units
- Coordinate frequency changes with FCC

Phase 1 (b) :

- Install wireless backhaul network
- Finalize grant application for Phase II



Phase I

Funding

- **FY 2019 State 911 Development Grant**
 - Original Application - \$ 4.5M
 - Modified Application - \$ 2.7M
 - Award - \$ 1.5M for Phase I (a)
 - No funding for Maintenance of Effort
- **FY 2020 State 911 Development Grant**
 - Estimated Application Request - \$ 1.5M for Phase I (b)
 - No funding for Maintenance of Effort
- **Motorola Goods and Services procured via Commonwealth of Massachusetts ITT57 State Contract for Two-Way Radio Communications Equipment and Services**



Oak Bluffs Tower

Highway Site



OAK BLUFFS
Vineyard Haven
Park & Recreation Department
347 County Rd, Vineyard Haven, MA 02568
**140ft. SELF SUPPORT
TOWER SIMULATION**
PYRAMID
Network Services, LLC





View from
County Road
Bike Path

OAK BLUFFS
Vineyard Haven

Park & Recreation Department
347 County Rd, Vineyard Haven, MA 02568

**140ft. SELF SUPPORT
TOWER SIMULATION**



Phase I

Oak Bluffs Tower

- **FY 2019 State 911 Development Grant**
 - **Location – Highway Barn – Oak Bluffs**
 - **Site Equipment Cost - \$ 416,759 – funded by the grant**
 - **Site Maintenance Cost – to be funded by the Town – cooperative effort between Sheriff's Office and Oak Bluffs Fire Dept.**
 - **Joint application by Town of Oak Bluffs and Sheriff's Office**
 - **Approved by MVC**
 - **Additional required federal and state permits pending**

Phase II

Radio Hardware

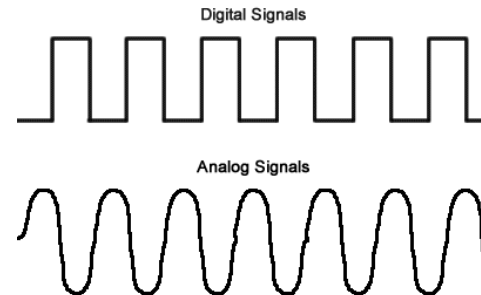
- **Continue Phase 1**
(LE channel configuration)
- **Install and configure dispatch channels**
 - Fire
 - EMS
 - Municipal Public Services
 - Interoperability Channel
- **Reconfigure all Island subscriber units**
- **Finalize grant application for Phase III**



Phase III

Subscriber Units

- Replace all island subscriber units
 - Multi-Band
 - Digital
 - Compatible with statewide communications system
- Make system cutover from analog to digital
 - End-user feature enhancements
 - Extended system coverage
- Begin application for CoMIRS system integration



CoMIRS Integration

Future Project Development (FY 2025)

- Commonwealth of Massachusetts Interoperable Radio System
 - Previously Managed by Mass State Police
- State-Wide 7/800 MHz Digital Trunked Radio System
- Compliance and resource availability
- Provides coverage in and outside area of the MVPSCS
- Complete interoperability with neighboring jurisdictions
- Ability to add channels without further infrastructure upgrades



System User Maintenance of Effort Payments

Historical Perspective

- Island Towns funded RECC operations through County assessments, based on real estate valuations, from 1964 to 2009, when Sheriff's Office became a State agency (2007 County Charter Study explains impact of State transition to Island Towns re Sheriff's Office services). **Approx. savings to Towns between 2010-2019 fiscal years now exceed \$5M.**
- Commonwealth does not fund the operation of RECC in Sheriff's General Appropriation, but rather provides limited grant funding through State 911 Department, which pays for some staff costs.
- Last year, Sheriff's Office requested an assessment to help offset approx. \$600,000 in deficit spending from the Towns, allocated based on the call volume per participating municipality. Annual deficit spending is to be eliminated as a mandate from the Legislature.
- Since then, Sheriff secured additional State 911 Dept. grant funding for personnel costs, reducing operational deficit. This only leaves other RECC maintenance costs to be funded by system users.
- Sheriff also secured developmental grant funding to upgrade the regional radio system; however, this funding specifically precludes maintenance and some development costs. Such maintenance and development costs are to be also funded by system users.

System User MOE and Technical Serices MOU

Services Covered under Motorola Service Agreement and by Dukes County Sheriff

- Backup power supply
 - Fuel
 - Maintenance
- Radio equipment
 - Tuning/Alignment
- Tower maintenance
 - Hardware Alignment
 - Feed line integrity
- Software
 - Updates
 - System security
- 24 X 7 X 365 Technical Support
- On island technical services
- Ongoing technical certification training
- Motorola onsite support services within 24 hours
- Annual Preventative Maintenance



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Maintenance of Effort Costs

Grant Ineligible Development, Maintenance and Management Items – Year 1

- **Motorola Essentials+ Service Package**
 - \$69,411
- **Service Package Exclusions**
 - Passive equipment such as feed line, antenna's, combining equipment, and dehydrators; UPS and UPS Batteries and Tower Climbing personnel expenses, if necessary.
 - Maintenance costs of towers, shelters, HVAC, or site generators.
 - \$17,353
- **Permitting Legal Services**
 - Assistance with Zoning Approvals and Negotiation of Option/Lease/License Agreement and Acquisition of Clear Land Title/Site Lease/Shared Use Agreement - \$5,972
 - Coordination of Zoning and Permitting of New Tower - \$9,492



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Maintenance of Effort Costs

Grant Ineligible Development, Maintenance and Management Items – Year 1

- **Reserve for Site Development Contingencies**

- Tower structural enhancements if Structural Analysis fails at Pennywise, RECC, Peaked Hill, or the DCR tower.
- If at Oak Bluffs during the Phase I environmental assessment, Motorola discovers hazardous soils, and site needs remediation to soil or additional testing.
- If any of the sites require non-typical grounding upgrades.
- If there are any utility fees required for any sites other than RECC and DCR tower, as Motorola is using existing shelters, etc.
- The Path surveys are based on paper path studies only, which were accounted for in Motorola's Tower design. Once the physical path surveys are completed, the design will be finalized and updated based on that.
- Re-programming cost of existing Kenwood mobile and portable radios
- **\$79,642** (10% of Phase 1a Site Development Costs)



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Maintenance of Effort Costs

Grant Ineligible Development, Maintenance and Management Items – Year 1

- **Project Management Items**

- Planning and facilitation of project meetings.
- Monthly and quarterly project reports.
- Assist the Office of Sheriff in the procurement process for the primary vendor.
- Coordinate with the State 911 Department staff.
- Develop the FY20 State 911 Department Regional Development Grant for Phase 2.
- **\$4,331**

- **RECC Maintenance Costs**

- Equipment Purchases - \$16,413
- Equipment Lease – Maintain & Repair - \$10,437
- Infrastructure - \$24,264
- **Total - \$51,114**

- **Total Year 1 Maintenance of Effort - \$237,313**



Edward J. Collins, Jr. Center
for Public Management



System User Maintenance of Effort Request

Financial Breakout

	Maintenance of Effort Costs				
	Year 1	Year 2	Year 3	Year 4	Year 5
Motorola Essentials+ Service Package	\$ 69,411.00	\$ 122,175.00	\$ 128,804.00	\$ 133,204.00	\$ 137,775.00
Essentials+ Exclusions Estimates	\$ 17,352.75	\$ 30,543.75	\$ 32,201.00	\$ 33,301.00	\$ 34,443.75
Grant Ineligible Development Costs	\$ 15,464.00	\$ 15,850.60	\$ 16,246.87	\$ 16,653.04	\$ 17,069.36
Development Contingencies Reserve	\$ 79,641.80	\$ 81,632.85	\$ 83,673.67	\$ 85,765.51	\$ 87,909.65
Grant Ineligible Management Costs	\$ 4,330.56	\$ 4,438.82	\$ 4,549.79	\$ 4,663.54	\$ 4,780.13
RECC Maintenance Projections	\$ 51,113.00	\$ 52,390.83	\$ 53,700.60	\$ 55,043.11	\$ 56,419.19
Total Maintenance Costs	\$ 237,313.11	\$ 307,031.84	\$ 319,175.92	\$ 328,630.19	\$ 338,397.07

* Essentials+ Service Package excluded items are calculated using an added 25% projection to Service Package quotations. These are preliminary "soft cost" estimates, to be finalized by Motorola Engineering team.

** RECC maintenance is based on FY2019 projections, excluding personnel and other operational costs, with 2.5% annual growth. Development Grant ineligible costs are estimated to continue during subsequent phases of the development, with 2.5% annual growth. Site Development Contingencies Reserve is estimated at 10% of Phase 1a Development Costs, with 2.5% growth in later phases.

System User Maintenance of Effort Request

Allocation Scenario A – 100% Call Volume

Maintenance of Effort Costs

	100% Call Volume	Year 1	Year 2	Year 3	Year 4	Year 5
Aquinnah	2.53%	\$ 6,004.02	\$ 7,767.91	\$ 8,075.15	\$ 8,314.34	\$ 8,561.45
Chilmark	6.60%	\$ 15,662.67	\$ 20,264.10	\$ 21,065.61	\$ 21,689.59	\$ 22,334.21
Edgartown	27.48%	\$ 65,213.64	\$ 84,372.35	\$ 87,709.54	\$ 90,307.58	\$ 92,991.52
Oak Bluffs	29.45%	\$ 69,888.71	\$ 90,420.88	\$ 93,997.31	\$ 96,781.59	\$ 99,657.94
Tisbury	22.98%	\$ 54,534.55	\$ 70,555.92	\$ 73,346.63	\$ 75,519.22	\$ 77,763.65
West Tisbury	10.71%	\$ 25,416.23	\$ 32,883.11	\$ 34,183.74	\$ 35,196.29	\$ 36,242.33
Sheriff's Office	0.25%	\$ 593.28	\$ 767.58	\$ 797.94	\$ 821.58	\$ 845.99
Total MOE Costs		\$ 237,313.11	\$ 307,031.84	\$ 319,175.92	\$ 328,630.19	\$ 338,397.07

System User Maintenance of Effort Request

Allocation Scenario B – 100% County Tax Rate Weighted Vote

FY18-FY19 County Assessment Formula

Towns	Equalized Value	Tax Rate	Weighted Vote
Aquinnah	724,087,400	0.65	3.61%
Chilmark	3,324,185,000	3.00	16.56%
Edgartown	7,747,629,000	7.00	38.60%
Gosnold	232,938,000	0.21	1.16%
Oak Bluffs	2,830,191,100	2.56	14.10%
Tisbury	2,712,566,800	2.45	13.52%
West Tisbury	2,498,333,900	2.26	12.45%
TOTAL	20,069,931,200	18.13	100.00%

System User Maintenance of Effort Request

Allocation Scenario B – 100% County Tax Rate Weighted Vote

FY18-19 County Tax Rate Weighted Vote		Maintenance of Effort Costs				
		Year 1	Year 2	Year 3	Year 4	Year 5
Aquinnah	3.61%	\$ 8,567.00	\$ 11,083.85	\$ 11,522.25	\$ 11,863.55	\$ 12,216.13
Chilmark	16.56%	\$ 39,299.05	\$ 50,844.47	\$ 52,855.53	\$ 54,421.16	\$ 56,038.56
Edgartown	38.60%	\$ 91,602.86	\$ 118,514.29	\$ 123,201.91	\$ 126,851.26	\$ 130,621.27
Oak Bluffs	14.10%	\$ 33,461.15	\$ 43,291.49	\$ 45,003.80	\$ 46,336.86	\$ 47,713.99
Tisbury	13.52%	\$ 32,084.73	\$ 41,510.71	\$ 43,152.58	\$ 44,430.80	\$ 45,751.28
West Tisbury	12.45%	\$ 29,545.48	\$ 38,225.46	\$ 39,737.40	\$ 40,914.46	\$ 42,130.44
		\$ 234,560.28	\$ 303,470.27	\$ 315,473.48	\$ 324,818.08	\$ 334,471.67
Sheriff's Office	1.16%	\$ 2,752.83	\$ 3,561.57	\$ 3,702.44	\$ 3,812.11	\$ 3,925.41
Total MOE Costs		\$ 237,313.11	\$ 307,031.84	\$ 319,175.92	\$ 328,630.19	\$ 338,397.07

System User Maintenance of Effort Request

Allocation Scenario C – 100% 50/50 Formula

FY 2019 50/50 Formula

Towns	50/50
Aquinnah	2.84%
Chilmark	11.48%
Edgartown	31.96%
Oak Bluffs	21.00%
Tisbury	18.33%
West Tisbury	14.39%
	100.00%

System User Maintenance of Effort Request

Allocation Scenario C – 100% 50/50 Formula

	FY19	Maintenance of Effort Costs				
	50/50 Formula	Year 1	Year 2	Year 3	Year 4	Year 5
Aquinnah	2.84%	\$ 6,739.69	\$ 8,719.70	\$ 9,064.60	\$ 9,333.10	\$ 9,610.48
Chilmark	11.48%	\$ 27,243.55	\$ 35,247.26	\$ 36,641.40	\$ 37,726.75	\$ 38,847.98
Edgartown	31.96%	\$ 75,845.27	\$ 98,127.38	\$ 102,008.62	\$ 105,030.21	\$ 108,151.70
Oak Bluffs	21.00%	\$ 49,835.75	\$ 64,476.69	\$ 67,026.94	\$ 69,012.34	\$ 71,063.39
Tisbury	18.33%	\$ 43,499.49	\$ 56,278.94	\$ 58,504.95	\$ 60,237.91	\$ 62,028.18
West Tisbury	14.39%	\$ 34,149.36	\$ 44,181.88	\$ 45,929.42	\$ 47,289.88	\$ 48,695.34
Total MOE Costs		\$ 237,313.11	\$ 307,031.84	\$ 319,175.92	\$ 328,630.19	\$ 338,397.07

System User Maintenance of Effort Request

Allocation Scenario D – 50% Share + 50% Call Volume

50% Share + 50% Call Volume Formula

	Shares	Share %	Call %	Total %
Aquinnah	1	9.09%	2.53%	5.81%
Chilmark	2	18.18%	6.60%	12.39%
Edgartown	2	18.18%	27.48%	22.83%
Oak Bluffs	2	18.18%	29.45%	23.82%
Tisbury	2	18.18%	22.98%	20.58%
West Tisbury	2	18.18%	10.71%	14.45%
Sheriff's Office			0.25%	0.13%
	11	100.00%	100.00%	100.00%

System User Maintenance of Effort Request

Allocation Scenario D – 50% Share + 50% Call Volume

50% Share 50% Call Volume		Maintenance of Effort Costs				
		Year 1	Year 2	Year 3	Year 4	Year 5
Aquinnah	5.81%	\$ 13,788.97	\$ 17,839.95	\$ 18,545.57	\$ 19,094.91	\$ 19,662.41
Chilmark	12.39%	\$ 29,405.25	\$ 38,044.04	\$ 39,548.80	\$ 40,720.27	\$ 41,930.47
Edgartown	22.83%	\$ 54,180.74	\$ 70,098.16	\$ 72,870.76	\$ 75,029.26	\$ 77,259.13
Oak Bluffs	23.82%	\$ 56,518.27	\$ 73,122.42	\$ 76,014.65	\$ 78,266.27	\$ 80,592.34
Tisbury	20.58%	\$ 48,841.20	\$ 63,189.94	\$ 65,689.31	\$ 67,635.08	\$ 69,645.19
West Tisbury	14.45%	\$ 34,282.04	\$ 44,353.54	\$ 46,107.86	\$ 47,473.62	\$ 48,884.53
Sheriff's Office	0.13%	\$ 296.64	\$ 383.79	\$ 398.97	\$ 410.79	\$ 423.00
Total MOE Costs		\$ 237,313.11	\$ 307,031.84	\$ 319,175.92	\$ 328,630.19	\$ 338,397.07

Questions?

Thank you for your support