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## **AGENDA**

### **READING MUNICIPAL LIGHT DEPARTMENT CITIZENS' ADVISORY BOARD (CAB) MEETING**

WEDNESDAY, APRIL 11, 2018

6:30 PM

at

Lynnfield Town Hall, Selectmen's Meeting Room  
55 Summer Street  
Lynnfield, MA 01940

1. Call Meeting to Order – G. Hooper, Chair
2. FY19 Capital Budget Review – C. O'Brien, General Manager
3. Update on the Payment to the Town of Reading – G. Hooper, Chair
4. Adjournment – G. Hooper Chair

This Agenda has been prepared in advance and does not necessarily include all matters which may be taken up at this meeting.

# **READING MUNICIPAL LIGHT DEPARTMENT**



## **FY19 BUDGET**

**March 29, 2018**

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# Reading Municipal Light Department

## Mission Statement:

RMLD is committed to providing excellent customer service, including competitively priced electricity through due diligence of power supply, risk management, system reliability, safety, and overall business efficiency.

## Vision Statement:

RMLD has transitioned from a reactive to a proactive approach in all aspects of the utility business to ensure efficiency, safety, and competitive rates. The Be Efficient - Get Greener - Go Paperless, Peak Performance, and Shred the Peak campaigns, have been integrated into a core business and include sustained procedural changes in the areas of long-term planning, technology road mapping, talent managing, customer communication, system maintenance and power supply portfolio balancing.

## SYSTEM PROFILE (based on FY17)

<b>SERVICE TERRITORY</b>	51 square miles serving Reading, North Reading, Wilmington, and part of Lynnfield
<b>TOTAL OPERATING REVENUES</b>	\$92,616,757
<b>POWER PURCHASED</b>	697,052,494 kWh
<b>NUMBER OF CUSTOMERS/ METERS SERVED</b>	29,720
<b>ANNUAL PEAK DEMAND</b>	155,746 kW on June 13, 2017, at 4:00 pm
<b>ANNUAL SALES</b>	675,536,970 kWh
<b>PLANT VALUE</b>	\$144,799,000 (Gross) \$76,111,000 (Net)
<b>SUPPLY VOLTAGE</b>	115 kV
<b>SUPPLY CAPACITY</b>	Station 4: (3) 60 MVA Transformers (2) 35 MVA Transformers – feeds Station 5 250 MVA Connected, 190 MVA Firm Station 3: (2) 60 MVA Transformers 120 MVA Connected, 60 MVA Firm
<b>DISTRIBUTION SYSTEM VOLTAGE</b>	13,800 volt wye 4,160 volt wye
<b>OVERHEAD PRIMARY LINES</b>	All 336 miles
<b>UNDERGROUND PRIMARY LINES</b>	All 144 miles
<b>DISTRIBUTION TRANSFORMERS</b>	4,202 transformers – 310 MVA Capacity
<b>STATION TRANSFORMER CAPACITY</b>	370 MVA Capacity
<b>UTILITY POLES</b>	17,841 poles <i>Ownership: 50% Verizon, 50% RMLD</i>  <i>Custodial By Town:</i>

	<p>North Reading – RMLD Lynnfield – Verizon Reading</p> <ul style="list-style-type: none"> <li>• east of Main Street – Verizon</li> <li>• west of Main Street, east of West Street, south of Prescott Street – Verizon</li> <li>• west of West Street – RMLD</li> <li>• west of Main Street, north of Prescott Street – RMLD</li> </ul> <p>Wilmington</p> <ul style="list-style-type: none"> <li>• all poles with 35 kV sub-transmission circuits, and Concord Street – RMLD</li> <li>• all other locations in Wilmington – Verizon</li> </ul>
<b>APPLICATION SOFTWARE</b>	
	<p>Great Plains/Cogsdale Windows Server 2012, 2008, Microsoft SQL Office 365 E3 ESRI GIS VMware Windows 7, 8, 8.1, 10 SharePoint WindMil (in process) LightTable (in process) PoleForeman SpryMobile Survalent</p>
<b>CONTACT INFORMATION</b>	
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Telephone:	781-942-6598
Fax:	781-942-2409
Website:	<a href="http://www.rml.com">www.rml.com</a>
Office Hours	8:00 am - 4:30 pm Monday through Friday
<b>KEY PERSONNEL</b>	
General Manager	Coleen O'Brien email: <a href="mailto:cobrien@rml.com">cobrien@rml.com</a>
Director of Business, Finance & Technology	Wendy Markiewicz email: <a href="mailto:wmarkiewicz@rml.com">wmarkiewicz@rml.com</a>
Director of Integrated Resources Division	Jane Parenteau email: <a href="mailto:jparenteau@rml.com">jparenteau@rml.com</a>
Director of Engineering and Operations	Hamid Jaffari email: <a href="mailto:hjaffari@rml.com">hjaffari@rml.com</a>
<b>GOVERNING BODY</b>	
	<p>David Hennessy Thomas O'Rourke Philip B. Pacino John Stempeck David Talbot</p>
<b>Number of Employees</b>	74
<b>Year Founded</b>	1894

3/27/2018

READING MUNICIPAL LIGHT DEPARTMENT  
Capital Improvements FY18 thru FY23  
\$ Shown in thousands

LINE #	PG #	Project #	FERC #	PROJECT NAME	FY18 Budget	FY18 Estimate	FY19 PLAN EST.	FY20	FY21	FY22	FY23	BRIEF DESCRIPTION
1	n/a	129	361	Master Facilities Site Plan (ON-HOLD)								Town economic development plan impact. Master-hold. Evaluate maintenance only.
2	11	104	361	RMLD Lighting (LED) Upgrade Program	100	25	100					Upgrade Ash Street and other RMLD facilities including substations with new LED fixtures. Evaluate transformer. Change in Scope: installation of fixtures by an electrical contractor.
3	13	140	390	Parking Lot Upgrade - 230 Ash Street		100	130					Reconfigure parking lot at 230 Ash Street.
4	n/a	095	361	Building Upgrades	110	110		80	75	125	50	Partial roof covering over 30% of building at 230 Ash Street, and lobby insulation (FY18). No major building upgrades planned for FY19.
5	15	098	391	Office Upgrades -230 Ash Street	92	75	30	30	30	30	30	Reconfigure IRD area to accommodate staffing changes.
6	17	119	384	Security Upgrades All Sites	30	30	30	30	30	30	30	Access control, alarm monitoring, video and perimeter monitoring along the fence lines.
7	19	118	392	Rolling Stock Replacement (vehicles, trailers, fork trucks)	230	229	275	300	300	300	300	Scheduled vehicle replacement based on Fleet Assessment. FY19: forklift, light duty pick-up, underground utility vehicle.
8	23	099	392	Electric Vehicle Supply Equipment (EVSE)	10	30	10	10	10			One electric charging station per town in the service area. Research grant options. FY18: unit installed at 230 Ash Street, Reading. FY19 location TBD
9				DEMAND MANAGEMENT								Alternate years solar/battery storage and gas.
10	n/a	100	344	Distributed Gas Generation		581						FY16-18: Pilot DG gas peaking unit.
11	25	101	363	Battery Storage	25	0	100					Project redirected to 5MW storage at Station 3. Substation integration into battery unit.
12	27	127	382	Hardware Upgrades	105	56	125	119	119	119	119	General hardware purchases, wireless internal network configuration.
13	29	128	383	Software and Licensing	235	130	425	314	239	239	239	General software purchases/custom programming (Itron, Cogsdale, Milsoft, Survalent, MSF, Substation Asset Management Software, etc.)
14	31	137	364/ 365	Woburn Street, Wilmington (between West and Concord Streets) - Pole Line Upgrade	200	213	213					Replace/upgrade twenty-four (24) main line poles and four (4) stub poles on Woburn Street (from Concord to West Street) to proper strength and height, create proper NESC clearance between utilities. Benefit to long-term reliability.
15	33	108	355	115 kV Transmission Pole Upgrade (1 LINE PER YEAR FY18 & 19)	95	145	223					115kV transmission poles feeding Station 4 built in 1970 and have reached the end of their useful life. 211-503 upgraded in FY18 and 211-504 to be upgraded in FY19.
16	35	109	366	35kV UG Cable Upgrade at Station 4, Station 5 and RR ROW	207	207	252	322				35kV Underground cables feeding substation 5 (4P2 and 4P9) are over 36 years old. Both are due for upgrade. FY18: 4P2 FY19: 4P9 at Station 4 FY20: 4P9 on RR ROW and Station 5
17	37	102	367	Pad-mount Switchgear Upgrade at Industrial Parks	196	500	436	439	439	439	176	Starting in FY18, replace all 15 kV pad-mounted switchgears at industrial parks (i.e., River Park Drive, Jonspin Road, Haven Street, etc.) There are 29 switches system-wide.
18	39	103		GRID MODERNIZATION & OPTIMIZATION	227	381						Fifteen-year plan to implement Technology Road Map for grid efficiency, reduction of losses, etc. FY18: \$94k for 2 OMS modules (outage portal and dashboard).
19			365	Scada- Mate Switches			301	307	307	307	307	4 switches/year plus IntelliTeam licenses
20			365	IntelliRupter®			135	137	137	137	137	2 switches/year plus IntelliTeam licenses
21			383	SCADA Upgrade			21					Software upgrade
22			383	Software Integration			14	15	20	20	20	Integration of AMI/Scada-Mate switches/OMS
23			383	OMS Modules			0	60	50			Adding OMS modules: FY20 - crew management module; FY21 - power factor correction module
24			383	IVR			138					Adding IVR to OMS
25			383	CapBank Automation			66	30	30	30	30	Adding feeder cap banks and making them SCADA controlled
26	47	105	362/ 367	New Wilmington Substation	650	267	151	4,572	4,465	730	730	Conceptual design, land, appraisals, substation and getaways.
27	49	123	364/ 365	Ballardvale Street, Wilmington - Pole Line Upgrade			225	225				Upgrade 8,000 circuit feet (5W9) to 556 spacer (2 circuits x 4,000 feet) and upgrade to 30 poles to accommodate reconductor upgrade and provide added space on pole line for up to two (2) additional feeders from proposed Wilmington substation.
28	n/a	TBD	364/ 365	Upton Drive - Pole Upgrade for Proposed Wilmington Substation/Related Improvements						173	173	Upgrade 4,000 circuit feet to 556 spacer and upgrade roughly 30 poles to accommodate the reconductor upgrade and provide added space on pole line for up to four additional future feeders from proposed Wilmington Substation.
29	na	TBD	362/ 365	Industrial Way Reconfiguration						1,000	1,000	Load redistribution Industrial Way/Analog
30	n/a	TBD	364/ 365	New Wilmington Sub to Salem Street/Middlesex Feed							450	Install 8,500 circuit feet of 556 spacer cable. The majority of pole upgrades to accommodate this feeder should have been completed during Ballardvale Street upgrades. This feeder will go from Ballardvale Street to the Salem Street / Middlesex Avenue intersection.
31	n/a	TBD	364/ 365	New Wilmington Sub to Andover Street Feeder, pick-up 3W5							225	Install 4,000 circuit feet of 556 spacer cable. The majority of pole upgrades to accommodate this feeder should have been completed during Upton Street upgrades. This feeder will go from Upton Drive to Andover Street.
32	51	TBD	364/ 365	Force Account (MassDOT): Main & Hopkins, R			225					Mass DOT project to widen Main Street and install traffic lights.

READING MUNICIPAL LIGHT DEPARTMENT  
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LINE #	PG #	Project #	FERC #	PROJECT NAME	FY18 Budget	FY18 Estimate	FY19 PLAN EST.	FY20	FY21	FY22	FY23	BRIEF DESCRIPTION
33	53	122	364/367	4W5 Getaway Replacement - Station 4			152					Station 4: Upgrade approximately 1,600 circuit feet of UG cable on West Street, R to 750 mcm cu for increased reliability and capacity.
34	55	132	364/367	4W6 Getaway Replacement - Station 4			157					Station 4: Upgrade approximately 1,700 circuit feet of UG cable on West Street, R to 750 mcm cu for increased reliability and capacity per Booth Reliability Study recommendations.
35	57	135	364/367	4W16 Getaway Replacement - Station 4			206					Station 4: Upgrade approximately 2,250 circuit feet of underground cable on Causeway Road/Lowell Street to 750 mcm cu for increased reliability and capacity.
36	59	112	370	AMI Mesh Network Expansion	120	120	121	150	150	150	150	Install relays, meters, and retrofit kits to expand the AMI mesh network. This will allow for end-of-the-line voltage readings.
37	61	126	397	Communication Equipment (Fiber Optic)	215	100	49	50	50	50	50	Materials to accommodate expanded use of fiber optic network for distribution automation and Eaton AMI system. In FY19 we will add approximately 12 nodes to the distribution automation fiber loop to expand communications options for substations and automation devices.
38	63	111	362	Substation Equipment Upgrade	50	40	50	30	30	30	30	Upgrade various equipment at substations to include TLC controls, remote racking devices, cable trays and various minor items. FY18: 35 kV insulators at Station 4 replaced. FY19: Remote racking device for breakers at Station 3.
39	65	115	395	Power/Lab and Tool Equipment			76	58	68	20	20	Purchase phasing meter/hi-pot - six units; meter accuracy tester; resistance tester (for substations); four point battery hydraulic press (2 units)
40	67	117	370	Meters	60	50	60	60	60	60	60	Purchase meters for stock - new construction, upgrades and failures.
41	69	116	368	Transformers and Capacitors	561	561	583	595	612	631	630	Purchase units for stock, new construction and proposed reliability projects.
42	71	175	364	Pole Replacement Program	209	209	263	222	229	235	235	Replace poles identified through the Pole Inspection Program (700 poles/year inspected). This will include transfers and replacement of secondary services as necessary. Fifty poles scheduled for replacement each year.
43	73	458	365	Secondary and Main Replacement Program	222	222	344	252	238	344	316	Repair as necessary secondary/main services and connectors prioritized by age as determined by system-wide inspection. FY19: Gerry Road and Drury Lane Area, LC, and Thomas Road Area, LC (in conjunction with Stepdown area upgrades)
44	77	107	365	13.8kV Upgrade (Step-down Area, etc.) - All Towns	71	71	331	452	216	613	367	Convert step-down areas to 13.8kV. Remove antiquated equipment and step-downs to lower losses and improve system efficiency. FY19: Gerry Road and Drury Lane Area, LC, and Thomas Road Area, LC (in conjunction with Secondary and Main Replacement Program)
45	81	106	367/368	UG Facilities Upgrades (URDs, Manholes, etc.) - All Towns	345	345	332	475	529	501	623	Replace primary and neutral cables and pad-ount transformers as needed in various aging URDs. Improved reliability. For the next five years, three subdivisions are planned to be upgraded per year. FY19: Arlene/Ella/Franklin area in Wilmington; Carter/Willard area in Lynnfield; and Sandspur Lane in North Reading.
46	85	various	369	Service Connections (Residential and Commercial)	156	150	142	165	170	176	200	Install new and upgraded residential and commercial services as requested.
47	87	various	various	Routine Construction	1,044	1,044	1,078	1,107	1,141	1,175	1,200	Miscellaneous capital expenses including: overhead and underground system upgrades, pole hits, station upgrades, porcelain cutout replacements, street light connections (new equipment), pole setting/transfers, new construction (underground divisions)
48	n/a		364/365	5W9 Reconductoring - Ballardvale Area, Wilmington				515	567			Upgrade to 556 spacer for capacity feeding Ballardvale area (Target).
49	n/a		364/365	4W23 Getaway Upgrade to 795				60	165			Station 4: Upgrade main feeder to Circuit 4W23 to 795 to address voltage and conductor capacity issues (1.1 miles)
50	n/a		364/365	4W24 Partial Circuit Reconductoring (Upgrade 4W24 to 795)				328	328			Station 4: Upgrade main feeder of Circuit 4W24 to 556 to address voltage and conductor capacity issues (1.5 miles)
51	n/a		364/365	5W5 Reconductoring - Wildwood to Upton Drive					214	214	214	Station 5: Upgrade 25,000 overhead circuit feet of 336 spacer cable on Wildwood, Woburn, and Andover Streets to 556 spacer cable.
52	n/a		367	4W28 Getaway Replacement						316		Station 4: Replace 3,400 feet of underground getaway to 750 mcm cu for increased reliability.
53	n/a		364/365	5W4/5W5 Getaway Replacement						119		Station 5: Upgrade feeders from substation to risers to increase feeders' ampacity.
54	n/a		367	4W7 Getaway Replacement							177	Station 4: Replace 1,900 feet of underground getaway to 750 mcm cu for increased reliability.
55	n/a		367	4W10 Getaway Replacement							177	Station 4: Replace 1,900 feet of underground getaway to 750 mcm cu for increased reliability.
56	n/a	096	390	Control Center Modifications		125						Modify the physical arrangement of the existing Control Center in order to meet grid modernization-optimization.
57	n/a	097	394	Power Washer and Vacuum	20	20						Replace power wash system in garage; add vacuum system.

READING MUNICIPAL LIGHT DEPARTMENT  
Capital Improvements FY18 thru FY23  
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LINE #	PG #	Project #	FERC #	PROJECT NAME	FY18 Budget	FY18 Estimate	FY19 PLAN EST.	FY20	FY21	FY22	FY23	BRIEF DESCRIPTION
58	n/a	121	383	Remote SCADA Room	75	50						NERC - SCADA redundancy - to be located at Station 3.
59	n/a	125	383	GIS	219	380						GIS model required data integrity and quality inspection, as well as comprehensive data collection.
60	n/a	138	362	Station 3 Reactors	561	325						Install two sets of reactors to lower fault current and incident energy or ARC flash at Station 3 per Booth Reliability Study recommendation.
61	n/a	133	362	Station 3: Relay Upgrades and SCADA Integration	76	21						Upgrade of SEL 351 relays to SEL 351-7 to enhance data delivery to SCADA.
62	n/a	130	362	Remote Terminal Unit (RTU) Replacement - Station 3		27						Upgrade RTU to add functionality of the existing SEL relays. RTU will be IP addressable and will include Ethernet connection for RMLD and NSTAR connection.
63	n/a	110	367	4W9 Getaway Replacement - Station 4		132						Upgrade 2,850 circuit feet of UG cable on Causeway Road and Lowell Street, R, with 750 MCM cu for increased reliability and capacity.
64	n/a	131	373	LED Street Light Implementation - All Towns	1,169	940						Full implementation. On target for completion by the end of FY18. Price of lights reduced. Labor costs increased for FY18 to include expense portion of project. Approximately 8,800 lights/ \$125k grant.
		TOTAL			7,686	8,009	7,570	11,510	11,017	8,313	8,463	

**READING MUNICIPAL LIGHT DEPARTMENT**  
**Capital Improvements FY18 thru FY23**  
**\$ Shown in thousands**

	FY18 Budget	FY18 Estimate	FY19 PLAN EST.	FY20	FY21	FY22	FY23
<b>TABLE 1: PLANT VALUES &amp; DEPRECIATION EXPENSE:</b>							
Plant in Service (Beginning)	146,671	144,799	151,808	158,379	168,889	178,906	186,219
Additions	<b>7,686</b>	<b>8,009</b>	<b>7,570</b>	<b>11,510</b>	<b>11,017</b>	<b>8,313</b>	<b>8,463</b>
Adjustments (Property Retirement)	-1,000	-1,000	-1,000	-1,000	-1,000	-1,000	-1,000
Plant in Service (Ending)	153,356	151,808	158,379	168,889	178,906	186,219	193,682
Less Land and Land Rights	-1,266	-1,266	-1,266	-1,266	-1,266	-1,266	-1,266
Depreciable Plant in Service	152,090	150,542	157,113	167,623	177,640	184,953	192,416
Accumulated Reserve For Depreciation	-74,237	-72,994	-77,510	-82,224	-87,252	-92,581	-98,130
Net Plant in Service	<u>79,119</u>	<u>78,814</u>	<u>80,869</u>	<u>86,665</u>	<u>91,654</u>	<u>93,638</u>	<u>95,552</u>
<b>TABLE 2: DEPRECIATION FUND BALANCES:</b>							
Beginning Balance	767	2,407	2,450	3,523	4,530	2,924	2,250
Depreciation Rate (3%)	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Depreciation Expense	4,362	4,306	4,516	4,713	5,029	5,329	5,549
Bond Proceeds and Other Fund Sources	650	46	228	4,804	2,003	0	0
Operating Fund Transfer	<u>2,500</u>	<u>3,700</u>	<u>3,900</u>	<u>3,000</u>	<u>2,379</u>	<u>2,310</u>	<u>1,794</u>
	8,285	10,459	11,094	16,041	13,941	10,563	9,593
Capital Improvement	-7,686	-8,009	-7,570	-11,510	-11,017	-8,313	-8,463
Ending Balance	<u>600</u>	<u>2,450</u>	<u>3,523</u>	<u>4,530</u>	<u>2,924</u>	<u>2,250</u>	<u>1,130</u>
<b>TABLE 3: BOND PROCEEDS &amp; OTHER FUND SOURCES:</b>							
Bond Proceeds for New Wilmington Substation	650			4,801	2,000		
<b>Force Account (MassDOT): Main &amp; Hopkins, R</b>			<b>225</b>				
Electric Vehicle Supply Equipment (EVSE)		3	3	3	3		
Mass DOT (Highway) West Street	-	43	-	-	-	-	-
	<u>650</u>	<u>46</u>	<u>228</u>	<u>4,804</u>	<u>2,003</u>	<u>0</u>	<u>0</u>

<b>REIMBURSEABLE JOBS:</b>	
DOER Grants Available: Electric Vehicle (FY18)	3
MASS DOT: West Street, R (FY17/18)	307
Mass DOER Grant: LED Streetlights (FY15/17)	125
<b>Force Account(MassDOT): Main &amp; Hopkins, R</b>	<b>225</b>

## CAPITAL PROJECT SUMMARY

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**Project Name:** RMLD Lighting (LED) Upgrade Program

**Project #:** 104

**Project Schedule:** FY18-19

**Project Manager:** Paul McGonagle,  
Facilities Manager

**Reason for Expenditure:**

Upgrade the existing lighting at 230 Ash Street, 218 Ash Street, and the substations with new LED fixtures. Energy use will be reduced when switching to LED. This will include interior and exterior light fixtures at the Ash Street campus, including all office spaces, the garage and bay area, and all lighting at the substations.

**Brief Description/Scope:**

FY18 A professional electrical engineering firm to design and develop specifications for LED lighting upgrade project. Electrical contractor will be hired to replace existing fixtures with LED retrofits as per electrical engineering recommendation. Work will begin at 230 Ash Street office facilities.

FY19 Work will continue to replace existing interior and exterior light fixtures at all sites as described above.

**Barriers:**

None anticipated at this time.

**Change in Scope of Work From Prior Fiscal Year:**

The scope includes the installation of new fixtures by an electrical contractor.

**Status Update:**

Not applicable.

## CAPITAL PROJECT COST SHEET

**PROJECT NAME:** RMLD Lighting (LED) Upgrade Program

**SCHEDULE:** FY18-19

ITEM/TASK	RMLD LABOR					MATERIALS/CONTRACTORS				
	# of Units		Labor Total (unit rate x labor units)		Vehicle (labor units x vehicle rate)	DESCRIPTION	Unit	Unit Rate	# of Units	TOTAL
	Straight Time	OT	Straight Time	Overtime						
Line Department: 2-man crew - unit rate in weeks			\$6,455	\$6,267	\$920					
			\$0	\$0	\$0	Engineering and design (contractor)				\$ 8,000
			\$0	\$0	\$0	Electrical contractor				\$ 25,000
			\$0	\$0	\$0	LED fixtures and materials				\$ 92,000
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
Line Operations Supervision: unit rate in hours			\$106	\$103	\$21					
			\$0	\$0	\$0					\$ -
Engineering: unit rate in hours			\$80	\$78	\$21					\$ -
			\$0	\$0	\$0					\$ -
										\$ -
Senior Tech: unit rate in hours			\$82	\$80	\$21					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
Technical Services Manager: unit rate in hours			\$101	\$98	\$21					\$ -
			\$0	\$0	\$0					\$ -
						Police Details	week	\$2,427		\$ -
<b>TOTAL:</b>			<b>\$0</b>	<b>\$0</b>	<b>\$0</b>					<b>\$ 125,000</b>

<b>PROJECT TOTAL:</b>	<b>\$125,000</b>
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## CAPITAL PROJECT SUMMARY

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**Project Name:** Parking Lot Upgrade at Ash Street      **Project #:** 140

**Project Schedule:** FY18-19      **Project Manager:** Paul McGonagle,  
Facilities Manager

**Reason for Expenditure:**

RMLD is planning to install additional electrical vehicle charging stations at the Ash Street facility. The parking lot area is to be expanded and reconfigured to accommodate the installation of these charging stations. RMLD will install one charging station in this newly reconfigured area in FY19.

**Brief Description/Scope:**

A professional engineering firm to develop construction drawings and bid documents for the construction of the parking lot, installation of conduit and wiring to accommodate future installation of additional charging stations, landscaping, line striping, and signage. A contractor will be hired to do the parking lot construction.

**Barriers:**

Unforeseen schedule changes.

**Change in Scope of Work From Prior Fiscal Year: Increase (Decrease)**

Not applicable.

**Status Update From Prior Fiscal Year:**

Not applicable.

## CAPITAL PROJECT COST SHEET

**PROJECT NAME:** Parking Lot Upgrade at 230 Ash Street

**SCHEDULE:** FY18-19

ITEM/TASK	RMLD LABOR					MATERIALS/CONTRACTORS				
	# of Units		Labor Total (unit rate x labor units)		Vehicle (labor units x vehicle rate)	DESCRIPTION	Unit	Unit Rate	# of Units	TOTAL
	Straight Time	OT	Straight Time	Overtime						
Line Department: 2-man crew - unit rate in weeks			\$6,455	\$6,267	\$920					
			\$0	\$0	\$0	Engineering and design				\$ 30,000
			\$0	\$0	\$0	Construction				\$ 130,000
			\$0	\$0	\$0	Installation of conduit and wiring for charging stations (to accommodate future expansion)				\$ 20,000
			\$0	\$0	\$0	Line Striping				\$ 4,000
			\$0	\$0	\$0	Landscaping				\$ 36,000
			\$0	\$0	\$0	Electric Vehicle Charging Station				\$ 10,000
Line Operations Supervision: unit rate in hours			\$106	\$103	\$21					
			\$0	\$0	\$0					\$ -
Engineering: unit rate in hours			\$80	\$78	\$21					\$ -
			\$0	\$0	\$0					\$ -
										\$ -
Senior Tech: unit rate in hours			\$82	\$80	\$21					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
Technical Services Manager: unit rate in hours			\$101	\$98	\$21					\$ -
			\$0	\$0	\$0					\$ -
						Police Details	week	\$2,427		\$ -
<b>TOTAL:</b>			<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$ 230,000</b>				

<b>PROJECT TOTAL:</b>	<b>\$230,000</b>
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## CAPITAL PROJECT SUMMARY

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**Project Name:** Office Upgrades – 230 Ash Street

**Project #:** 098

**Project Schedule:** Annual

**Project Manager:** Paul McGonagle,  
Facilities Manager

**Reason for Expenditure:**

Annual allotment for general office upgrades at 230 Ash Street.

**Brief Description/Scope:**

In FY19, upgrade the Integrated Resources Division area in order to accommodate increased staffing. The room that was formerly a computer repair room needs to be repurposed to an office. Remodel will include modification to the walls, ceilings, flooring, electrical, sprinkler and HVAC. Office cubicle furniture will be purchased to accommodate new employees.

**Barriers:**

None anticipated at this time.

**Change in Scope of Work From Prior Fiscal Year:**

Not applicable.

**Status Update:**

Not applicable.

## CAPITAL PROJECT COST SHEET

**PROJECT NAME:** Office Upgrades - 230 Ash Street

**SCHEDULE:** FY19

ITEM/TASK	RMLD LABOR					MATERIALS/CONTRACTORS				
	# of Units		Labor Total (unit rate x labor units)		Vehicle (labor units x vehicle rate)	DESCRIPTION	Unit	Unit Rate	# of Units	TOTAL
	Straight Time	OT	Straight Time	Overtime						
Line Department: 2-man crew - unit rate in weeks			\$6,455	\$6,267	\$920					
			\$0	\$0	\$0	Contractor to remodel IRD				\$ 26,000
			\$0	\$0	\$0	Cubicles for IRD				\$ 4,000
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
Line Operations Supervision: unit rate in hours			\$106	\$103	\$21					
			\$0	\$0	\$0					\$ -
Engineering: unit rate in hours			\$80	\$78	\$21					\$ -
			\$0	\$0	\$0					\$ -
										\$ -
Senior Tech: unit rate in hours			\$82	\$80	\$21					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
Technical Services Manager: unit rate in hours			\$101	\$98	\$21					\$ -
			\$0	\$0	\$0					\$ -
						Police Details	week	\$2,427		\$ -
<b>TOTAL:</b>			<b>\$0</b>	<b>\$0</b>	<b>\$0</b>					<b>\$ 30,000</b>

<b>PROJECT TOTAL:</b>	<b>\$30,000</b>
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## CAPITAL PROJECT SUMMARY

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**Project Name:** Security System Upgrades – All Sites      **Project #:** 119

**Project Schedule:** Annual      **Project Manager:** Paul McGonagle,  
Facilities Manager

**Reason for Expenditure:**

The original access control system was installed in 1994 and was replaced in 2016 with a new open-source software system to provide more flexibility to adapt to the changing needs of the RMLD. Funds should be available to continually update equipment and perform maintenance and repair work on both the access control and the surveillance systems at the Ash Street campus and substations.

**Brief Description/Scope:**

Access control and surveillance systems upgrades over the next five (5) years:

- Add security fencing to server room
- Repair and replace card readers annually as needed
- Upgrade a portion of high-definition cameras annually as needed
- Upgrade cabling
- Repair/replace site lighting
- Re-key buildings and sensitive areas annually as needed

**Barriers:**

None anticipated at this time.

**Change in Scope of Work from Prior Fiscal Year:**

Not applicable.

**Status Update:**

Not applicable.

## CAPITAL PROJECT COST SHEET

**PROJECT NAME:** Security Upgrades - All Sites

**SCHEDULE:** FY19

ITEM/TASK	RMLD LABOR					MATERIALS/CONTRACTORS				
	# of Units		Labor Total (unit rate x labor units)		Vehicle (labor units x vehicle rate)	DESCRIPTION	Unit	Unit Rate	# of Units	TOTAL
	Straight Time	OT	Straight Time	Overtime						
Line Department: 2-man crew - unit rate in weeks			\$6,455	\$6,267	\$920					
			\$0	\$0	\$0	Upgrade security equipment, card readers, cameras, lighting, fences, etc.				\$ 30,000
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
Line Operations Supervision: unit rate in hours			\$106	\$103	\$21					
			\$0	\$0	\$0					\$ -
Engineering: unit rate in hours			\$80	\$78	\$21					\$ -
			\$0	\$0	\$0					\$ -
										\$ -
Senior Tech: unit rate in hours			\$82	\$80	\$21					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					
Technical Services Manager: unit rate in hours			\$101	\$98	\$21					\$ -
			\$0	\$0	\$0					\$ -
						Police Details	week	\$2,427		\$ -
<b>TOTAL:</b>			<b>\$0</b>	<b>\$0</b>	<b>\$0</b>					<b>\$ 30,000</b>

**PROJECT TOTAL: \$30,000**

## CAPITAL PROJECT SUMMARY

---

**Project Name:** Rolling Stock Replacement

**Project #:** 118

**Project Schedule:** Annual

**Project Manager:** Paul McGonagle,  
Facilities Manager

**Reason for Expenditure:**

Replace vehicles based on an eight to ten-year cycle to reduce maintenance costs and improve reliability. Vehicles removed from the fleet will be disposed of under RMLD Policy No. 2 "Surplus Material."

**Brief Description/Scope:**

Specifications, bids, and purchase orders will be completed for FY19 delivery of the following:

- one (1) new forklift with trade-in of one (1) 1999 Yale forklift
- one (1) new pick-up truck with trade-in of one (1) 2009 Ford F150
- one (1) new underground utility vehicle with trade-in of one (1) Ford E350

**Barriers:**

None anticipated at this time.

**Change in Scope of Work from Prior Fiscal Year: Increase (Decrease)**

Not applicable.

**Status Update:**

Not applicable.

## CAPITAL PROJECT COST SHEET

**PROJECT NAME:** Rolling Stock Replacement  
(vehicles, trailers, fork trucks)

**SCHEDULE:** FY19

ITEM/TASK	RMLD LABOR					MATERIALS/CONTRACTORS				
	# of Units		Labor Total (unit rate x labor units)		Vehicle (labor units x vehicle rate)	DESCRIPTION	Unit	Unit Rate	# of Units	TOTAL
	Straight Time	OT	Straight Time	Overtime						
Line Department: 2-man crew - unit rate in weeks			\$6,455	\$6,267	\$920					
			\$0	\$0	\$0	Forklift	each	\$25,000	1.0	\$ 25,000
			\$0	\$0	\$0	Light duty pick-up truck	each	\$50,000	1.0	\$ 50,000
			\$0	\$0	\$0	Underground Utility Vehicle	each	\$200,000	1.0	\$ 200,000
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
Line Operations Supervision: unit rate in hours			\$106	\$103	\$21					
			\$0	\$0	\$0					\$ -
Engineering: unit rate in hours			\$80	\$78	\$21					\$ -
			\$0	\$0	\$0					\$ -
										\$ -
Senior Tech: unit rate in hours			\$82	\$80	\$21					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
Technical Services Manager: unit rate in hours			\$101	\$98	\$21					\$ -
			\$0	\$0	\$0					\$ -
						Police Details	week	\$2,427		\$ -
<b>TOTAL:</b>			<b>\$0</b>	<b>\$0</b>	<b>\$0</b>					<b>\$ 275,000</b>

<b>PROJECT TOTAL:</b>	<b>\$275,000</b>
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### Light Duty Vehicles

Vehicle ID #	Year	Last Mileage Date	Current Mileage	Average Annual Maintenance Costs 2008-present	Department	Vehicle Type	FY 18	FY 19
7	2007	3/10/17	123,077	\$1,927.12	Customer Service	Ford Escape	<u>Trade/54</u>	
47	2009	3/10/17	128,208	\$2,031.24	Engineering	Ford F-150 PU		<u>Trade/56</u>
28	2007	3/10/17	40,026	\$1,302.27	Line	Ford E-350		<u>Trade/58</u>
New (54) Electric	2018	X	X	X	Customer Service	All Electric Vehicle	\$30,000.00	
New (56)	2018	X	X	X	Engineering	Pick up Truck		\$50,000.00
New (58)	2018	X	X	X	Line	Underground Utility Vehicle		\$200,000.00

### Heavy Duty Line Trucks

Vehicle ID #	Year	Last Mileage Date	Current Mileage	Average Annual Maintenance Costs 2008-present	Department	Vehicle Type	FY 18	FY 18
9	2010	3/10/17	119,506	\$10,363.61	Line	Inter - 40' Bucket	<u>Trade/55</u>	
New (55)	2018	X	X	X	Line	Inter - 40'Bucket	\$200,000.00	

### Fork Lift

Vehicle ID #	Year	Last Hour Date	Current Hours	Average Annual Maintenance Costs 2009-present	Department	Vehicle Type	FY 18	FY 19
FI-1	1999	3/10/17	772.5	0	Stock / Line / Station	Yale Fork Truck		<u>Trade/FT5</u>
New (FT-5)	2018	X	X	X	Stock / Line / Station	Fork Truck	X	\$25,000.00
FY Totals:							<u>\$230,000.00</u>	<u>\$275,000.00</u>
							FY 18	FY 19



## CAPITAL PROJECT SUMMARY

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**Project Name:** Electric Vehicle Supply Equipment (EVSE) **Project #:** 099

**Project Schedule:** FY18-21 **Project Manager:** Jane Parenteau, Director of Integrated Resources

**Reason for Expenditure:**

RMLD will plan to install EVSEs in each of the four towns in the service territory. This will increase RMLD's kWh sales.

**Brief Description/Scope:**

Each EVSE is a dual charger. RMLD will work with each town to determine interest in locating a unit within the town and the appropriate location. RMLD will plan to install one EVSE per year.

**Barriers:**

None anticipated at this time.

**Change in Scope of Work From Prior Fiscal Year:**

Not applicable.

**Status Update:**

In FY18 RMLD installed the first EVSE at the RMLD offices located at 230 Ash Street, Reading.

## CAPITAL PROJECT COST SHEET

**PROJECT NAME:** Electrical Vehicle Supply Equipment (EVSE)

**SCHEDULE:** FY19

ITEM/TASK	RMLD LABOR					MATERIALS/CONTRACTORS				
	# of Units		Labor Total (unit rate x labor units)		Vehicle (labor units x vehicle rate)	DESCRIPTION	Unit	Unit Rate	# of Units	TOTAL
	Straight Time	OT	Straight Time	Overtime						
Line Department: 2-man crew - unit rate in weeks			\$6,455	\$6,267	\$920					
			\$0	\$0	\$0	One EVSE for installation in RMLD service territory.	each	\$10,000	1.0	\$ 10,000
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
Line Operations Supervision: unit rate in hours			\$106	\$103	\$21					
			\$0	\$0	\$0					\$ -
Engineering: unit rate in hours			\$80	\$78	\$21					\$ -
			\$0	\$0	\$0					\$ -
										\$ -
Senior Tech: unit rate in hours			\$82	\$80	\$21					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					
Technical Services Manager: unit rate in hours			\$101	\$98	\$21					\$ -
			\$0	\$0	\$0					\$ -
						Police Details	week	\$2,427		\$ -
<b>TOTAL:</b>			<b>\$0</b>	<b>\$0</b>	<b>\$0</b>					<b>\$ 10,000</b>

<b>PROJECT TOTAL:</b>	<b>\$10,000</b>
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## CAPITAL PROJECT SUMMARY

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**Project Name:** Battery Storage (Station 3, NR)

**Project #:** 101

**Project Schedule:** FY19

**Project Manager:** Tom Ollila, Integrated  
Resources Engineer

**Reason for Expenditure:**

RMLD has been awarded a three-year, \$1m grant from Mass Department of Energy Resources (DOER) to install a 5 MW (10 MWh) grid scale energy storage system at the North Reading substation to provide peak shaving services. The goal for commercial operation date is December 15, 2018. Project contracts, license agreements, system impact study, etc., are now underway or in negotiations. An amount of \$100,000 has been allocated to the Capital Budget for substation integration into battery unit.

**Brief Description/Scope:**

To be determined.

**Barriers:**

None anticipated at this time.

**Change in Scope of Work From Prior Fiscal Year: Increase (Decrease)**

Not applicable

**Status Update From Prior Fiscal Year:**

Not applicable



## CAPITAL PROJECT SUMMARY

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**Project Name:** Hardware Upgrades

**Project #:** 127

**Project Schedule:** Annual

**Project Manager:** Mark Uvanni, IT Manager

**Reason for Expenditure:**

This is an amount annually reserved for failed and/or obsolete computer and related equipment. This budget item is also used for unforeseen purchases, which may be necessary.

**Brief Description/Scope:**

In addition to the standard hardware purchases described above, we anticipate the following:

- EMC SAN Unity 300 to replace VNXe3150 that has reached end of life (per EMC).
- Network updates to wireless mesh.
- Network updates to accommodate feeders.
- EMC Data Domain DD2200 to replace current DD160 that will reach end of life (per EMC).

**Barriers:**

None anticipated at this time.

**Change in Scope of Work From Prior Fiscal Year:**

Not applicable.

**Status Update:**

Not applicable.

## CAPITAL PROJECT COST SHEET

**PROJECT NAME:** Hardware Upgrades

**SCHEDULE:** FY19

ITEM/TASK	RMLD LABOR					MATERIALS/CONTRACTORS				
	# of Units		Labor Total (unit rate x labor units)		Vehicle (labor units x vehicle rate)	DESCRIPTION	Unit	Unit Rate	# of Units	TOTAL
	Straight Time	OT	Straight Time	Overtime						
Line Department: 2-man crew - unit rate in weeks			\$6,455	\$6,267	\$920					
			\$0	\$0	\$0	General hardware purchases				\$ 70,000
			\$0	\$0	\$0	EMC SAN Unity 300 to replace VNXe3150				\$ 26,000
			\$0	\$0	\$0	Network updates to wireless mesh				\$ 8,000
			\$0	\$0	\$0	Network updates (to accomodate feeders)				\$ 5,000
			\$0	\$0	\$0	EMC DD2200 Data Domain				\$ 16,000
			\$0	\$0	\$0					\$ -
Line Operations Supervision: unit rate in hours			\$106	\$103	\$21					
			\$0	\$0	\$0					\$ -
Engineering: unit rate in hours			\$80	\$78	\$21					\$ -
			\$0	\$0	\$0					\$ -
										\$ -
Senior Tech: unit rate in hours			\$82	\$80	\$21					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
Technical Services Manager: unit rate in hours			\$101	\$98	\$21					\$ -
			\$0	\$0	\$0					\$ -
						Police Details	week	\$2,427		\$ -
<b>TOTAL:</b>			<b>\$0</b>	<b>\$0</b>	<b>\$0</b>					<b>\$ 125,000</b>

<b>PROJECT TOTAL:</b>	<b>\$125,000</b>
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## CAPITAL PROJECT SUMMARY

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**Project Name:** Software and Licensing

**Project #:** 128

**Project Schedule:** Annual

**Project Manager:** Mark Uvanni, IT Manager

**Reason for Expenditure:**

Each year RMLD must renew existing software licenses and purchase new software, either to update existing users or for new users. Additionally, new software may be added at the request of various operating units. This item includes these ad hoc purchases as well as more specific items (outlined below) which are anticipated at this time.

**Brief Description/Scope:**

In addition to the standard software and licensing purchases described above, we anticipate the following:

- Custom programming/development for GIS/GPS, OM/fixed network, continued CIS integration.
- Substation asset management software to track and trend RMLD's substation assets testing and maintenance. This software could also provide mobile deployment of tablets to upload test results.
- Microsoft Great Plains Work Order Management System. This is fully integrated with our existing ERP software and fully integrated to ESRI GIS. The software is provided by Harris Corp (Cogsdale) and installed by them as well. This will be a two-year project, with \$75,000 budgeted each year (FY19 and FY20).
- SharePoint needs to be completely re-built with Microsoft's "modern" design tools. All groups and security levels needs to be modified. This requires specific expertise with SharePoint.

**Barriers:**

None anticipated at this time.

**Change in Scope of Work From Prior Fiscal Year:**

Not applicable.

**Status Update:**

Not applicable.

## CAPITAL PROJECT COST SHEET

**PROJECT NAME:** Software and Licensing

**SCHEDULE:** FY19

ITEM/TASK	RMLD LABOR					MATERIALS/CONTRACTORS				
	# of Units		Labor Total (unit rate x labor units)		Vehicle (labor units x vehicle rate)	DESCRIPTION	Unit	Unit Rate	# of Units	TOTAL
	Straight Time	OT	Straight Time	Overtime						
<b>Line Department:</b> <b>2-man crew - unit rate in weeks</b>			\$6,455	\$6,267	\$920					
			\$0	\$0	\$0	General software purchases				\$ 50,000
			\$0	\$0	\$0	Custom programming/development				\$ 200,000
			\$0	\$0	\$0	Substation Asset Management Software				\$ 80,000
			\$0	\$0	\$0	Microsoft Great Plains Work Order Management (\$150k total; \$75K FY19 and \$75K FY20)				\$ 75,000
			\$0	\$0	\$0	Re-design SharePoint				\$ 20,000
			\$0	\$0	\$0					\$ -
<b>Line Operations Supervision:</b> <b>unit rate in hours</b>			\$106	\$103	\$21					
Supervision of Line crews			\$0	\$0	\$0					\$ -
<b>Engineering:</b> <b>unit rate in hours</b>			\$80	\$78	\$21					\$ -
Pole Foreman, 605As, construction drawings, switching orders, etc.			\$0	\$0	\$0					\$ -
										\$ -
<b>Senior Tech:</b> <b>unit rate in hours</b>			\$82	\$80	\$21					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
<b>Technical Services Manager:</b> <b>unit rate in hours</b>			\$101	\$98	\$21					\$ -
			\$0	\$0	\$0					\$ -
						Police Details	week	\$2,427		\$ -
<b>TOTAL:</b>			<b>\$0</b>	<b>\$0</b>	<b>\$0</b>					<b>\$ 425,000</b>

<b>PROJECT TOTAL:</b>	<b>\$425,000</b>
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## CAPITAL PROJECT SUMMARY

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**Project Name:** Woburn Street (West Street to Concord Street) W Pole Line Upgrade **Project #:** 137

**Project Schedule:** FY18-19 **Project Manager:** John McDonagh,  
General Line Foreman

**Reason for Expenditure:**

The pole line on Woburn Street, Wilmington, between Concord Street and West Street currently has three (3) spacer cable circuits. These poles are under-sized, under-classed, and over 30 years old. This project will upgrade the poles to the proper strength and height class, create the proper NESC clearances between utilities and benefit the long-term reliability of the system.

**Brief Description/Scope:**

Replace approximately twenty-four (24) main line poles with 55' poles and four (4) stub poles with 40' poles along a section of Woburn Street in Wilmington between Concord Street and West Street. Frame poles with new hardware and transfer the three (3) spacer cable circuits, replace five (5) transformers, transfer one (1) primary lateral, reconductor with secondary cable, transfer/replace 32 services, and 14 street lights. Street lights will be changed to LEDs (as part of the LED Upgrade Project).

**Barriers:**

Although this is a Verizon set area, RMLD will set the poles because this project requires 55' poles.

**Change in Scope of Work From Prior Fiscal Year:**

Not applicable.

**Status Update:**

Not applicable.

## CAPITAL PROJECT COST SHEET

**PROJECT NAME:** Woburn Street, W (West Street to Concord Street),  
Pole Line Upgrade

**SCHEDULE:** FY18 -FY19

ITEM/TASK	RMLD LABOR					MATERIALS/CONTRACTORS				
	# of Units		Labor Total (unit rate x labor units)		Vehicle (labor units x vehicle rate)	DESCRIPTION	Unit	Unit Rate	# of Units	TOTAL
	Straight Time	OT	Straight Time	Overtime						
<b>Line Department: 2-man crew - unit rate in weeks</b>			\$6,455	\$6,267	\$920					
Set (24) 55' class 1 poles and (4) 40' poles. Frame 28 poles	18	3	\$116,194	\$18,800	\$19,320	55' poles	each	\$800.00	28.0	\$ 22,400
						40' poles	each	\$400.00	4.0	\$ 1,600
Transfer (28) poles/three circuits	9	3	\$58,097	\$18,800	\$11,040	Miscellaneous hardware	per pole	\$800.00	28.0	\$ 22,400
Install five (5) transformers	1	1	\$6,455	\$6,267	\$1,840					
Install 3,000' of 4/O-3C secondary main	3		\$19,366	\$0	\$2,760	4/O secondary main triplex AAAC	foot	\$1.23	3000.0	\$ 3,690
Install new services (approximately 32)	2		\$12,910	\$0	\$1,840	1/O service triples AAAC	foot	\$0.90	3200.0	\$ 2,880
										\$ -
<b>Line Operations Supervision: unit rate in hours</b>			\$106	\$103						
Supervision of Line crews	100	32	\$10,578	\$3,286						\$ -
<b>Engineering: unit rate in hours</b>			\$80	\$78						\$ -
Switching and off hours outages for cutovers.	40	40	\$3,205	\$3,111		Contract engineering services for pole line design	design	\$9,300	1.0	\$ 9,300
			\$0	\$0						\$ -
<b>Senior Tech: unit rate in hours</b>			\$82	\$80	\$21					\$ -
Switching as needed	8		\$657	\$0	\$168					\$ -
			\$0	\$0	\$0					
<b>Technical Services Manager: unit rate in hours</b>			\$101	\$98						\$ -
			\$0	\$0						\$ -
						Police Details	week	\$2,427	20.0	\$ 48,550
<b>TOTAL:</b>			<b>\$227,463</b>	<b>\$50,265</b>	<b>\$36,968</b>					<b>\$ 110,820</b>

**PROJECT TOTAL: \$425,516**

## CAPITAL PROJECT SUMMARY

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**Project Name:** 115kV Transmission Pole Upgrade, R

**Project #:** 108

**Project Schedule:** FY18-19

**Project Manager:** John McDonagh,  
General Line Foreman

**Reason for Expenditure:**

The transmission lines that feed Station 4 were built in 1970. The poles, davit arms, insulators, guys, etc., are reaching their end of life and in need of replacement/upgrade. PLM has done a design to bring the poles and hardware up to today's standards. The 211-503 was completed in FY18. The 211-504 line will be completed in FY19.

**Brief Description/Scope:**

The RMLD will purchase all the materials needed to replace six (6) poles on the 211-504 line in FY19. The messenger and phase conductors will be re-used as they are the proper size and are in good condition. Pole 211-504 - 4 was replaced in the mid 90's. Although this pole will not be replaced, all the guys, anchors, insulators, etc., will be replaced.

**Barriers:**

This work will require the RMLD to secure a transmission line contractor and a transmission line outage from Eversource. During this time, Station 4 will be running on one line.

**Change in Scope of Work From Prior Fiscal Year:**

Not applicable.

**Status Update:**

Not applicable.

## CAPITAL PROJECT COST SHEET

**PROJECT NAME:** 115kV Transmission Pole Upgrade (211-504 line)

**SCHEDULE:** FY19

ITEM/TASK	RMLD LABOR					MATERIALS/CONTRACTORS				
	# of Units		Labor Total (unit rate x labor units)		Vehicle (labor units x vehicle rate)	DESCRIPTION	Unit	Unit Rate	# of Units	TOTAL
Line Department: 2-man crew - unit rate in weeks			\$6,455	\$6,267	\$920					
			\$0	\$0	\$0	Transmission Line Contractor for 211-504 line	job	\$160,000	1	\$ 160,000
			\$0	\$0	\$0	Various materials (insulators, davit arms, poles, anchors, guy grips, etc.)	per pole	\$7,100	7	\$ 49,700
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
Line Operations Supervision: unit rate in hours			\$106	\$103						
Project Oversight	40		\$4,231	\$0						\$ -
Engineering: unit rate in hours			\$80	\$78						\$ -
Switching and monitoring.	31	9	\$2,484	\$700						\$ -
										\$ -
Senior Tech: unit rate in hours			\$82	\$80	\$21					\$ -
Switching and testing.	20		\$1,643	\$0	\$420					\$ -
			\$0	\$0	\$0					
Technical Services Manager: unit rate in hours			\$101	\$98						\$ -
Switching and monitoring.	33		\$3,338	\$0						\$ -
						Police Details	week	\$2,427		\$ -
<b>TOTAL:</b>			<b>\$11,696</b>	<b>\$700</b>	<b>\$420</b>					<b>\$ 209,700</b>

<b>PROJECT TOTAL:</b>	<b>\$222,516</b>
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## CAPITAL PROJECT SUMMARY

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**Project Name:** 35 kV Underground Cable Upgrade  
Station 4, 5 and RR ROW

**Project #:** 109

**Project Schedule:** FY18-20

**Project Manager:** Brian Smith  
Senior Distribution Engineer

**Reason for Expenditure:**

The 35 kV underground cables that make up circuits 4P2 and 4P9 are original to the building at the Station 5 and are over 36 years old. The cables have reached their end of life. The riser structures for 4P2 and 4P9 on the ROW at Causeway Road are also near the end of life and will be replaced.

**Brief Description/Scope:**

Replace approximately 16,200 feet of 350 mcm CU underground cable on circuits 4P2 and 4P9 at Station 4, Station 5 and on the RR ROW. Replace riser pole structures at ROW at Causeway Road for 4P2 and 4P9.

**FY18:** Replace 4,500' of 4P2 at Station 4. Replace riser pole structures at ROW at Causeway Road for 4P2.

**FY19:** Replace 4,500' of 4P9 at Station 4. Replace riser pole structures at ROW at Causeway Road for 4P9.

**FY20:** Replace 6,300' of 4P9 on the railroad right of way, and 900' at Station 5.

**Barriers:**

This project will need to be scheduled for light load periods. While either circuit is out of service, Station 5 will be running on one line.

**Change in Scope of Work From Prior Fiscal Year:**

Not applicable.

**Status Update:**

Not applicable.

## CAPITAL PROJECT COST SHEET

**PROJECT NAME:** 35kV Underground Cable Upgrade  
4P9 Substation 4, R

**SCHEDULE:** FY19

ITEM/TASK	RMLD LABOR					MATERIALS/CONTRACTORS				
	# of Units		Labor Total (unit rate x labor units)		Vehicle (labor units x vehicle rate)	DESCRIPTION	Unit	Unit Rate	# of Units	TOTAL
	Straight Time	OT	Straight Time	Overtime						
<b>Line Department: 2-man crew - unit rate in weeks</b>			\$6,455	\$6,267	\$920					
Remove and install 4,500' of 35kV, 350CU UG cable - Station 4 UG	5		\$32,276	\$0	\$4,600	35kV cable, 350 CU	foot	\$15	6000.0	\$ 90,000
Terminations/splicing of cable	4		\$25,821	\$0	\$3,680	Underground contractor assist	week	\$7,054	4.5	\$ 31,741
			\$0	\$0	\$0	Termination/splice kits	each	\$350	48.0	\$ 16,800
Reconstruct 35kV riser structure	3.5		\$22,593	\$0	\$3,220	Poles/miscellaneous materials	each	\$1,000	2.0	\$ 2,000
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
<b>Line Operations Supervision: unit rate in hours</b>			\$106	\$103						
Supervision of Line crews	40		\$4,231	\$0						\$ -
<b>Engineering: unit rate in hours</b>			\$80	\$78						\$ -
Project management, switching/ tagging	40		\$3,205	\$0						\$ -
										\$ -
<b>Senior Tech: unit rate in hours</b>			\$82	\$80	\$21					\$ -
Testing, switching, tagging	80		\$6,574	\$0	\$1,680					\$ -
			\$0	\$0	\$0					
<b>Technical Services Manager: unit rate in hours</b>			\$101	\$98						\$ -
Testing, switching, tagging	40		\$4,046	\$0						\$ -
						Police Details	week	\$2,427		\$ -
<b>TOTAL:</b>			<b>\$98,746</b>	<b>\$0</b>	<b>\$13,180</b>					<b>\$ 140,541</b>

<b>PROJECT TOTAL:</b>	<b>\$252,467</b>
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## CAPITAL PROJECT SUMMARY

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**Project Name:** Pad-mount Switchgear Upgrade at Industrial Parks

**Project #:** 102

**Project Schedule:** Annual

**Project Manager:** Peter Price,  
Senior Distribution Engineer

**Reason for Expenditure:**

Increase distribution system protection in the underground industrial parks in Wilmington and North Reading as well as the three-phase underground distribution areas in Reading, i.e., River Park Drive, Jonspin Road, Haven Street, Woburn Street, Industrial Way, etc.

**Brief Description/Scope:**

Purchase new units to replace live front pad-mounted switchgear. New units will be dead front with provisions for remote/supervisor control. There are currently 29 units system-wide.

**Barriers:**

None anticipated at this time.

**Change in Scope of Work From Prior Fiscal Year: Increase (Decrease)**

Not applicable.

**Status Update From Prior Fiscal Year:**

The Department is working to complete the replacement of switch-1 on Jonspin Road, Wilmington, switch-2 on River Park Drive, North Reading, switch-2 and switch-3 on Concord Street, North Reading, switch-1 and switch-2 at 80 Industrial Way, Wilmington and switch-1 on Woburn Street at Reading Town Hall.

## CAPITAL PROJECT COST SHEET

**PROJECT NAME:** Pad-mount Switchgear Upgrades at Industrial Parks

**SCHEDULE:** FY19

ITEM/TASK	RMLD LABOR					MATERIALS/CONTRACTORS				
	# of Units		Labor Total (unit rate x labor units)		Vehicle (labor units x vehicle rate)	DESCRIPTION	Unit	Unit Rate	# of Units	TOTAL
	Straight Time	OT	Straight Time	Overtime						
Line Department: 2-man crew - unit rate in weeks			\$6,455	\$6,267	\$920					
Replace pad-mount switchgear		2	\$0	\$12,534	\$1,840	Trayer pad-mounted switches (2-220A, 2-600A positions)	each	\$62,500	5	\$ 312,500
Make up t-bodies and LB elbows	2		\$12,910	\$0	\$1,840	T-bodies, LB elbows, miscellaneous connectors for 12 primary cables	each	\$300	12	\$ 3,600
Splice out line and load side primary cables		2	\$0	\$12,534	\$1,840	Splices for line and load side primaries	each	\$250	12	\$ 3,000
			\$0	\$0	\$0	Primary cable for piece outs	foot	\$20	1000	\$ 20,000
			\$0	\$0	\$0	Excavation contractor to adjust pad for new switchgear	each	\$8,000	5	\$ 40,000
			\$0	\$0	\$0					\$ -
Line Operations Supervision: unit rate in hours			\$106	\$103						
Supervision of Line crews	40	24	\$4,231	\$2,465						\$ -
Engineering: unit rate in hours			\$80	\$78						\$ -
Prepare switching order, coordinate outages, pad modifications, order materials, etc.	40	48	\$3,205	\$3,733						\$ -
										\$ -
Senior Tech: unit rate in hours			\$82	\$80	\$21					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					
Technical Services Manager: unit rate in hours			\$101	\$98						\$ -
			\$0	\$0						\$ -
						Police Details	week	\$2,427		\$ -
TOTAL:			\$20,346	\$31,265	\$5,520					\$ 379,100

**PROJECT TOTAL: \$436,232**

## CAPITAL PROJECT SUMMARY

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**Project Name:** Grid Modernization & Optimization

**Project #:** 103

**Project Schedule:** On-going **Project Manager:** Hamid Jaffari, Director of Engineering & Operations  
Peter Price, Senior Distribution Engineer  
Brian Smith, Senior Distribution Engineer

**Reason for Expenditure:**

In compliance with DPU/OSHA Order DPU 12-76B, increase system reliability, modernize/optimize system operation and functionality, decrease system losses and expenses for labor and truck rolls related to outage management.

**Brief Description/Scope:**

Continue implementation of grid modernization/optimization road map including installation and integration of smart switches, IntelliRupters, and capacitor banks and controls. Installation and integration of outage management system (OMS) with an IVR system to optimize outage restoration process. Cyber security, simulator, fiber rationale connection, fault detection, economic dispatch, and overall system integration, including GIS and AMI.

**Barriers:**

Technology/software integration; merging old technology with new emerging technology.

**Change in Scope of Work From Prior Fiscal Year:**

Addition of IVR system.

**Status Update:**

We anticipate 12 switches and two IntelliRupters will be installed by the end of FY18. We anticipate the OMS system, customer portal, and outage dashboard to be operational by the end of FY18.

## CAPITAL PROJECT COST SHEET

**PROJECT NAME:** Grid Modernization & Optimization  
Scada-Mate Switches

**SCHEDULE:** FY19

ITEM/TASK	RMLD LABOR					MATERIALS/CONTRACTORS				
	# of Units		Labor Total (unit rate x labor units)		Vehicle (labor units x vehicle rate)	DESCRIPTION	Unit	Unit Rate	# of Units	TOTAL
	Straight Time	OT	Straight Time	Overtime						
<b>Line Department: 2-man crew - unit rate in weeks</b>			\$6,455	\$6,267	\$920					
Install Scada-Mate Switches and controls	1		\$6,455	\$0	\$920	Scada-Mate CX Switch	each	\$35,000	4	\$ 140,000
Replace pole, install by-pass disconnects, transfer pri, sec, etc.	7		\$45,187	\$0	\$6,440	55' pole, x-arms, brackets, guys, anchors, miscellaneous hardware, etc.	each switch	\$2,000	4	\$ 8,000
			\$0	\$0	\$0	6801 license	each switch	\$2,000	4	\$ 8,000
			\$0	\$0	\$0	IntelliTeam License	each switch	\$1,000	4	\$ 4,000
Install three (3) repeaters/radios per switch.	0.4		\$2,582	\$0	\$368	S&C repeaters/radios	each	\$3,000	12	\$ 36,000
			\$0	\$0	\$0					\$ -
<b>Line Operations Supervision: unit rate in hours</b>			\$106	\$103						
Supervision of Line crews	160		\$16,925	\$0						\$ -
<b>Engineering: unit rate in hours</b>			\$80	\$78						\$ -
Pole Foreman, construction drawings, etc.	40		\$3,204.80	\$0						\$ -
Prepare switching orders, order materials, establish communication	40		\$3,204.80	\$0						\$ -
<b>Senior Tech: unit rate in hours</b>			\$82	\$80	\$21					\$ -
Controls, programming, commissioning, etc.	64		\$5,259	\$0	\$1,344					\$ -
			\$0	\$0	\$0					
<b>Technical Services Manager: unit rate in hours</b>			\$101	\$98						\$ -
Controls, programming, commissioning, etc.	32		\$3,237	\$0						\$ -
						Police Details	week	\$2,427	4.0	\$ 9,710
<b>TOTAL:</b>			<b>\$86,054</b>	<b>\$0</b>	<b>\$9,072</b>					<b>\$ 205,710</b>

**PROJECT TOTAL: \$300,836**

## CAPITAL PROJECT COST SHEET

**PROJECT NAME:** Grid Modernization and Optimization  
IntelliRupters

**SCHEDULE:** FY19

ITEM/TASK	RMLD LABOR					MATERIALS/CONTRACTORS				
	# of Units		Labor Total (unit rate x labor units)		Vehicle (labor units x vehicle rate)	DESCRIPTION	Unit	Unit Rate	# of Units	TOTAL
	Straight Time	OT	Straight Time	Overtime						
<b>Line Department: 2-man crew - unit rate in weeks</b>			\$6,455	\$6,267	\$920					
Install IntelliRupter Switch	1		\$6,455	\$0	\$920	IntelliRupter switch	each	\$40,000	2	\$ 80,000
Replace pole, install by-pass disconnects, transfer pri, sec, etc	3		\$19,366	\$0	\$2,760	55' pole, cross-arms, brackets, guys, anchors, miscellaneous hardware, etc.	each	\$2,000	2	\$ 4,000
			\$0	\$0	\$0	IntelliRupter license	each	\$2,000	2	\$ 4,000
			\$0	\$0	\$0	IntelliTeam license	each	\$1,000	1	\$ 1,000
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
<b>Line Operations Supervision: unit rate in hours</b>			\$106	\$103						
			\$0	\$0						\$ -
<b>Engineering: unit rate in hours</b>			\$80	\$78						\$ -
Pole Foreman, construction drawings, etc.	24		\$1,923	\$0						\$ -
Prepare switching orders, order materials, establish communication	24		\$1,923	\$0						\$ -
<b>Senior Tech: unit rate in hours</b>			\$82	\$80	\$21					\$ -
Controls, programming, commissioning, etc.	64		\$5,259	\$0	\$1,344					\$ -
			\$0	\$0	\$0					
<b>Technical Services Manager: unit rate in hours</b>			\$101	\$98						\$ -
Controls, programming, commissioning, etc.	16		\$1,618	\$0						\$ -
						Police Details	week	\$2,427	2.0	\$ 4,855
<b>TOTAL:</b>			<b>\$36,544</b>	<b>\$0</b>	<b>\$5,024</b>					<b>\$ 93,855</b>

**PROJECT TOTAL: \$135,423**

## CAPITAL PROJECT COST SHEET

**PROJECT NAME:** Grid Modernization & Optimization  
SCADA Upgrade

**SCHEDULE:** FY19

	RMLD LABOR					MATERIALS/CONTRACTORS				
	# of Units		Labor Total (unit rate x labor units)		Vehicle (labor units x vehicle rate)					
ITEM/TASK	Straight Time	OT	Straight Time	Overtime			DESCRIPTION	Unit	Unit Rate	# of Units
Line Department: 2-man crew - unit rate in weeks			\$6,455	\$6,267	\$920					
			\$0	\$0	\$0	Software upgrades for SCADA				\$ 21,000
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
Line Operations Supervision: unit rate in hours			\$106	\$103						
			\$0	\$0						\$ -
Engineering: unit rate in hours			\$80	\$78						\$ -
			\$0	\$0						\$ -
										\$ -
Senior Tech: unit rate in hours			\$82	\$80	\$21					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					
Technical Services Manager: unit rate in hours			\$101	\$98						\$ -
			\$0	\$0						\$ -
						Police Details	week	\$2,427		\$ -
TOTAL:			\$0	\$0	\$0					\$ 21,000

<b>PROJECT TOTAL:</b>	<b>\$21,000</b>
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## CAPITAL PROJECT COST SHEET

**PROJECT NAME:** Grid Modernization & Optimization  
Software Integration

**SCHEDULE:** FY19

ITEM/TASK	RMLD LABOR					MATERIALS/CONTRACTORS				
	# of Units		Labor Total (unit rate x labor units)		Vehicle (labor units x vehicle rate)	DESCRIPTION	Unit	Unit Rate	# of Units	TOTAL
	Straight Time	OT	Straight Time	Overtime						
Line Department: 2-man crew - unit rate in weeks			\$6,455	\$6,267	\$920					
			\$0	\$0	\$0	Services from vendor for integration of AMI and various devices		\$10,000	1	\$ 10,000
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
Line Operations Supervision: unit rate in hours			\$106	\$103						
			\$0	\$0						\$ -
Engineering: unit rate in hours			\$80	\$78						\$ -
Work with vendor for software integration	24		\$1,923	\$0						\$ -
										\$ -
Senior Tech: unit rate in hours			\$82	\$80	\$21					\$ -
Work with vendor for software integration	24		\$1,972	\$0	\$504					\$ -
			\$0	\$0	\$0					\$ -
Technical Services Manager: unit rate in hours			\$101	\$98						\$ -
			\$0	\$0						\$ -
						Police Details	week	\$2,427		\$ -
<b>TOTAL:</b>			<b>\$3,895</b>	<b>\$0</b>	<b>\$504</b>					<b>\$ 10,000</b>

**PROJECT TOTAL: \$14,399**

## CAPITAL PROJECT COST SHEET

**PROJECT NAME:** Grid Modernization & Optimization  
IVR Integration

**SCHEDULE:** FY19

ITEM/TASK	RMLD LABOR					MATERIALS/CONTRACTORS				
	# of Units		Labor Total (unit rate x labor units)		Vehicle (labor units x vehicle rate)	DESCRIPTION	Unit	Unit Rate	# of Units	TOTAL
	Straight Time	OT	Straight Time	Overtime						
Line Department: 2-man crew - unit rate in weeks			\$6,455	\$6,267	\$920					
			\$0	\$0	\$0	IVR System	each	\$100,000	1	\$ 100,000
			\$0	\$0	\$0	IVR System integration with Survalent (license and commissioning)	each	\$32,000	1	\$ 32,000
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
Line Operations Supervision: unit rate in hours			\$106	\$103						
			\$0	\$0						\$ -
Engineering: unit rate in hours			\$80	\$78						\$ -
Work with new vendor and Survalent for project integration	80		\$6,410	\$0						\$ -
										\$ -
Senior Tech: unit rate in hours			\$82	\$80	\$21					\$ -
			\$0	\$0						\$ -
			\$0	\$0						\$ -
Technical Services Manager: unit rate in hours			\$101	\$98	\$0					\$ -
			\$0	\$0						\$ -
						Police Details	week	\$2,427		\$ -
<b>TOTAL:</b>			<b>\$6,410</b>	<b>\$0</b>	<b>\$0</b>					<b>\$ 132,000</b>

**PROJECT TOTAL: \$138,410**



## CAPITAL PROJECT COST SHEET

**PROJECT NAME:** Grid Modernization & Optimization  
Capacitor Bank Automation

**SCHEDULE:** FY19

ITEM/TASK	RMLD LABOR					MATERIALS/CONTRACTORS				
	# of Units		Labor Total (unit rate x labor units)		Vehicle (labor units x vehicle rate)	DESCRIPTION	Unit	Unit Rate	# of Units	TOTAL
	Straight Time	OT	Straight Time	Overtime						
Line Department: 2-man crew - unit rate in weeks			\$6,455	\$6,267	\$920					
			\$0	\$0	\$0	CBC 800 CAP controller	each	\$2,200	6.0	\$ 13,200
			\$0	\$0	\$0	RFN 1200 radio	each	\$800	6.0	\$ 4,800
			\$0	\$0	\$0	Miscellaneous	per controller	\$400	6.0	\$ 2,400
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
Line Operations Supervision: unit rate in hours			\$106	\$103						
			\$0	\$0						\$ -
Engineering: unit rate in hours			\$80	\$78						\$ -
Connecting to Eaton System and SCADA switching	144		\$11,537	\$0						\$ -
										\$ -
Senior Tech: unit rate in hours			\$82	\$80	\$21					\$ -
Controls, programming, commissioning, installation, etc.	192		\$15,777	\$0	\$4,032					\$ -
			\$0	\$0	\$0					
Technical Services Manager: unit rate in hours			\$101	\$98						\$ -
Controls, programming, commissioning, installation, etc.	144		\$14,566	\$0						\$ -
						Police Details	week	\$2,427		\$ -
<b>TOTAL:</b>			<b>\$41,880</b>	<b>\$0</b>	<b>\$4,032</b>					<b>\$ 20,400</b>

<b>PROJECT TOTAL:</b>	<b>\$66,312</b>
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## CAPITAL PROJECT SUMMARY

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**Project Name:** New Wilmington Substation      **Project #:** 105  
**Project Schedule:** FY17-23      **Project Manager:** Manole Agouridis,  
Distribution Engineer

**Reason for Expenditure:**

Substation 5 has reached the end of its useful life. The transformer and switchgear need major upgrades / repairs to keep substation operational. The new Wilmington substation will be a replacement for Substation 5, while also providing added benefits to RMLD.

**Brief Description/Scope:**

Install a new 115kV / 13.8 kV substation in Wilmington in the Ballardvale area. The new substation will include two (2) 60 MVA transformers and 15kV switchgear with eight (8) feeder breaker positions. It shall also provide backup and load relief for both Substation 3 and Substation 4.

**Barriers:**

Availability of land.

**Change in Scope of Work From Prior Fiscal Year: Increase (Decrease)**

Not applicable.

**Status Update From Prior Fiscal Year:**

RMLD continues to explore options for location of the new substation.

## CAPITAL PROJECT COST SHEET

**PROJECT NAME:** Wilmington Substation

**SCHEDULE:** FY17-23

DESCRIPTION	COST
Purchase Land	\$ 650,000
Construction Contractor	\$ 1,800,000
Power Transformers	\$ 2,000,000
15kV Switchgear	\$ 2,000,000
Substation Equipment Package	\$ 600,000
Testing and Commissioning	\$ 120,000
Environmental Permitting	\$ 25,000
Distribution Phase 1	\$ 869,000
Distribution Phase 2	\$ 2,329,000
Indirects (includes RMLD labor)	\$ 505,000
Contingency	\$ 400,000
	<b>\$ 11,298,000</b>

## CAPITAL PROJECT SUMMARY

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**Project Name:** Ballardvale Street Pole Line Upgrade, W  
Pole Line Upgrade

**Project #:** 123

**Project Schedule:** FY19-20

**Project Manager:** Manole Agouridis,  
Distribution Engineer

**Reason for Expenditure:**

To upgrade the pole line starting near the location of the proposed Wilmington substation and ending at Route 125. This shall include pole upgrades and attached feeder upgrades, and associated work to install provisions for future circuits from the proposed substation.

**Brief Description/Scope:**

The aforementioned, one-mile section of Ballardvale Street spans 30 poles that starts at the location of the proposed Wilmington substation and ends at the intersection of Route 125. This project will result in the upgrade of almost all 30 poles, and shall include the reconductoring of circuits 5W5 and 5W9 in this area. In addition, poles with added height will be installed for the potential to install additional circuits from the proposed Wilmington substation. The idea is to perform these upgrades ahead of new substation construction so these two projects are NOT occurring concurrently and disrupting the Ballardvale Street area.

**Barriers:**

This project shall coincide with the proposed Wilmington substation location. If the location of the substation is moved, this capital project shall be revisited/reprioritized accordingly.

**Change in Scope of Work From Prior Fiscal Year: Increase (Decrease)**

Not applicable.

**Status Update From Prior Fiscal Year:**

Not applicable.

## CAPITAL PROJECT COST SHEET

**PROJECT NAME:** Ballardvale Street - Pole Line Upgrade, W

**SCHEDULE:** FY19 -FY20

ITEM/TASK	RMLD LABOR					MATERIALS/CONTRACTORS				
	# of Units		Labor Total (unit rate x labor units)		Vehicle (labor units x vehicle rate)	DESCRIPTION	Unit	Unit Rate	# of Units	TOTAL
	Straight Time	OT	Straight Time	Overtime						
<b>Line Department: 2-man crew - unit rate in weeks</b>			\$6,455	\$6,267	\$920					
Set (30) 55' Class 1 poles	12		\$77,463	\$0	\$11,040	55'-1 poles	each	\$800.00	30	\$ 24,000
Transfer (30) poles	12		\$77,463	\$0	\$11,040	15 kV Hendrix brackets, miscellaneous hardware, miscellaneous primary connectors (spacers, insulators, etc.)	per pole	\$800.00	30	\$ 24,000
Setup for (8,000') spacer install	4		\$25,821	\$0	\$3,680	0.052 messenger wire	foot	\$1.23	8000	\$ 9,840
Pull in and install (8,000') 556	4		\$25,821	\$0	\$3,680	15kV, 556 AL spacer cable	foot	\$2.02	24000	\$ 48,480
Transfer secondaries, services, street lights, and fiber optic cable	2		\$12,910	\$0	\$1,840	Miscellaneous secondary hardware, brackets and connectors	per pole	\$500.00	30	\$ 15,000
			\$0	\$0	\$0					\$ -
<b>Line Operations Supervision: unit rate in hours</b>			\$106	\$103						
Supervision of Line crews	200		\$21,156	\$0						\$ -
<b>Engineering: unit rate in hours</b>			\$80	\$78						\$ -
Prepare construction documents, Pole foreman, 605As	110		\$8,813	\$0						\$ -
Switching and off-hour outages for cutovers.	40	40	\$3,205	\$3,111						\$ -
<b>Senior Tech: unit rate in hours</b>			\$82	\$80	\$21					\$ -
Switching as needed.	8		\$657	\$0	\$168					\$ -
			\$0	\$0	\$0					\$ -
<b>Technical Services Manager: unit rate in hours</b>			\$101	\$98						\$ -
			\$0	\$0						\$ -
						Police Details	week	\$2,427	17.0	\$ 41,267
<b>TOTAL:</b>			<b>\$253,310</b>	<b>\$3,111</b>	<b>\$31,448</b>					<b>\$ 162,587</b>

\$ 121,320

**PROJECT TOTAL: \$450,456**

## CAPITAL PROJECT SUMMARY

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**Project Name:** Force Account - Massachusetts Department of Transportation: Main and Hopkins, R **Project #:** TBD

**Project Schedule:** FY19 **Project Manager:** Peter Price,  
Senior Distribution Engineer

**Reason for Expenditure:**

The Massachusetts Department of Transportation has notified RMLD of a project that may be planned for FY19. We are reserving an amount in the Capital Budget for this project.

**Brief Description/Scope:**

MassDOT has plans to improve the traffic flow at the intersection of Main Street and Hopkins Street in Reading. This plan includes the widening of Main Street and the installation of traffic signals. This project will require the RMLD to relocate up to 12 poles and petition and install up to three (3) guy poles along Main Street and Hopkins Street. This project may require the installation of laminated poles.

**Barriers:**

Verizon set area. Some poles will need to be petitioned. MassDOT will need to secure easements as needed for poles, anchors and guys at several locations. Project also involves the relocation of the UG service to the restaurant at 107 Main Street.

**Change in Scope of Work from Prior Fiscal Year: Increase (Decrease)**

Not applicable.

**Status Update From Prior Fiscal Year:**

Not applicable.





## CAPITAL PROJECT SUMMARY

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**Project Name:** 4W5 Getaway Replacement, W

**Project #:** 122

**Project Schedule:** FY19

**Project Manager:** Manole Agouridis, Distribution Engineer

**Reason for Expenditure:**

To upgrade 1,515 circuit feet of underground cable from Station 4 to West Street. The cable is being replaced to add capacity and replace the existing getaway, which is nearing the end of its useful life.

**Brief Description/Scope:**

The 4W5 getaway has five (5) sections of underground cable. It is assumed this project will only focus on replacing the existing 500 CU cable with 750 CU cable.

**Barriers:**

Potential unforeseen issues with existing duct bank, conduit, and/or manholes that need to be addressed.

**Change in Scope of Work From Prior Fiscal Year: Increase (Decrease)**

Not applicable.

**Status Update From Prior Fiscal Year:**

Not applicable.

## CAPITAL PROJECT COST SHEET

**PROJECT NAME:** 4W5 Getaway Replacement, W

**SCHEDULE:** FY19

ITEM/TASK	RMLD LABOR					MATERIALS/CONTRACTORS				
	# of Units		Labor Total (unit rate x labor units)		Vehicle (labor units x vehicle rate)	DESCRIPTION	Unit	Unit Rate	# of Units	TOTAL
	Straight Time	OT	Straight Time	Overtime						
<b>Line Department: 2-man crew - unit rate in weeks</b>			\$6,455	\$6,267	\$920					
Prepping for new cable installation loading trailers, pumping down manholes, etc.	2		\$12,910	\$0	\$1,840	15kV cable, 750 MCM 1/C , strand shield, EPR	foot	\$14.43	4545.0	\$ 65,584
New cable installation - pulling in cable	2		\$12,910	\$0	\$1,840					\$ -
Terminating and splicing , and wrapping cable, labeling, etc.	2		\$12,910	\$0	\$1,840	Underground contractor assist	week	\$7,054	1.2	\$ 8,464
			\$0	\$0	\$0	Cold shrink splice or terminations, and ancillary	point	\$1,060	6.0	\$ 6,358
Existing cable removal, and scrapping cable	2		\$12,910	\$0	\$1,840					\$ -
			\$0	\$0	\$0					\$ -
<b>Line Operations Supervision: unit rate in hours</b>			\$106	\$103						
Supervision of Line crews	53		\$5,606	\$0						\$ -
<b>Engineering: unit rate in hours</b>			\$80	\$78						\$ -
Project management, write, review and administer switching. Create work order	40		\$3,205	\$0						\$ -
										\$ -
<b>Senior Tech: unit rate in hours</b>			\$82	\$80	\$21					\$ -
Switching cable out and back	8		\$657	\$0	\$168					\$ -
Testing and commissioning of new cable.	8		\$657	\$0	\$168					
			\$0	\$0	\$0					
<b>Technical Services Manager: unit rate in hours</b>			\$101	\$98						\$ -
Oversight of work in substation, switching review	8		\$809	\$0						\$ -
						Police Details	week	\$2,427	0.5	\$ 1,214
<b>TOTAL:</b>			<b>\$62,577</b>	<b>\$0</b>	<b>\$7,696</b>					<b>\$ 81,621</b>

**PROJECT TOTAL: \$151,894**

## CAPITAL PROJECT SUMMARY

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**Project Name:** 4W6 Getaway Replacement, W

**Project #:** 132

**Project Schedule:** FY19

**Project Manager:** Manole Agouridis, Distribution Engineer

**Reason for Expenditure:**

To upgrade 1,635 circuit feet of underground cable from Station 4 to West Street. The cable is being replaced to add capacity and replace the existing getaway, which is nearing the end of its useful life.

**Brief Description/Scope:**

The 4W6 getaway has five (5) sections of underground cable. It is assumed this project will only focus on replacing the existing 500 CU cable with 750 CU cable.

**Barriers:**

Potential unforeseen issues with existing duct bank, conduit, and/or manholes that need to be addressed.

**Change in Scope of Work From Prior Fiscal Year: Increase (Decrease)**

Not applicable.

**Status Update From Prior Fiscal Year:**

Not applicable.

## CAPITAL PROJECT COST SHEET

**PROJECT NAME:** 4W6 Getaway Replacement, W

**SCHEDULE:** FY19

	RMLD LABOR					MATERIALS/CONTRACTORS				
	# of Units		Labor Total (unit rate x labor units)		Vehicle (labor units x vehicle rate)					
ITEM/TASK	Straight Time	OT	Straight Time	Overtime			DESCRIPTION	Unit	Unit Rate	# of Units
Line Department: 2-man crew - unit rate in weeks			\$6,455	\$6,267	\$920					
Prepping for new cable installation loading trailers, pumping down manholes, etc.	2		\$12,910	\$0	\$1,840	15kV cable, 750 MCM 1/C , strand shield, EPR	foot	\$14.43	4905.0	\$ 70,779
New cable installation - pulling in cable	2		\$12,910	\$0	\$1,840					\$ -
Terminating and splicing , and wrapping cable, labeling, etc.	2		\$12,910	\$0	\$1,840	Underground contractor assist	week	\$7,054	1.2	\$ 8,464
			\$0	\$0	\$0	Cold shrink splice or termination, and ancillary	point	\$1,060	6.0	\$ 6,358
Existing cable removal, and scrapping cable	2		\$12,910	\$0	\$1,840					\$ -
			\$0	\$0	\$0					\$ -
Line Operations Supervision: unit rate in hours			\$106	\$103						
Supervision of Line crews	53		\$5,606	\$0						\$ -
Engineering: unit rate in hours			\$80	\$78						\$ -
Project management, write, review and administer switching. Create work order	40		\$3,205	\$0						\$ -
										\$ -
Senior Tech: unit rate in hours			\$82	\$80	\$21					\$ -
Switching cable out and back	8		\$657	\$0	\$168					\$ -
Testing and commisssioning of new cable.	8		\$657	\$0	\$168					
			\$0	\$0	\$0					
Technical Services Manager: unit rate in hours			\$101	\$98						\$ -
Oversight of work in substation, switching review	8		\$809	\$0						\$ -
						Police Details	week	\$2,427	0.5	\$ 1,214
TOTAL:			\$62,577	\$0	\$7,696					\$ 86,816

<b>PROJECT TOTAL:</b>	<b>\$157,089</b>
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## CAPITAL PROJECT SUMMARY

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**Project Name:** 4W16 Getaway Replacement, W

**Project #:** 135

**Project Schedule:** FY19

**Project Manager:** Manole Agouridis, Distribution Engineer

**Reason for Expenditure:**

Upgrade 2,250 circuit feet of underground cable from Station 4 to Causeway Road/Lowell Street. The cable is being replaced to add capacity and replace the existing overloaded getaway, which is nearing the end of its useful life.

**Brief Description/Scope:**

The 4W16 getaway has six (6) sections of underground cable. It is assumed this project will only focus on replacing the existing 500 CU cable with 750 CU cable.

**Barriers:**

Potential unforeseen issues with existing duct bank, conduit, and/or manholes that need to be addressed.

**Change in Scope of Work From Prior Fiscal Year: Increase (Decrease)**

Not applicable.

**Status Update From Prior Fiscal Year:**

Not applicable.

## CAPITAL PROJECT COST SHEET

**PROJECT NAME:** 4W16 Getaway Replacement, W

**SCHEDULE:** FY19

ITEM/TASK	RMLD LABOR					MATERIALS/CONTRACTORS				
	# of Units		Labor Total (unit rate x labor units)		Vehicle (labor units x vehicle rate)	DESCRIPTION	Unit	Unit Rate	# of Units	TOTAL
	Straight Time	OT	Straight Time	Overtime						
<b>Line Department: 2-man crew - unit rate in weeks</b>			\$6,455	\$6,267	\$920					
Prepping for new cable installation loading trailers, pumping down manholes, etc.	2.5		\$16,138	\$0	\$2,300	15kV cable, 750 MCM 1/C , strand shield, EPR	foot	\$14.43	6750.0	\$ 97,403
New cable installation - pulling in cable	2.5		\$16,138	\$0	\$2,300					\$ -
Terminating and splicing , and wrapping cable, labeling, etc.	2.5		\$16,138	\$0	\$2,300	Underground contractor assist	week	\$7,054	1.4	\$ 9,875
			\$0	\$0	\$0	Cold shrink splice or termination, and ancillary	point	\$1,092	7.0	\$ 7,643
Existing cable removal, and scrapping cable	2.5		\$16,138	\$0	\$2,300					\$ -
			\$0	\$0	\$0					\$ -
<b>Line Operations Supervision: unit rate in hours</b>			\$106	\$103						
Supervision of Line crews	64		\$6,770	\$0						\$ -
<b>Engineering: unit rate in hours</b>			\$80	\$78						\$ -
Project management, write, review and administer switching. Create work order	40		\$3,205	\$0						\$ -
										\$ -
<b>Senior Tech: unit rate in hours</b>			\$82	\$80	\$21					\$ -
Switching cable out and back	8		\$657	\$0	\$168					\$ -
Testing and commissioning of new cable.	8		\$657	\$0	\$168					
			\$0	\$0	\$0					
<b>Technical Services Manager: unit rate in hours</b>			\$101	\$98						\$ -
Oversight of work in substation, switching review	8		\$809	\$0	\$0					\$ -
						Police Details	week	\$2,427	2.0	\$ 4,855
<b>TOTAL:</b>			<b>\$76,651</b>	<b>\$0</b>	<b>\$9,536</b>					<b>\$ 119,775</b>

<b>PROJECT TOTAL:</b>	<b>\$205,962</b>
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## CAPITAL PROJECT SUMMARY

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**Project Name:** AMI Mesh Network Expansion

**Project #:** 112

**Project Schedule:** Annual

**Project Manager:** Nick D'Alleva,  
Technical Services Manager

**Reason for Expenditure:**

In order to expand RMLD's AMI mesh network, additional relays, retrofit kits, and meters need to be purchased and installed. These new/retrofit meters will give the RMLD the ability to monitor voltage, current, demand, power factor and power quality. They will also provide end-of-the-line voltage.

**Brief Description/Scope:**

Purchase and install meters and retrofit kits that are compatible with the AMI Mesh Network.

**Barriers:**

None anticipated at this time.

**Change in Scope of Work From Prior Fiscal Year: Increase (Decrease)**

Not applicable.

**Status Update From Prior Fiscal Year:**

Not applicable.

## CAPITAL PROJECT COST SHEET

**PROJECT NAME:** AMI Mesh Network Expansion

**SCHEDULE:** FY19

ITEM/TASK	RMLD LABOR					MATERIALS/CONTRACTORS				
	# of Units		Labor Total (unit rate x labor units)		Vehicle (labor units x vehicle rate)					
	Straight Time	OT	Straight Time	Overtime		DESCRIPTION	Unit	Unit Rate	# of Units	TOTAL
Line Department: 2-man crew - unit rate in weeks			\$6,455	\$6,267	\$920					
			\$0	\$0	\$0				\$	-
			\$0	\$0	\$0				\$	-
			\$0	\$0	\$0				\$	-
			\$0	\$0	\$0				\$	-
			\$0	\$0	\$0				\$	-
			\$0	\$0	\$0				\$	-
Line Operations Supervision: unit rate in hours			\$106	\$103						
			\$0	\$0					\$	-
Engineering: unit rate in hours			\$80	\$78					\$	-
			\$0	\$0					\$	-
									\$	-
Meter Tech: unit rate in hours			\$50	\$48	\$21					\$ -
Install relays and meters to expand AMI Mesh Network	240		\$11,990	\$0	\$5,040	Relays	each	\$300	25	\$ 7,500
						AMI Retrofits	each	\$100	250	\$ 25,000
						Commercial meters	each	\$700	50	\$ 35,000
						Single-phase meters	each	\$122	250	\$ 30,500
Technical Services Manager: unit rate in hours			\$101	\$98						\$ -
Oversight of project	60		\$6,069	\$0						\$ -
						Police Details	week	\$2,427		\$ -
TOTAL:			\$18,059	\$0	\$5,040					\$ 98,000

<b>PROJECT TOTAL:</b>	<b>\$121,099</b>
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## CAPITAL PROJECT SUMMARY

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**Project Name:** Communication Equipment (for Fiber Optic) **Project #:** 126

**Project Schedule:** Annual **Project Manager:** Peter Price, Senior Distribution Engineer  
Brian Smith, Senior Distribution Engineer

**Reason for Expenditure:**

As the RMLD expands its use of the fiber optic network to establish communication with metering equipment, recloser controls, capacitor bank controls and other distribution equipment, the Department will create fiber nodes at various locations along the fiber optic network. Each node will require an enclosure, a fiber optic interface, a power supply, cabling, fiber optic cable, and the termination of the fiber optic cable.

**Brief Description/Scope:**

Purchase materials and procure fiber optic cable splicers as needed.

**Barriers:**

None anticipated at this time.

**Change in Scope of Work From Prior Fiscal Year:**

Not applicable.

**Status Update:**

The Department has expanded the fiber optic network at existing fiber nodes for use with the distribution automation projects.

## CAPITAL PROJECT COST SHEET

**PROJECT NAME:** Communication Equipment (Fiber Optic)

**SCHEDULE:** FY19

ITEM/TASK	RMLD LABOR					MATERIALS/CONTRACTORS				
	# of Units		Labor Total (unit rate x labor units)		Vehicle (labor units x vehicle rate)	DESCRIPTION	Unit	Unit Rate	# of Units	TOTAL
	Straight Time	OT	Straight Time	Overtime						
Line Department: 2-man crew - unit rate in weeks			\$6,455	\$6,267	\$920					
			\$0	\$0	\$0	Siemens RS900, 9 port managed ethernet switch	each	\$1,500	12	\$ 18,000
			\$0	\$0	\$0	Fiber optic patch cords SC - SC	each	\$5	72	\$ 360
			\$0	\$0	\$0	Pole-mount fiber optic cable enclosure with patch panel and UPS	each	\$2,500	3	\$ 7,500
			\$0	\$0	\$0	ADSS fiber optic cable 72	ft	\$1	10000	\$ 10,000
			\$0	\$0	\$0	Contractor: Fiber optic cable splicing and materials.	day	\$1,600	5	\$ 8,000
			\$0	\$0	\$0					\$ -
Line Operations Supervision: unit rate in hours			\$106	\$103						
			\$0	\$0						\$ -
Engineering: unit rate in hours			\$80	\$78						\$ -
			\$0	\$0						\$ -
										\$ -
Senior Tech: unit rate in hours			\$82	\$80	\$21					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					
Technical Services Manager: unit rate in hours			\$101	\$98						\$ -
			\$0	\$0						\$ -
						Police Details	week	\$2,427	2.0	\$ 4,855
<b>TOTAL:</b>			<b>\$0</b>	<b>\$0</b>	<b>\$0</b>					<b>\$ 48,715</b>

<b>PROJECT TOTAL:</b>	<b>\$48,715</b>
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## CAPITAL PROJECT SUMMARY

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**Project Name:** Substation Equipment Upgrade **Project #:** 111

**Project Schedule:** Annual **Project Manager:** Nick D'Alleva,  
Technical Services Manager

**Reason for Expenditure:**

United Power Group and RMLD personnel have identified equipment that needs to be replaced or upgraded as a result of their condition assessment of our substation equipment.

**Brief Description/Scope:**

Purchase remote racking device for breakers at Station 3. Purchase and install miscellaneous equipment at Stations 3, 4 and 5.

**Barriers:**

Availability of replacement parts.

**Change in Scope From Prior Fiscal Year:**

None.

**Status Update:**

Not applicable.

## CAPITAL PROJECT COST SHEET

**PROJECT NAME:** Substation Equipment Upgrade

**SCHEDULE:** FY19

	RMLD LABOR					MATERIALS/CONTRACTORS				
	# of Units		Labor Total (unit rate x labor units)		Vehicle (labor units x vehicle rate)					
ITEM/TASK	Straight Time	OT	Straight Time	Overtime			DESCRIPTION	Unit	Unit Rate	# of Units
Line Department: 2-man crew - unit rate in weeks			\$6,455	\$6,267	\$920					
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
Line Operations Supervision: unit rate in hours			\$106	\$103						
			\$0	\$0						\$ -
Engineering: unit rate in hours			\$80	\$78						\$ -
			\$0	\$0						\$ -
										\$ -
Senior Tech: unit rate in hours			\$82	\$80	\$21					\$ -
Install equipment	100		\$8,217	\$0	\$2,100	Remote racking device for breakers at Station 3	each	\$30,000	1	\$ 30,000
			\$0	\$0	\$0	Miscellaneous equipment				\$ 10,000
Technical Services Manager: unit rate in hours			\$101	\$98						\$ -
			\$0	\$0						\$ -
						Police Details	week	\$2,427		\$ -
TOTAL:			\$8,217	\$0	\$2,100					\$ 40,000

<b>PROJECT TOTAL:</b>	<b>\$50,317</b>
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## CAPITAL PROJECT SUMMARY

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**Project Name:** Power/Lab and Tool Equipment      **Project #:** 115

**Project Schedule:** Annual      **Project Manager:** n/a

**Reason for Expenditure:**

This is an amount reserved for purchase of power/lab and tool equipment.

**Brief Description/Scope:**

The following items will be purchased in FY19:

- Electric phasing meter/hi-pot – six (6) units will be purchased in FY19. Additional units will be scheduled for purchase in the future.
- In-service meter accuracy tester for commercial metering (1 unit)
- Contact resistance tester for substations (1 unit)
- Four-point battery hydraulic press (2 units)

**Barriers:**

None anticipated at this time.

**Change in Scope of Work From Prior Fiscal Year:**

Not applicable.

**Status Update:**

Not applicable.

## CAPITAL PROJECT COST SHEET

**PROJECT NAME:** Power/Lab and Tool Equipment

**SCHEDULE:** FY19

ITEM/TASK	RMLD LABOR					MATERIALS/CONTRACTORS				
	# of Units		Labor Total (unit rate x labor units)		Vehicle (labor units x vehicle rate)	DESCRIPTION	Unit	Unit Rate	# of Units	TOTAL
	Straight Time	OT	Straight Time	Overtime						
Line Department: 2-man crew - unit rate in weeks			\$6,455	\$6,267	\$920					
			\$0	\$0	\$0	Electric phasing meter/hi-pot	each	\$3,000	6	\$ 18,000
			\$0	\$0	\$0	In-service meter accuracy tester for commercial metering	each	\$40,000	1	\$ 40,000
			\$0	\$0	\$0	Contact resistance tester (for substations)	each	\$10,000	1	\$ 10,000
			\$0	\$0	\$0	Four point battery hydraulic press	each	\$3,800	2	\$ 7,600
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
Line Operations Supervision: unit rate in hours			\$106	\$103						
			\$0	\$0						\$ -
Engineering: unit rate in hours			\$80	\$78						\$ -
			\$0	\$0						\$ -
										\$ -
Senior Tech: unit rate in hours			\$82	\$80	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					
Technical Services Manager: unit rate in hours			\$101	\$98						\$ -
			\$0	\$0						\$ -
						Police Details	week	\$2,427		\$ -
<b>TOTAL:</b>			<b>\$0</b>	<b>\$0</b>	<b>\$0</b>					<b>\$ 75,600</b>

<b>PROJECT TOTAL:</b>	<b>\$75,600</b>
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## CAPITAL PROJECT SUMMARY

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**Project Name:** Meters

**Project #:** 117

**Project Schedule:** Annual

**Project Manager:** Nick D'Alleva,  
Technical Services Manager

**Reason for Expenditure:**

Purchase of meters and metering equipment for new construction, upgrades, and failures.

**Brief Description/Scope:**

Two hundred residential and commercial meters as well as miscellaneous hardware will be purchases for stock.

**Barriers:**

None anticipated at this time.

**Change in Scope of Work From Prior Fiscal Year:**

Not applicable.

**Status Update:**

Not applicable.

## CAPITAL PROJECT COST SHEET

PROJECT NAME: Meters

SCHEDULE: FY19

ITEM/TASK	RMLD LABOR					MATERIALS/CONTRACTORS				
	# of Units		Labor Total (unit rate x labor units)		Vehicle (labor units x vehicle rate)	DESCRIPTION	Unit	Unit Rate	# of Units	TOTAL
	Straight Time	OT	Straight Time	Overtime						
Line Department: 2-man crew - unit rate in weeks			\$6,455	\$6,267	\$920					
			\$0	\$0	\$0	Residential and commercial meters for stock.	each	\$300	200	\$ 60,000
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
Line Operations Supervision: unit rate in hours			\$106	\$103	\$21					
			\$0	\$0	\$0					\$ -
Engineering: unit rate in hours			\$80	\$78	\$21					\$ -
			\$0	\$0	\$0					\$ -
										\$ -
Senior Tech: unit rate in hours			\$82	\$80	\$21					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					
Technical Services Manager: unit rate in hours			\$101	\$98	\$21					\$ -
			\$0	\$0	\$0					\$ -
						Police Details	week	\$2,427		\$ -
<b>TOTAL:</b>			<b>\$0</b>	<b>\$0</b>	<b>\$0</b>					<b>\$ 60,000</b>

<b>PROJECT TOTAL:</b>	<b>\$60,000</b>
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## CAPITAL PROJECT SUMMARY

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**Project Name:** Transformers and Capacitors

**Project #:** 116

**Project Schedule:** Annual

**Project Manager:** Vaughan Bryan,  
Distribution Engineer

**Reason for Expenditure:**

A major quantity of standard units is necessary for proposed projects and stock on an ongoing basis.

**Brief Description/Scope:**

Transformer and capacitor bids will be prepared and units purchased as outlined on the Project Cost Sheet.

**Barriers:**

None anticipated at this time

**Change in Scope of Work From Prior Fiscal Year:**

Not applicable.

**Status Update:**

Not applicable.

## CAPITAL PROJECT COST SHEET

**PROJECT NAME:** Transformers and Capacitors

**SCHEDULE:** FY19

ITEM/TASK	RMLD LABOR					MATERIALS/CONTRACTORS				
	# of Units		Labor Total (unit rate x labor units)		Vehicle (labor units x vehicle rate)	DESCRIPTION	Unit	Unit Rate	# of Units	TOTAL
	Straight Time	OT	Straight Time	Overtime						
Line Department: 2-man crew - unit rate in weeks			\$6,455	\$6,267	\$920					
			\$0	\$0	\$0	Three-phase pad-mount transformers for proposed commercial services and stock	each	\$12,500	20	\$ 250,000
			\$0	\$0	\$0	Single-phase pad-mount transformers for proposed subdivisions and stock.	each	\$2,500	50	\$ 125,000
			\$0	\$0	\$0	Three-phase pole-mount transformers for proposed commercial services and stock	each	\$5,500	15	\$ 82,500
			\$0	\$0	\$0	Single-phase pole-mount transformers for proposed residential services and stock	each	\$1,500	50	\$ 75,000
			\$0	\$0	\$0	1,200 kVar capacitor banks	each	\$12,500	4	\$ 50,000
			\$0	\$0	\$0					\$ -
Line Operations Supervision: unit rate in hours			\$106	\$103	\$21					
			\$0	\$0	\$0					\$ -
Engineering: unit rate in hours			\$80	\$78	\$21					\$ -
			\$0	\$0	\$0					\$ -
										\$ -
Senior Tech: unit rate in hours			\$82	\$80	\$21					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
Technical Services Manager: unit rate in hours			\$101	\$98	\$21					\$ -
			\$0	\$0	\$0					\$ -
						Police Details	week	\$2,427		\$ -
<b>TOTAL:</b>			<b>\$0</b>	<b>\$0</b>	<b>\$0</b>					<b>\$ 582,500</b>

<b>PROJECT TOTAL:</b>	<b>\$582,500</b>
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## CAPITAL PROJECT SUMMARY

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**Project Name:** Pole Replacement Program, R, NR      **Project #:** 175

**Project Schedule:** Annual      **Project Manager:** John McDonagh,  
General Line Foreman

**Reason for Expenditure:**

In 2015 RMLD initiated a Pole Inspection Program. Ten percent of RMLD-owned poles are inspected annually by an outside contractor using various technology including resistograph technology. This Inspection Program provides RMLD with verifiable data on pole condition. Testing (through FY18), has identified 475 poles that were recommended for replacement.

**Brief Description/Scope:**

RMLD will replace 50 poles per year that are identified as part of the Pole Inspection Program. This project includes setting poles, transfers, and replacement of secondary services as needed.

**Barriers:**

None anticipated at this time.

**Change in Scope of Work From Prior Fiscal Year: Increase (Decrease)**

Not applicable.

**Status Update From Prior Fiscal Year:**

Since the inception of the Pole Inspection Program a total of 187 poles have been replaced, and 172 transfers have been completed (as of March 2018).

## CAPITAL PROJECT COST SHEET

**PROJECT NAME:** Pole Replacement Program

**SCHEDULE:** FY19

ITEM/TASK	RMLD LABOR					MATERIALS/CONTRACTORS				
	# of Units		Labor Total (unit rate x labor units)		Vehicle (labor units x vehicle rate)	DESCRIPTION	Unit	Unit Rate	# of Units	TOTAL
	Straight Time	OT	Straight Time	Overtime						
<b>Line Department: 2-man crew - unit rate in weeks</b>			\$6,455	\$6,267	\$920					
Set and transfer 50 poles.	20	5	\$129,105	\$31,334	\$23,000	Poles	each	\$400	50.0	\$ 20,000
			\$0	\$0	\$0	Miscellaneous hardware (bolts, etc.)	per pole	\$90	50.0	\$ 4,500
Service upgrades as necessary	1.2		\$7,746	\$0	\$1,104	Connectors and wires (for service upgrades)	per service	\$213	50.0	\$ 10,650
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
<b>Line Operations Supervision: unit rate in hours</b>			\$106	\$103						
Crew supervision	200	40	\$21,156	\$4,108						\$ -
<b>Engineering: unit rate in hours</b>			\$80	\$78						\$ -
Pole Foreman and DigSafes	40		\$3,205	\$0						\$ -
										\$ -
<b>Senior Tech: unit rate in hours</b>			\$82	\$80	\$21					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					
<b>Technical Services Manager: unit rate in hours</b>			\$101	\$98						\$ -
			\$0	\$0						\$ -
						Police Details	week	\$2,427	3.0	\$ 7,282
<b>TOTAL:</b>			<b>\$161,212</b>	<b>\$35,442</b>	<b>\$24,104</b>					<b>\$ 42,432</b>

**PROJECT TOTAL: \$263,190**

## CAPITAL PROJECT SUMMARY

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**Project Name:** Secondary and Main Replacement Program **Project #:** 458

**Project Schedule:** Annual **Project Manager:** John McDonagh, General  
Line Foreman  
All Engineers

**Reason for Expenditure:**

This preventive maintenance program is intended to upgrade and improve system reliability and address aging infrastructure.

**Brief Description/Scope:**

This program identifies aging infrastructure and addresses a variety of work to include: secondary upgrades and service drop upgrades as needed. The pole replacements, primary cable replacement and transformer upgrades will be done in conjunction with the Stepdown Area Conversions, Project 107. Two areas will be targeted for upgrade in FY19.

**Barriers:**

Future upgrades are in Verizon set territory and could result in pole setting delays.

**Change in Scope of Work from Prior Fiscal Year: Increase (Decrease)**

Not applicable.

**Status Update from Prior Fiscal Year:**

Not applicable.

## CAPITAL PROJECT COST SHEET

**PROJECT NAME:** Secondary & Main Replacement Program  
Project 1: Gerry Road & Drury Lane Area, LC

**SCHEDULE:** FY19

ITEM/TASK	RMLD LABOR					MATERIALS/CONTRACTORS				
	# of Units		Labor Total (unit rate x labor units)		Vehicle (labor units x vehicle rate)	DESCRIPTION	Unit	Unit Rate	# of Units	TOTAL
	Straight Time	OT	Straight Time	Overtime						
<b>Line Department: 2-man crew - unit rate in weeks</b>			\$6,455	\$6,267	\$920					
Frame up to 28 Verizon set poles in the Gerry & Drury Road area in LC for new secondary cable	1.4		\$9,037	\$0	\$1,288	Secondary hardware, brackets, connectors, etc	each	\$54.00	56	\$ 3,024
Install 4,100' of secondary cable	4.8		\$30,985	\$0	\$4,416	4/0-3/C secondary cable	foot	\$1.60	4100	\$ 6,560
Replace 56 services	4		\$25,821	\$0	\$3,680	120' of 1/0 - 3/C service wire for each service	each	\$100.00	56	\$ 5,600
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
<b>Line Operations Supervision: unit rate in hours</b>			\$106	\$103						
Supervision of Line crews	80		\$8,462	\$0						\$ -
<b>Engineering: unit rate in hours</b>			\$80	\$78						\$ -
Construction plans, outage notices, etc.	40		\$3,205	\$0						\$ -
										\$ -
<b>Senior Tech: unit rate in hours</b>			\$82	\$80	\$21					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
<b>Technical Services Manager: unit rate in hours</b>			\$101	\$98						\$ -
			\$0	\$0						\$ -
						Police Details	week	\$2,427	4.5	\$ 10,924
<b>TOTAL:</b>			<b>\$77,511</b>	<b>\$0</b>	<b>\$9,384</b>					<b>\$ 26,108</b>

<b>PROJECT TOTAL:</b>	<b>\$113,002</b>
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## CAPITAL PROJECT COST SHEET

### Secondary & Main Replacement Program

Project 2: Thomas, Putney, Bancroft,  
Atherton Area, LC

**PROJECT NAME:** \_\_\_\_\_

**SCHEDULE:** FY19

ITEM/TASK	RMLD LABOR					MATERIALS/CONTRACTORS				
	# of Units		Labor Total (unit rate x labor units)		Vehicle (labor units x vehicle rate)	DESCRIPTION	Unit	Unit Rate	# of Units	TOTAL
	Straight Time	OT	Straight Time	Overtime						
<b>Line Department: 2-man crew - unit rate in weeks</b>			\$6,455	\$6,267	\$920					
Frame up to 67 Verizon set poles in the Thomas, Putney, Bancroft, Atherton area in LC for new secondary cable	6.7		\$43,250	\$0	\$6,164	Secondary hardware, brackets, connectors, etc	each	\$54.00	116	\$ 6,264
Install 6,800' of secondary cable	8		\$51,642	\$0	\$7,360	4/0-3/C secondary cable	foot	\$1.60	6800	\$ 10,880
Replace up to 116 services	8.7		\$56,161	\$0	\$8,004	120' of 1/0 - 3/C service wire for each service	each	\$100.00	116	\$ 11,600
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
<b>Line Operations Supervision: unit rate in hours</b>			\$106	\$103						
Supervision of Line crews	120		\$12,694	\$0						\$ -
<b>Engineering: unit rate in hours</b>			\$80	\$78						\$ -
Construction plans, outage notices, etc.	80		\$6,410	\$0						\$ -
										\$ -
<b>Senior Tech: unit rate in hours</b>			\$82	\$80	\$21					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					
<b>Technical Services Manager: unit rate in hours</b>			\$101	\$98						\$ -
			\$0	\$0						\$ -
						Police Details	week	\$2,427	4.5	\$ 10,924
<b>TOTAL:</b>			\$170,156	\$0	\$21,528					\$ 39,668

**PROJECT TOTAL: \$231,351**





## CAPITAL PROJECT SUMMARY

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**Project Name:** 13.8kV Upgrade (Step-down Area, etc.)  
All Towns

**Project #:** 107

**Project Schedule:** Annual

**Project Manager:** All Engineers

**Reason for Expenditure:**

There are a number of step-down areas left in the RMLD service territory. These areas on the RMLD distribution system were originally fed from 5 kV distribution circuits. When RMLD began moving load over to the 13.8kV distribution circuits, most areas were converted but some areas were re-fed with pole-mount, step-down transformers. Most of the distribution system in these areas are 30+ years old and in need of upgrade before they can be converted.

**Brief Description/Scope:**

Replace poles, primary cable, and overhead transformers, as needed, in the various step-down areas. Convert areas to 13.8kV and remove step-down transformers. The secondary cable and service upgrades will be done in conjunction with Project 458.

**Barriers:**

Some areas are Verizon set areas.

**Change in Scope of Work From Prior Fiscal Year:**

Not applicable.

**Status Update:**

A conversion has been completed on Federal Street and Main Street in Reading. Additional, conversions are underway on Vine Street, and Timberneck Road in Reading; McDonald Road in Wilmington, and Adams Street in North Reading.

## CAPITAL PROJECT COST SHEET

**PROJECT NAME:** 13.8kV Upgrade (Step-down Areas, etc.)  
Project 1: Gerry & Drury Road Area, LC

**SCHEDULE:** FY19

ITEM/TASK	RMLD LABOR					MATERIALS/CONTRACTORS				
	# of Units		Labor Total (unit rate x labor units)		Vehicle (labor units x vehicle rate)	DESCRIPTION	Unit	Unit Rate	# of Units	TOTAL
	Straight Time	OT	Straight Time	Overtime						
<b>Line Department: 2-man crew - unit rate in weeks</b>			\$6,455	\$6,267	\$920					
Frame up to 28 Verizon set poles in the Gerry & Drury Road area in LC for new primary cable	2.6		\$16,784	\$0	\$2,392	Hardware, insulators, connectors, guys, cutouts, taps, brackets, ground rods, etc	each	\$180.00	28	\$ 5,040
Install 2,800' of primary cable	3.6		\$23,239	\$0	\$3,312	1/0 AAAC Primary	foot	\$0.87	2800	\$ 2,436
Replace seven (7) polemount transformers	2.8		\$18,075	\$0	\$2,576					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
<b>Line Operations Supervision: unit rate in hours</b>			\$106	\$103						
Supervision of Line crews	80		\$8,462	\$0						\$ -
<b>Engineering: unit rate in hours</b>			\$80	\$78						\$ -
Pole Foreman, 605As, construction drawings, switching orders, etc.	105		\$8,413	\$0						\$ -
										\$ -
<b>Senior Tech: unit rate in hours</b>			\$82	\$80	\$21					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					
<b>Technical Services Manager: unit rate in hours</b>			\$101	\$98						\$ -
			\$0	\$0						\$ -
						Police Details	week	\$2,427	4.5	\$ 10,924
<b>TOTAL:</b>			<b>\$74,972</b>	<b>\$0</b>	<b>\$8,280</b>					<b>\$ 18,400</b>

<b>PROJECT TOTAL:</b>	<b>\$101,652</b>
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## CAPITAL PROJECT COST SHEET

13.8kV Upgrade (Step-down Areas, etc.)

Project 2: Thomas, Putney, Bancroft,  
Atherton Area, LC

PROJECT NAME: \_\_\_\_\_

SCHEDULE: FY19 \_\_\_\_\_

ITEM/TASK	RMLD LABOR					MATERIALS/CONTRACTORS				
	# of Units		Labor Total (unit rate x labor units)		Vehicle (labor units x vehicle rate)	DESCRIPTION	Unit	Unit Rate	# of Units	TOTAL
	Straight Time	OT	Straight Time	Overtime						
Line Department: 2-man crew - unit rate in weeks			\$6,455	\$6,267	\$920					
Frame up to 28 Verizon set poles in the Gerry & Drury Road area in LC for new primary cable	9.2		\$59,388	\$0	\$8,464	Hardware, insulators, connectors, guys, cutouts, taps, brackets, ground rods, etc	each	\$180.00	67	\$ 12,060
Install 2,800' of primary cable	6.6		\$42,605	\$0	\$6,072	1/0 AAAC Primary	foot	\$0.87	5500	\$ 4,785
Replace seven (7) polemount transformers	4.8		\$30,985	\$0	\$4,416					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
Line Operations Supervision: unit rate in hours			\$106	\$103						
Supervision of Line crews	160		\$16,925	\$0						\$ -
Engineering: unit rate in hours			\$80	\$78						\$ -
Pole Foreman, 605As, construction drawings, switching orders, etc.	240		\$19,229	\$0						\$ -
										\$ -
Senior Tech: unit rate in hours			\$82	\$80	\$21					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					
Technical Services Manager: unit rate in hours			\$101	\$98						\$ -
			\$0	\$0						\$ -
						Police Details	week	\$2,427	10.0	\$ 24,275
TOTAL:			\$169,132	\$0	\$18,952					\$ 41,120

<b>PROJECT TOTAL:</b>	<b>\$229,203</b>
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## CAPITAL PROJECT SUMMARY

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**Project Name:** Underground Facilities Upgrades (URDs, Manholes, etc.) **Project #:** 106

**Project Schedule:** Annual **Project Manager:** Vaughan Bryan,  
Distribution Engineer  
John McDonagh, General Line  
Foreman

**Reason for Expenditure:**

There are 210 +/- underground residential subdivisions in the RMLD service territory, of which, 90 +/- are over 25 years old. These subdivisions are in need of new primary cable and transformers. Some of the URDs are in step-down areas and need to be upgraded before they can be converted to 7,970 volts. Most of the existing transformers are live-front units. The new pad-mount transformers will be dead-front units, which will improve reliability by eliminating the possibility of animal contacts within the pad transformer. The new transformers will be placed on box-pads that will raise the transformers out of the mulch beds, which will prevent premature rusting and corrosion of the transformers.

**Brief Description/Scope:**

Replace primary and neutral cables, and pad-mount transformers as needed in the various URDs. Some of the transformers within each of these subdivisions have already been replaced. The precast transformer pads will be replaced with fiberglass box pads as needed for elevation requirements. Certain areas will be targeted each year.

**Barriers:**

None anticipated at this time.

**Change in Scope of Work From Prior Fiscal Year:**

Not applicable.

**Status Update:**

The Department completed Crestwood and Robin Road in North Reading, portions of Spruce Road in North Reading, Cherokee Lane in Wilmington, and Aspen Road in North Reading. The Department is working to complete Westover Estates in Lynnfield and Shasta Lane in North Reading in FY18.

## CAPITAL PROJECT COST SHEET

**PROJECT NAME:** UG Facilities Upgrade (URDs, Manholes, etc.)  
Project 1: Arlene/Ella/Franklin Area, W

**SCHEDULE:** FY19

ITEM/TASK	RMLD LABOR					MATERIALS/CONTRACTORS				
	# of Units		Labor Total (unit rate x labor units)		Vehicle (labor units x vehicle rate)	DESCRIPTION	Unit	Unit Rate	# of Units	TOTAL
	Straight Time	OT	Straight Time	Overtime						
Line Department: 2-man crew - unit rate in weeks			\$6,455	\$6,267	\$920					
Replace URD and neutral cable	10		\$64,552	\$0	\$9,200	#2 CU 15 kV cable and neutral	foot	\$3	5500	\$ 16,500
Splice, terminate, elbows, grounding, etc.	2.6		\$16,784	\$0	\$2,392	splices, elbows, terminations, tape connectors, hardware, etc.	each	\$120	12	\$ 1,440
Replace 10 pad-mounted transformers	4.4		\$28,403	\$0	\$4,048	box pads	each	\$160	10	\$ 1,600
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
Line Operations Supervision: unit rate in hours			\$106	\$103						
Supervision of Line crews	160		\$16,925	\$0						\$ -
Engineering: unit rate in hours			\$80	\$78						\$ -
Switching, scheduling, notices, plans, etc.	128		\$10,255	\$0						\$ -
										\$ -
Senior Tech: unit rate in hours			\$82	\$80	\$21					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
Technical Services Manager: unit rate in hours			\$101	\$98						\$ -
			\$0	\$0						\$ -
						Police Details	week	\$2,427	2.0	\$ 4,855
<b>TOTAL:</b>			<b>\$136,919</b>	<b>\$0</b>	<b>\$15,640</b>					<b>\$ 24,395</b>

**PROJECT TOTAL: \$176,954**

## CAPITAL PROJECT COST SHEET

**PROJECT NAME:** UG Facilities Upgrade (URDs, Manholes, etc)  
Project 2: Carter/Willard Area, LC

**SCHEDULE:** FY19

ITEM/TASK	RMLD LABOR					MATERIALS/CONTRACTORS				
	# of Units		Labor Total (unit rate x labor units)		Vehicle (labor units x vehicle rate)	DESCRIPTION	Unit	Unit Rate	# of Units	TOTAL
	Straight Time	OT	Straight Time	Overtime						
Line Department: 2-man crew - unit rate in weeks			\$6,455	\$6,267	\$920					
Replace URD and neutral cable.	6		\$38,731	\$0	\$5,520	#2 CU 15 kV cable and neutral	foot	\$3	2500	\$ 7,500
Splice, terminate, elbows, grounding, etc.	1.2		\$7,746	\$0	\$1,104	splices, elbows, terminations, tape connectors, hardware, etc.	each	\$120	8	\$ 960
Replace three (3) pad-mounted transformers	1.4		\$9,037	\$0	\$1,288	box pads	each	\$160	3	\$ 480
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
Line Operations Supervision: unit rate in hours			\$106	\$103						
Supervision of Line crews	120		\$12,694	\$0						\$ -
Engineering: unit rate in hours			\$80	\$78						\$ -
Switching, scheduling, notices, plans, etc.	56		\$4,487	\$0						\$ -
										\$ -
Senior Tech: unit rate in hours			\$82	\$80	\$21					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					
Technical Services Manager: unit rate in hours			\$101	\$98						\$ -
			\$0	\$0						\$ -
						Police Details	week	\$2,427	1.0	\$ 2,427
<b>TOTAL:</b>			<b>\$72,695</b>	<b>\$0</b>	<b>\$7,912</b>					<b>\$ 11,367</b>

<b>PROJECT TOTAL:</b>	<b>\$91,975</b>
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## CAPITAL PROJECT COST SHEET

**PROJECT NAME:** UG Facilities Upgrade (URDs, Manholes, etc)  
Project 3: Sandspur Lane, NR

**SCHEDULE:** FY19

ITEM/TASK	RMLD LABOR					MATERIALS/CONTRACTORS				
	# of Units		Labor Total (unit rate x labor units)		Vehicle (labor units x vehicle rate)	DESCRIPTION	Unit	Unit Rate	# of Units	TOTAL
	Straight Time	OT	Straight Time	Overtime						
<b>Line Department: 2-man crew - unit rate in weeks</b>			\$6,455	\$6,267	\$920					
Replace URD and neutral cable	4.8		\$30,985	\$0	\$4,416	#2 CU 15 kV cable and neutral	foot	\$3	1200	\$ 3,600
Splice, terminate, elbows, grounding, etc.	0.8		\$5,164	\$0	\$736	splices, elbows, terminations, tape connectors, hardware, etc.	each	\$120	6	\$ 720
Replace two (2) pad-mounted transformers	1		\$6,455	\$0	\$920	box pads	each	\$160	2	\$ 320
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
<b>Line Operations Supervision: unit rate in hours</b>			\$106	\$103						
Suprevison of Line crews	40		\$4,231	\$0						\$ -
<b>Engineering: unit rate in hours</b>			\$80	\$78						\$ -
Switching, scheduling, notices, plans, etc.	40		\$3,205	\$0						\$ -
										\$ -
<b>Senior Tech: unit rate in hours</b>			\$82	\$80	\$21					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
<b>Technical Services Manager: unit rate in hours</b>			\$101	\$98						\$ -
			\$0	\$0						\$ -
						Police Details	week	\$2,427	1.0	\$ 2,427
<b>TOTAL:</b>			<b>\$50,041</b>	<b>\$0</b>	<b>\$6,072</b>					<b>\$ 7,067</b>

**PROJECT TOTAL: \$63,180**



## CAPITAL PROJECT SUMMARY

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**Project Name:** Service Connections  
(Commercial and Residential)

**Project #:** various

**Project Schedule:** Annual

**Project Manager:** John McDonagh,  
General Line Foreman

**Reason for Expenditure:**

To install new and upgraded services for both residential and commercial/industrial customers in the service territory.

**Brief Description/Scope:**

This item includes new service connections, upgrades, and service replacements for residential, commercial, and industrial customers. This represents the time and materials associated with the replacement of an existing or installation of a new overhead service drop and the connection of an underground service, etc. This does not include the time and materials associated with pole replacements/installations, transformer replacements/installations, primary or secondary cable replacements/installations, etc. These aspects of a project are captured under Routine Construction.

**Barriers:**

None anticipated at this time.

**Change in Scope of Work From Prior Fiscal Year**

Not applicable.

**Status Update:**

Not applicable.

## CAPITAL PROJECT COST SHEET

**PROJECT NAME:** Service Connections (Residential/Commercial)

**SCHEDULE:** FY19

ITEM/TASK	RMLD LABOR					MATERIALS/CONTRACTORS				
	# of Units		Labor Total (unit rate x labor units)		Vehicle (labor units x vehicle rate)	DESCRIPTION	Unit	Unit Rate	# of Units	TOTAL
	Straight Time	OT	Straight Time	Overtime						
Line Department: 2-man crew - unit rate in weeks			\$6,455	\$6,267	\$920					
Install new and upgraded service connections at approximately 350 units	12		\$77,463	\$0	\$11,040	Secondary hardware, brackets, connectors, etc.	per service	\$54	350.0	\$ 18,900
			\$0	\$0	\$0	120' of 1/O - 3/C service wire for each service	per service	\$100	350.0	\$ 35,000
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
Line Operations Supervision: unit rate in hours			\$106	\$103						
			\$0	\$0						\$ -
Engineering: unit rate in hours			\$80	\$78						\$ -
			\$0	\$0						\$ -
										\$ -
Senior Tech: unit rate in hours			\$82	\$80	\$21					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					
Technical Services Manager: unit rate in hours			\$101	\$98						\$ -
			\$0	\$0						\$ -
						Police Details	week	\$2,427		\$ -
<b>TOTAL:</b>			<b>\$77,463</b>	<b>\$0</b>	<b>\$11,040</b>					<b>\$ 53,900</b>

<b>PROJECT TOTAL:</b>	<b>\$142,403</b>
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## CAPITAL PROJECT SUMMARY

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**Project Name:** Routine Construction

**Project #:** various

**Project Schedule:** Annual

**Project Manager:** Various

**Reason for Expenditure:**

Routine Construction covers routine activity as well as capital construction projects that develop during the year including, but not limited to items shown below.

**Brief Description/Scope:**

- Overhead and underground system upgrades
- Miscellaneous projects
- Pole damage
- Station upgrades
- Porcelain cutout replacements
- Street Light Connections – new equipment installation
- Pole setting/transfers
- Underground subdivisions (new construction)

**Barriers:**

None anticipated at this time.

**Change in Scope of Work From Prior Fiscal Year:**

Not applicable.

**Status Update:**

Not applicable.

## CAPITAL PROJECT COST SHEET

PROJECT NAME: Routine Construction

SCHEDULE: FY19

ITEM/TASK	RMLD LABOR					MATERIALS/CONTRACTORS				
	# of Units		Labor Total (unit rate x labor units)		Vehicle (labor units x vehicle rate)	DESCRIPTION	Unit	Unit Rate	# of Units	TOTAL
	Straight Time	OT	Straight Time	Overtime						
Line Department: 2-man crew - unit rate in weeks			\$6,455	\$6,267	\$920					
Capital Construction	20	10	\$129,105	\$62,668	\$27,600	Materials as necessary				\$ 200,000
Street Light Installations	4		\$25,821	\$0	\$3,680	Materials as necessary				\$ 50,000
Pole Setting/Transfers	27		\$174,291	\$0	\$24,840	Materials as necessary				\$ 90,000
Underground Construction	1.5		\$9,683	\$0	\$1,380	Materials as necessary				\$ 115,000
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
Line Operations Supervision: unit rate in hours			\$106	\$103						
Crew supervision	110		\$11,636	\$0						\$ -
Engineering: unit rate in hours			\$80	\$78						\$ -
Project management	320		\$25,638	\$0						\$ -
										\$ -
Senior Tech: unit rate in hours			\$82	\$80	\$21					\$ -
			\$0	\$0	\$0					\$ -
			\$0	\$0	\$0					\$ -
Technical Services Manager: unit rate in hours			\$101	\$98						\$ -
			\$0	\$0						\$ -
						Police Details	week	\$2,427	52.0	\$ 126,229
<b>TOTAL:</b>			<b>\$376,174</b>	<b>\$62,668</b>	<b>\$57,500</b>					<b>\$ 581,229</b>

**PROJECT TOTAL: \$1,077,572**

## FY19 OPERATING BUDGET

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READING MUNICIPAL LIGHT DEPARTMENT  
SIX YEAR PLAN  
MARCH 31, 2018

	BUDGET FY17	ACTUAL FY17	BUDGET FY18	8 ACT / 4 BUD FY18	BUDGET FY19	BUDGET FY20	BUDGET FY21	BUDGET FY22	BUDGET FY23
FORECASTED kWh SALES		675,536,970		662,548,949	655,923,460	649,364,225	642,870,583	638,441,877	630,077,459
<b>OPERATING REVENUES:</b>									
SALES OF ELEC - BASE	\$ 25,500,000	\$ 25,801,354	\$ 26,337,621	\$ 26,136,738	\$ 27,786,190	\$ 28,758,707	\$ 29,621,468	\$ 30,510,112	\$ 30,815,213
SALES OF ELEC - FUEL	34,074,492	33,468,084	32,491,810	33,764,234	33,390,196	33,712,097	34,037,218	34,365,591	34,697,247
SALES OF ELEC - CAPACITY/TRANSMISSION	34,322,278	33,237,804	38,088,978	39,173,122	37,877,303	34,582,425	32,972,372	32,789,952	34,460,703
FORFEITED DISCOUNTS	888,500	854,167	800,000	784,102	833,586	862,761	888,644	915,303	924,456
ENERGY CONSERVATION	673,000	663,806	675,000	662,549	655,924	648,364	642,871	636,442	630,078
NYPA	(900,000)	(1,208,457)	(1,200,000)	(1,200,000)	(1,200,000)	(1,200,000)	(1,200,000)	(1,200,000)	(1,200,000)
TOTAL OPERATING REVENUES	<u>94,358,270</u>	<u>92,616,757</u>	<u>97,193,409</u>	<u>99,320,745</u>	<u>99,343,198</u>	<u>97,365,354</u>	<u>96,962,573</u>	<u>98,017,400</u>	<u>100,327,697</u>
<b>OPERATING EXPENSES:</b>									
PURCHASED POWER - FUEL	33,174,492	31,534,934	31,291,810	32,564,234	32,190,196	32,512,097	32,837,218	33,165,591	33,497,247
PURCHASED POWER - CAPACITY	20,943,651	20,101,145	24,476,161	25,138,916	22,884,320	18,589,910	16,355,149	15,672,963	16,379,786
PURCHASED POWER - TRANSMISSION	13,378,627	13,087,359	13,612,817	14,034,206	14,992,983	15,992,515	16,617,223	17,118,989	18,080,917
OPERATING & MAINTENANCE EXPENSE	5,369,935	5,350,517	5,569,029	5,588,934	5,599,394	5,767,376	5,940,397	6,118,609	6,302,187
GENERAL & ADMINISTRATIVE EXPENSE	10,455,280	11,539,403	10,734,032	10,956,721	11,990,777	12,350,500	12,721,015	13,102,648	13,495,725
DEPRECIATION EXPENSE	4,134,000	4,101,308	4,362,000	4,305,989	4,516,000	4,713,000	5,029,000	5,329,000	5,549,000
TOWN PAYMENTS	1,445,420	1,433,143	1,500,000	1,496,714	1,569,789	1,601,240	1,678,270	1,786,480	1,846,300
TOTAL OPERATING EXPENSES	<u>88,901,405</u>	<u>87,127,811</u>	<u>91,545,849</u>	<u>94,085,714</u>	<u>93,743,459</u>	<u>91,526,638</u>	<u>91,178,272</u>	<u>92,292,278</u>	<u>95,151,142</u>
TOTAL OPERATING INCOME	<u>5,456,865</u>	<u>5,488,946</u>	<u>5,647,560</u>	<u>5,235,031</u>	<u>5,599,739</u>	<u>5,838,716</u>	<u>5,784,300</u>	<u>5,725,123</u>	<u>5,176,555</u>
<b>NONOPERATING REVENUES (EXPENSES):</b>									
INTEREST INCOME	125,000	271,658	150,000	250,000	250,000	250,000	250,000	250,000	250,000
OTHER INCOME	890,000	1,176,086	890,000	900,000	850,000	850,000	850,000	850,000	850,000
VOLUNTARY PILOT PAYMENT TO READING	(2,384,668)	(2,384,668)	(2,420,438)	(2,419,770)	(2,480,506)	(2,542,519)	(2,606,082)	(2,671,234)	(2,738,014)
LOSS ON DISPOSAL OF ASSETS	(150,000)	(74,898)	(150,000)	(150,000)	(150,000)	(150,000)	(150,000)	(150,000)	(150,000)
CUSTOMER DEPOSIT INTEREST EXP	(2,100)	(4,674)	(2,500)	(14,000)	(16,000)	(18,000)	(18,000)	(18,000)	(18,000)
TOTAL NONOPERATING REVENUES (EXPENSES)	<u>(1,521,768)</u>	<u>(1,016,296)</u>	<u>(1,532,938)</u>	<u>(1,433,770)</u>	<u>(1,546,506)</u>	<u>(1,610,519)</u>	<u>(1,674,082)</u>	<u>(1,739,234)</u>	<u>(1,806,014)</u>
NET INCOME	<u>\$ 3,935,097</u>	<u>\$ 4,472,650</u>	<u>\$ 4,114,622</u>	<u>\$ 3,801,261</u>	<u>\$ 4,053,233</u>	<u>\$ 4,228,198</u>	<u>\$ 4,110,219</u>	<u>\$ 3,985,889</u>	<u>\$ 3,370,540</u>
RATE OF RETURN	7.81%	7.27%	7.75%	7.77%	7.86%	7.70%	7.22%	7.00%	6.29%

The RMLD is allowed up to 8% rate of return, however strategic planning targets a balance of keeping rates low, funding the capital infrastructure plan and supporting nonoperating expenses.

Town of Reading, Massachusetts  
Municipal Light Department  
Statement of Budgeted Revenues and Expenses

	Budget FY17	Actual FY17	Budget FY18	8 Actual/4 Budget FY18	Budget FY19
<b>Operating Revenues</b>					
Base Revenue	\$ 25,500,000	\$ 25,601,354	\$ 26,337,621	\$ 26,136,738	\$ 27,786,190
Fuel Revenue	34,074,492	33,468,084	32,491,810	33,764,234	33,390,196
Purchased Power Capacity/Transmission	34,322,278	33,237,804	38,088,978	39,173,122	37,877,303
Forfeited Discounts	688,500	854,167	800,000	784,102	833,586
Energy Conservation Revenue	673,000	663,806	675,000	662,549	655,924
NYPA	(900,000)	(1,208,457)	(1,200,000)	(1,200,000)	(1,200,000)
Total Operating Revenues	94,358,270	92,616,577	97,193,409	99,320,745	99,343,198
<b>Expenses</b>					
<b>Power Expenses:</b>					
547 Purchased Power - Fuel	33,174,492	31,534,934	31,291,810	32,564,234	32,190,196
555 Purchased Power - Capacity	20,943,651	20,101,145	24,476,161	25,138,916	22,884,320
565 Purchased Power - Transmission	13,378,827	13,067,359	13,612,817	14,034,206	14,992,983
Total Purchased Power	67,496,770	64,703,438	69,380,788	71,737,356	70,067,499
<b>Operating and Maintenance Expenses:</b>					
580 Supervision and Engineering	702,323	579,420	900,777	813,602	1,075,757
581 Station/Control Room Operators	560,783	529,731	568,578	500,467	502,112
582 Station Tech	396,178	437,537	392,932	460,694	504,300
583 Line General Labor	-	-	-	-	24,818
585 Street Lighting	77,442	74,533	111,446	109,748	43,968
586 Meter General	222,099	245,920	209,412	241,760	212,933
588 Materials Management	376,418	345,075	379,312	436,513	440,005
590 Maintenance of Structures and Equipment	7,500	125,016	18,500	25,557	-
593 Maintenance of Lines - Overhead	1,047,824	1,200,739	1,059,276	1,302,072	783,322
593 Maintenance of Lines - Tree Trimming	786,958	862,024	886,340	754,942	898,865
594 Maintenance of Lines - Underground	119,406	239,040	197,002	119,916	484,399
595 Maintenance of Line Transformers	300,000	34,801	300,000	183,064	300,000
596 Maintenance of Street Light and Signal Syster	7,791	67,242	45,447	15,149	92,072
598 Line General Leave Time Labor	765,213	609,438	500,007	625,450	236,844
Total Operating and Maintenance Expenses	5,369,935	5,350,517	5,569,029	5,568,934	5,599,394
<b>General &amp; Administrative Expenses:</b>					
902 Meter Reading	25,153	22,519	37,464	41,018	31,741
903 Customer Collection	942,224	1,183,052	921,024	901,960	1,114,677
904 Uncollectible Accounts	150,000	85,707	150,000	150,000	105,000
916 Integrated Resources	591,898	520,353	509,232	485,873	495,754
916 Energy Conservation	871,575	778,281	952,565	712,978	975,712
920 Administrative and General Salaries	1,958,308	1,630,643	1,983,217	1,909,971	1,988,492
921 Office Supplies	25,000	18,757	25,000	15,692	20,000
923 Outside Services-Legal and Contract	406,800	851,876	471,900	662,322	811,908
923 Outside Services-Education	234,575	127,282	289,691	166,621	243,893
924 Property Insurance	424,500	335,591	427,200	367,626	426,200
925 Injuries and Damages	57,215	73,255	52,613	62,104	47,449
926 Employee Pensions and Benefits	2,922,673	4,334,971	3,000,437	3,760,646	3,772,990
930 Miscellaneous General Expense	417,964	304,330	456,094	411,682	485,659
931 Rent	212,000	181,116	212,000	212,000	212,000
933 Vehicle	549,598	253,122	391,116	322,478	311,200
933 Transportation Capital Clearing	(300,000)	(245,780)	(301,596)	(324,267)	(284,440)
935 Maintenance of General Plant	180,000	336,003	281,880	329,024	335,148
935 Maintenance of Building & Garage	785,797	748,327	874,195	768,993	897,195
Total General & Administrative Expenses	10,455,280	11,539,403	10,734,032	10,956,721	11,990,777
<b>Other Operating Expenses:</b>					
403 Depreciation	4,134,000	4,101,308	4,362,000	4,305,989	4,516,000
408 Voluntary Payments to Towns	1,445,420	1,433,443	1,500,000	1,498,714	1,589,789
Total Other Expenses	5,579,420	5,534,451	5,862,000	5,804,703	6,085,789
<b>Operating Income</b>	<b>5,456,665</b>	<b>5,488,946</b>	<b>5,647,560</b>	<b>5,235,031</b>	<b>5,599,739</b>
<b>Non Operating Revenues (Expenses):</b>					
419 Interest Income	125,000	271,658	150,000	250,000	250,000
419 Other Income	890,000	1,176,086	890,000	900,000	850,000
426 Voluntary PILOT Payment to Reading	(2,384,668)	(2,384,668)	(2,420,438)	(2,419,770)	(2,480,506)
426 Loss on Disposal	(150,000)	(74,698)	(150,000)	(150,000)	(150,000)
431 Interest Expense	(2,100)	(4,674)	(2,500)	(14,000)	(16,000)
Total Non Operating Revenues (Expenses)	(1,521,768)	(1,016,296)	(1,532,938)	(1,433,770)	(1,546,506)
<b>Net Income</b>	<b>\$ 3,935,097</b>	<b>\$ 4,472,650</b>	<b>\$ 4,114,622</b>	<b>\$ 3,801,261</b>	<b>\$ 4,053,233</b>



Town of Reading, Massachusetts  
Municipal Light Department  
Statement of Budgeted Revenues and Expenses

	Budget FY19	Budget FY18	Change in Budget %
<b>Operating Revenues</b>			
Base Revenue	\$ 27,786,190	\$ 26,337,621	5.5%
Fuel Revenue	33,390,196	32,491,810	2.8%
Purchased Power Capacity/Transmission	37,877,303	38,088,978	(0.6%)
Forfeited Discounts	833,586	800,000	4.2%
Energy Conservation Revenue	655,924	675,000	(2.8%)
NYPA	(1,200,000)	(1,200,000)	0.0%
Total Operating Revenues	99,343,198	97,193,409	2.2%
<b>Expenses</b>			
<b>Power Expenses:</b>			
547 Purchased Power - Fuel	32,190,196	31,291,810	2.9%
555 Purchased Power - Capacity	22,884,320	24,476,161	(6.5%)
565 Purchased Power - Transmission	14,992,983	13,612,817	10.1%
Total Purchased Power	70,067,499	69,380,788	1.0%
<b>Operating and Maintenance Expenses:</b>			
580 Supervision and Engineering	1,075,757	900,777	19.4%
581 Station/Control Room Operators	502,112	568,578	(11.7%)
582 Station Tech	504,300	392,932	28.3%
583 Line General Labor	24,818	-	100.0%
585 Street Lighting	43,968	111,446	(60.5%)
586 Meter General	212,933	209,412	1.7%
588 Materials Management	440,005	379,312	16.0%
590 Maintenance of Structures and Equipment	-	18,500	(100.0%)
593 Maintenance of Lines - Overhead	783,322	1,059,276	(26.1%)
593 Maintenance of Lines - Tree Trimming	898,665	886,340	1.4%
594 Maintenance of Lines - Underground	484,399	197,002	145.9%
595 Maintenance of Line Transformers	300,000	300,000	0.0%
596 Maintenance of Street Light and Signal System	92,072	45,447	102.6%
598 Line General Leave Time Labor	236,844	500,007	(52.6%)
Total Operating and Maintenance Expenses	5,599,394	5,569,029	0.5%
<b>General &amp; Administrative Expenses:</b>			
902 Meter Reading	31,741	37,464	(15.3%)
903 Customer Collection	1,114,877	921,024	21.0%
904 Uncollectible Accounts	105,000	150,000	(30.0%)
916 Integrated Resources	495,754	509,232	(2.6%)
916 Energy Conservation	975,712	952,565	2.4%
920 Administrative and General Salaries	1,968,492	1,983,217	0.3%
921 Office Supplies	20,000	25,000	(20.0%)
923 Outside Services-Legal and Contract	811,908	471,900	72.1%
923 Outside Services-Education	243,893	289,691	(15.8%)
924 Property Insurance	426,200	427,200	(0.2%)
925 Injuries and Damages	47,449	52,613	(9.8%)
926 Employee Pensions and Benefits	3,772,990	3,000,437	25.7%
930 Miscellaneous General Expense	485,659	456,094	6.5%
931 Rent	212,000	212,000	0.0%
933 Vehicle	311,200	391,116	(20.4%)
933 Transportation Capital Clearing	(284,440)	(301,596)	(5.7%)
935 Maintenance of General Plant	335,148	281,880	18.9%
935 Maintenance of Building & Garage	897,195	874,195	2.6%
Total General & Administrative Expenses	11,990,777	10,734,032	11.7%
<b>Other Operating Expenses:</b>			
403 Depreciation	4,516,000	4,362,000	3.5%
408 Voluntary Payments to Towns	1,569,789	1,500,000	4.7%
Total Other Expenses	6,085,789	5,862,000	3.8%
<b>Operating Income</b>	<b>5,599,739</b>	<b>5,647,560</b>	<b>(0.8%)</b>
<b>Non Operating Revenues (Expenses):</b>			
419 Interest Income	250,000	150,000	66.7%
419 Other Income	850,000	890,000	(4.5%)
426 Voluntary PILOT Payment to Reading	(2,480,506)	(2,420,438)	2.5%
426 Loss on Disposal	(150,000)	(150,000)	0.0%
431 Interest Expense	(16,000)	(2,500)	540.0%
Total Non Operating Revenues (Expenses)	(1,546,506)	(1,532,938)	0.9%
<b>Net Income</b>	<b>\$ 4,053,233</b>	<b>\$ 4,114,622</b>	<b>(1.5%)</b>

**READING MUNICIPAL LIGHT DEPARTMENT  
FISCAL YEAR 2019 OPERATING BUDGET  
ACTUAL AND PROJECTED FIXED AND SEMI-VARIABLE COSTS**

<b>FIXED COSTS:</b>	<b>FY17 BUDGET</b>	<b>FY17 ACTUAL</b>	<b>FY18 BUDGET</b>	<b>FY18 - B ACT/4 BUD</b>	<b>FY19 BUDGET</b>	<b>% OF FY19 BUDGET</b>
Purchased Power - Fuel	\$ 33,174,492	\$ 31,534,934	\$ 31,291,810	\$ 32,564,234	\$ 32,190,196	33.40%
Purchased Power - Capacity	20,943,651	20,101,145	24,476,161	25,138,916	22,884,320	23.74%
Purchased Power - Transmission	13,378,627	13,067,359	13,612,817	14,034,206	14,992,983	15.55%
Depreciation Expense	4,134,000	4,101,308	4,362,000	4,305,989	4,516,000	4.69%
Voluntary PILOT Payment to Reading	2,384,668	2,384,668	2,420,438	2,419,770	2,480,506	2.57%
Town Payments	1,445,420	1,433,143	1,500,000	1,496,714	1,569,789	1.63%
Misc Deduction - Losses on Disposal	150,000	74,698	150,000	150,000	150,000	0.16%
<b>SUB-TOTAL</b>	<b>75,610,858</b>	<b>72,697,256</b>	<b>77,813,226</b>	<b>80,109,829</b>	<b>78,783,794</b>	<b>81.73%</b>
<b>SEMI VARIABLE COSTS:</b>						
Labor	6,559,885	5,883,643	6,394,381	6,216,899	6,423,097	6.66%
Employee Benefits/Pension	2,922,673	4,334,971	3,000,437	3,760,646	3,772,990	3.91%
Conservation Expenses	871,575	778,281	952,565	712,978	975,712	1.01%
Overtime	561,520	727,092	763,517	979,889	971,731	1.01%
Tree Trimming	786,958	862,024	886,340	754,942	898,865	0.93%
Legal & Professional Services	406,800	851,876	471,900	662,322	811,908	0.84%
Other General and Admin Expenses	481,530	426,133	543,762	511,748	591,646	0.61%
Customer Processing Fees	509,000	747,354	484,599	462,341	532,600	0.55%
Maint of Building and Garage	406,000	364,844	476,400	362,501	497,550	0.52%
Property Insurance	424,500	335,591	427,200	367,626	426,200	0.44%
Other Operating and Maint Expenses	465,986	714,611	473,756	631,686	383,622	0.40%
Maint of General Plant	180,000	336,003	281,880	329,024	335,148	0.35%
Vehicle Expense	549,598	253,122	391,116	322,478	311,200	0.32%
Vehicle Capital Clearing	(300,000)	(245,780)	(301,596)	(324,267)	(284,440)	-0.30%
Transformer (hazardous material)	300,000	34,801	300,000	183,064	300,000	0.31%
Training/Tuition	234,575	127,282	289,691	166,621	243,893	0.25%
Rent Expense	212,000	181,116	212,000	212,000	212,000	0.22%
Bad Debt Expense	150,000	85,707	150,000	150,000	105,000	0.11%
Injuries & Damages	57,215	73,255	52,613	62,104	47,449	0.05%
RMLB/CAB	22,500	3,913	30,000	19,360	30,000	0.03%
Office Supplies	25,000	18,758	25,000	15,692	20,000	0.02%
<b>SUB-TOTAL</b>	<b>15,827,315</b>	<b>16,894,596</b>	<b>16,305,561</b>	<b>16,559,655</b>	<b>17,606,171</b>	<b>18.27%</b>
<b>TOTAL EXPENSES</b>	<b>\$ 91,438,173</b>	<b>\$ 89,591,851</b>	<b>\$ 94,118,787</b>	<b>\$ 96,669,484</b>	<b>\$ 96,389,965</b>	<b>100.00%</b>

**READING MUNICIPAL LIGHT DEPARTMENT  
FISCAL YEAR 2019 OPERATING BUDGET  
SUPPLEMENTAL INFORMATION**

<b>SEMI VARIABLE COSTS:</b>	<b>FY19 OPERATING BUDGET</b>	<b>FY19 CAPITAL BUDGET</b>	<b>TOTAL COSTS</b>
Labor	\$ 6,423,097	\$ 1,358,066	\$ 7,781,163
Employee Benefits/Pension	3,772,990	810,390	4,583,380
Conservation Expenses	975,712		975,712
Overtime	971,731	99,469	1,071,200
Tree Trimming	898,865		898,865
Legal & Professional Services	811,908		811,908
Other General and Admin Expenses	591,646		591,646
Customer Processing Fees	532,600		532,600
Maint of Building and Garage	497,550		497,550
Property Insurance	426,200		426,200
Other Operating and Maint Expenses	383,622	271,878	655,500
Maint of General Plant	335,148		335,148
Vehicle Expense	311,200		311,200
Vehicle Capital Clearing	(284,440)	284,440	-
Transformer (hazardous material)	300,000		300,000
Training/Tuition	243,893		243,893
Rent Expense	212,000		212,000
Bad Debt Expense	105,000		105,000
Injuries & Damages	47,449	29,150	76,599
RMLB/CAB	30,000		30,000
Office Supplies	20,000		20,000
<b>SUB-TOTAL</b>	<b>\$ 17,606,171</b>	<b>\$ 2,853,393</b>	<b>\$ 20,459,564</b>

**FY2019 BUDGET SUMMARY**

**PURCHASE POWER EXPENSE**

<b>PROJECT</b>	<b>CAPACITY</b>	<b>% of Total</b>	<b>TRANSMISSION</b>	<b>% of Total</b>	<b>ENERGY</b>	<b>% of Total</b>	<b>TOTAL</b>	<b>% of Total</b>
NUC. MIX #1 MILLSTONE	729,695	3.2%	17,804	0.1%	159,373	0.5%	906,872	1.3%
NUC. MIX #1 SEABROOK	59,747	0.3%	155	0.0%	15,729	0.0%	75,631	0.1%
PROJ. #3 MILLSTONE	524,911	2.3%	12,729	0.1%	122,204	0.4%	659,845	0.9%
PROJ. #4 SEABROOK	1,474,477	6.4%	3,535	0.0%	386,027	1.2%	1,864,039	2.7%
PROJ. #5 SEABROOK	185,141	0.8%	436	0.0%	47,635	0.1%	233,213	0.3%
NYPA	86,736	0.4%	634,410	4.2%	149,153	0.5%	870,299	1.2%
STONYBROOK PEAKING PROJECT	615,915	2.7%	28,123	0.2%	39,522	0.1%	683,561	1.0%
STONYBROOK INTERMEDIATE PROJECT	2,043,772	8.9%	53,885	0.4%	3,372,731	10.5%	5,470,388	7.8%
ISO-NE	16,279,544	71.1%	14,241,905	95.0%	6,076,769	18.9%	36,598,218	52.2%
NEMA CONGESTION					120,000	0.4%	120,000	0.2%
BRAINTREE WATSON	796,349	3.5%			426,074	1.3%	1,222,423	1.7%
BATTERY STORAGE - NORTH READING	137,232	0.6%			2,567,382	8.0%	2,704,614	3.9%
HYDRO QUEBEC SUPPORT SERVICES	(49,200)	-0.2%				0.0%	(49,200)	-0.1%
REMVEC					10,200	0.0%	10,200	0.0%
EXELON					4,973,286	15.4%	4,973,286	7.1%
BP ENERGY					1,211,870	3.8%	1,211,870	1.7%
SHELL ENERGY					5,783,059	18.0%	5,783,059	8.3%
SWIFT RIVER HYDRO					1,682,953	5.2%	1,682,953	2.4%
SUMMIT HYDRO					1,432,925	4.5%	1,432,925	2.0%
COLLINS HYDRO					392,326	1.2%	392,326	0.6%
PIONEER HYDRO					370,917	1.2%	370,917	0.5%
HOSIERY MILL HYDRO					147,406	0.5%	147,406	0.2%
SADDLEBACK WIND					1,352,990	4.2%	1,352,990	1.9%
JERICO WIND					778,910	2.4%	778,910	1.1%
ONE BURLINGTON SOLAR/ALTUS/KEARSAGE					545,555	1.7%	545,555	0.8%
COOP / RESALE					25,200	0.1%	25,200	0.0%
<b>TOTAL</b>	<b>22,884,320</b>	<b>100.0%</b>	<b>14,992,983</b>	<b>100.0%</b>	<b>32,190,196</b>	<b>100.0%</b>	<b>70,067,498</b>	<b>100.0%</b>

NYPA : New York Power Authority

ISO-NE: Independent System Operator - New England

REMVEC: Rhode Island, Eastern Massachusetts, Vermont, Energy Control

NEMA: Northeast Massachusetts

## **Description of RMLD's Power Supply**

### **Stony Brook Intermediate Unit**

The Stony Brook Intermediate Unit is a 354-megawatt, combined-cycle power plant that entered commercial operation in 1981.

The unit's three gas turbines generate electricity using either No. 2 oil or natural gas, with additional electricity produced using a single steam turbine in the combined-cycle process. MMWEC completed construction of a natural gas pipeline to serve the Intermediate Unit in September 2002. The RMLD has a Life of Unit (LOU) entitlement for 14.453% of the unit or approximately 51 Mws. The RMLD has paid off the debt service associated with this project.

#### **Quick Facts – Stonybrook Intermediate Unit**

Location	Ludlow, Massachusetts
On-Line Date	1981
Fuel	No. 2 oil/natural gas
Principal Owner/Operator	MMWEC
Total Capacity	354 megawatts

### **Stony Brook Peaking Unit**

The Stony Brook Peaking Unit is a 172-megawatt peaking plant that entered commercial operation in 1982.

The unit's two turbines generate electricity using No. 2 oil. The RMLD has a Life of Unit (LOU) entitlement for 19.516% of the unit which is equivalent to approximately 33 Mws. The RMLD has paid off the debt service associated with this project.

#### Quick Facts – Stonybrook Peaking Unit

Location	Ludlow, Massachusetts
On-Line Date	1982
Fuel	No. 2 oil
Principal Owner/Operator	MMWEC
Total Capacity	172 megawatts

#### **Braintree Electric Light Department - Watson Unit**

The simple-cycle gas fired plant is powered by the first two Rolls-Royce Trent 60 gas turbines built for the U.S. power generation market – known as Watson Units #1 and #2. The units entered commercial operation on June 23, 2009.

Both Watson Units are bid into the ISO New England market system daily and are dispatched based on their bid price.

The units two turbines generate electricity using natural gas, with No. 2 oil as backup fuel. The RMLD has a 20 year entitlement for 10% of the unit which is equivalent to about 10 Mws.

#### Quick Facts – Watson Unit

Location	Braintree, Massachusetts
On-Line Date	2009
Fuel	Natural gas/No. 2 oil
Principal Owner/Operator	BELD
Total Capacity	100 megawatts

#### **Seabrook Station**

Seabrook Station is a 1,244-megawatt nuclear generating plant located in Seabrook, New Hampshire. An operating license for Seabrook was issued in 1986, but the plant did not begin commercial operation until 1990. The principal owner and operator of Seabrook Station is NextEra Energy Resources LLC, a subsidiary of Florida based FPL

Group, Inc. NextEra owns 88.2% of Seabrook Station. The other owners are MMWEC (11.59%) and two Massachusetts municipal utilities, the Taunton Municipal Lighting Plant (0.13%) and Hudson Light & Power Department (0.08%).

NextEra has announced plans to seek an extension of its Seabrook operating license from the current license expiration of 2030 to 2050. RMLD signed 3 different projects to finance Seabrook, Mix 1, Project 4, and Project 5. The debt service associated with these projects will be paid-off in 2014, 2017 & 2018 respectively. The RMLD has a Life of Unit (LOU) for 0.635% or approximately 8 Mws of the unit.

#### Quick Facts – Seabrook Station

Location	Seabrook, New Hampshire
On-Line Date	1990
Fuel	Nuclear – Pressurized Water Reactor
Principal Owner/Operator	NextEra Energy Resources, LLC
Total Capacity	1,244 megawatts

### Millstone Unit 3

Millstone Unit 3 is a 1,237-megawatt nuclear generating plant located in Waterford, Connecticut. Millstone Unit 3, which began operation in 1986, is the newest and largest of the Millstone Station's three nuclear units, one of which is retired from service. The principal owner and operator of Millstone Station is Dominion Nuclear Connecticut, Inc., a subsidiary of Virginia-based Dominion Resources, Inc. Dominion Connecticut owns 93.4% of Millstone Unit 3.

The Nuclear Regulatory Commission (NRC) on November 28, 2005 approved Dominion Nuclear Connecticut's request for a 20-year operating license extension for Millstone's Unit 3 reactor. The license now expires in November, 2045. RMLD signed two different projects to finance Millstone #3, Mix 1 and Project 3. The debt service associated with these projects will be paid off in 2014 & 2018 respectively. The RMLD has a LOU agreement for 0.404% of the units which equates to approximately 4.6 Mws.

### Quick Facts – Seabrook Station

Location	Waterford, Connecticut
On-Line Date	1986
Fuel	Nuclear – Pressurized Water Reactor
Principal Owner/Operator	Dominion Nuclear Connecticut, Inc.
Total Capacity	1,237 megawatts

### **New York Power Authority (NYPA)**

The RMLD receives inexpensive hydroelectric power from the NYPA. RMLD receives capacity and energy from this contract. The Massachusetts Department of Public Utilities (DPU) has appointed MMWEC as the administrator of this contract. The current contract expires in 2025.

### **Hydro-Quebec Interconnection**

The Hydro-Quebec Interconnection is an approximate 2000 Mw, direct current electric transmission line connecting central New England with the Canadian utility Hydro Quebec. Construction of the U.S. portion of the interconnection, which stretches from Groton/Ayer, in Massachusetts to the Canadian border in northern Vermont, was a joint effort of many New England utilities. The RMLD receives approximately 4.5 Mws of capacity from this contract.

### **Shell Energy**

In November, 2014 the RMLD signed a system power contract with Shell Energy that is effective from January 1, 2015 through December 31, 2018. The RMLD receives energy only from this contract. The amount of energy purchased fluctuates on a monthly basis for both the on-peak and off-peak period. RMLD has secured fixed pricing for this contract.



## **Exelon**

In May, 2015 the RMLD signed a system power contract with Exelon that is effective from January 1, 2016 through December 31, 2019. The RMLD receives energy only from this contract. The amount of energy purchased fluctuates on a monthly basis for both the on-peak and off-peak period. RMLD has secured fixed pricing for this contract.

## **EDF Trading**

In June, 2016 the RMLD signed a system power contract with EDF Trading that is effective from January 1, 2017 through December 31, 2018. The RMLD receives energy only from this contract. The amount of energy purchased fluctuates on a monthly basis for both the on-peak and off-peak period. RMLD has secured fixed pricing for this contract.

## **NextEra**

In June, 2016 the RMLD signed a system power contract with NextEra that is effective from January 1, 2019 through December 31, 2020. The RMLD receives energy only from this contract. The amount of energy purchased fluctuates on a monthly basis for both the on-peak and off-peak period. RMLD has secured fixed pricing for this contract.

## **NextEra**

In December, 2017 the RMLD signed a master agreement as well as a Transaction Facilitation Agreement with NextEra that enables RMLD to leverage NextEra's trade floor. RMLD approved a Risk Management Strategy that secures transactions based on price and time triggers. The Risk Management Strategy will permit RMLD to take advantage of price opportunities consistently over the next several years and beyond. This strategy will allow RMLD to secure monthly quantities that are below the four year average versus locking in annual quantities. Additionally, the strategy of utilizing time triggers will smooth out variations in the market over time.

## **Eagle Creek Energy Holdings**

In March, 2011 the RMLD signed a purchase power agreements with Swift River Hydro LLC for the output of four hydro systems located in Massachusetts that are effective from February 1, 2011 through January 31, 2026. The Swift River Trading Company is the lead market participant for and represents these hydroelectric generators with a total nameplate capacity of approximately 7 Mws and average annual generation of 25,000 megawatt-hours per year.

These facilities include the Woronoco Hydro facility in Russell, MA, Pepperell Hydro in Pepperell, MA; Indian River Power Supply in Russell, MA; and Turners Falls Hydro in

Turners Falls, MA. Each of these facilities is owned by a special purpose entity, e.g., the Woronoco facility is owned by Woronoco Hydro LLC. In 2016, Swift River Trading Company assigned the projects to Eagle Creek Energy Holdings. The four facilities are now managed by the Eagle Creek Energy Holdings as the lead market participant for each of the facilities. RMLD is the only buyer.

- **Pepperell Hydro:** 15 year term beginning on February 1, 2011 and ending January 31, 2026. RMLD is purchasing all of the products produced by or attributable to the facility. The facility has a nameplate capacity of 1.9 Mws. The products include, but are not limited to, Energy, Installed Capacity, Ancillary Services, Renewable Energy Certificates and Environmental Attributes (to the extent not included in the RECs). The contract price for these products is \$100/Mwh for the first year, escalated 2.25% thereafter.
- **Woronoco Hydro:** 15 year term beginning on February 1, 2011 and ending January 31, 2026. RMLD is purchasing all of the products produced by or attributable to the facility. The facility has a nameplate capacity of 2.7 Mws. The products include, but are not limited to, Energy, Installed Capacity, Ancillary Services, Renewable Energy Certificates and Environmental Attributes (to the extent not included in the RECs). The contract price for these products is \$100/Mwh for the first year, escalated 2.25% thereafter. The facility is not currently qualified for FCM. Until the Seller qualifies the facility for FCM the contract price is reduced by \$5.00/Mwh.
- **Turners Falls Hydro:** 15 year term beginning on February 1, 2011 and ending January 31, 2026. RMLD is purchasing all of the products produced by or attributable to the facility. The facility has a nameplate capacity of 1 Mw. The products include, but are not limited to, Energy, Installed Capacity, Ancillary Services, Renewable Energy Certificates and Environmental Attributes (to the extent not included in the RECs). The contract price for these products is \$100/Mwh for the first year, escalated 2.25% thereafter. The facility is not currently qualified for FCM. Until the Seller qualifies the facility for FCM the contract price is reduced by \$5.00/Mwh.
- **Indian River Hydro:** 15 year term beginning on February 1, 2011 and ending January 31, 2026. RMLD is purchasing all of the products produced by or attributable to the facility. The facility has a nameplate capacity of 1.4 Mws. The products include, but are not limited to, Energy, Installed Capacity, Ancillary Services, Renewable Energy Certificates and Environmental Attributes (to the

extent not included in the RECs). The contract price for these products is \$100/Mwh for the first year, escalated 2.25% thereafter. The facility is not currently qualified for FCM. Until the Seller qualifies the facility for FCM the contract price is reduced by \$5.00/Mwh.

### **Collins Hydro**

In August, 2013 the RMLD signed a purchase power agreements with Swift River Hydro LLC for the output of Collins Hydro located in between Ludlow and Wilbraham Massachusetts. The contract with Swift River Hydro is effective from September 1, 2013 through August 31, 2028. The RMLD receives enery only from this contract. The average annual generation is approximately 5,667 megawatt-hours per year.

### **Pioneer Hydro**

In August, 2013 the RMLD signed a purchase power agreements with Ware River Power Inc. for the output of Pioneer Hydro located in Ware, Massachusetts. The contract for Pioneer Hydro is effective from September 1, 2013 through August 31, 2028. The RMLD receives enery only from this contract. The average annual generation is approximately 4,480 megawatt-hours per year.

### **Hoisery Mills Hydro**

In March, 2014 the RMLD signed a purchase power agreements with Silver Street Hydro Inc. for the output of Hosiery Mills located in Hillsborough, New Hampshire. The contract for Hosiery Mills Hydro is effective from March 1, 2014 through February 28, 2034. The RMLD receives enery only from this contract. The average annual generation is approximately 2,046 megawatt-hours per year.

### **Aspinook Hydro**

In August, 2016 the RMLD signed a purchase power agreements with Aspinook Hydro Inc. for the output of Aspinook Hydro located in Connecticut. The contract is effective from August, 2016 through August, 2017. The RMLD receives enery only from this contract. The average annual generation is approximately 9,300 megawatt-hours per year.

### **Saddleback Ridge Wind**

In December, 2013 the RMLD signed a purchase power agreement with Saddleback Ridge Wind, LLC for the output of Saddleback Ridge Wind located in Carthage, Maine. The contract for Saddleback Ridge Wind is effective from January 1, 2015 through December 31, 2035. The RMLD receives energy plus all attributes this contract. The average annual generation is estimated to be approximately 15,820 megawatt-hours per year.

### **Jericho Wind**

In November, 2014 the RMLD signed a purchase power agreements with Jericho Power, LLC for the output of Jericho Wind located in Berlin, New Hampshire. The contract for Jericho Wind is for 20 years. The project went Commercial December, 2015. The RMLD receives energy plus all attributes from this contract. The average annual generation is estimated to be approximately 10,788 megawatt-hours per year.

### **One Burlington - Solar**

In March, 2015 the RMLD signed a purchase power agreement with CREECA Energy LLC for the output of 2,000 kW AC solar array located at One Burlington Ave., Wilmington, Massachusetts. The solar array went on-line in November, 2015. The term of the contract for One Burlington is effective for ten years. The average annual generation is estimated to be approximately 3,450 megawatt-hours per year.

### **Altus Power – Community Solar**

In March, 2016 the RMLD signed a purchase power agreement with ECA Solar LLC for the output of 1,000 kW AC solar array located at 326 Ballardvale Street, Wilmington, Massachusetts. The solar array went on-line in June, 2017. In May, 2017 the contract was assigned to Altus Power America, Inc DBA WL MA Solar LLC. The term of the contract for WL MA Solar LLC is effective for twenty years. The average annual generation is estimated to be approximately 1,700 megawatt-hours per year. RMLD has developed a Community Shared Solar program called Solar Choice. This project is RMLD's first Solar Choice project and is fully subscribed by 500 residential customers.

### **Kearsage – Community Solar**

In October, 2017 the RMLD signed a purchase power agreement with Kearsage Wilmington LLC for the output of 1,800 kW AC solar array located at 40-50 Fordham Road, Wilmington, Massachusetts. The solar array went on-line in February, 2018. The term of the contract for Kearsage Wilmington LLC is effective for twenty years. The average annual generation is estimated to be approximately 2,376 megawatt-hours per year. This project is RMLD's second Solar Choice project and is fully subscribed by 617 residential/commercial customers.

### **Energy Storage – NextEra**

In December, 2017 (RMLD) was recently awarded a \$1 million grant for the installation of an energy storage unit at its North Reading substation. The grant is funded by the Department of Energy Resources (DOER). RMLD's project consists of installing a 5-megawatt Lithium Ion Battery unit at its North Reading substation to reduce peak demand, thereby lowering future transmission and capacity costs related to the purchase of wholesale electricity. The battery unit will be co-located with RMLD's new 2.5-megawatt Distributed Generator. RMLD is negotiating an Energy Storage Agreement with NextEra. The Energy Storage unit is expected to be on-line by December, 2018.