

# 2018 School District Maintenance Employees Annual Conference

Sponsored by:

Alaska Association of School Boards

Alaska Public Entities Insurance

Retro-Commissioning: What's the big fuss?

presented by:

State of Alaska

Department of Education & Early Development







# PM program updates and Facilities Retro-Commissioning



- 
- Brief introduction / Welcome
  - Gratitude to:
    - Participants
    - Alaska Association of School Boards (AASB)
    - Alaska Public Entity Insurance (APEI)
    - Guest Speakers
    - Millennium Hotel staff

**What's been happening at the department  
following last year's Capital Improvement  
Project (FY19CIP) cycle...**

FY	CIP Priority	DistrictType	District	Project Title	Funding	Group Totals
2019	SC1	REAA	Lower Kuskokwim	J Alexie Memorial K-12 School Replacement, Atmautluak (amends 1	\$39,556,086	
2019	SC2	REAA	Lower Kuskokwim	Eek K-12 School Renovation/Addition	\$2,481,373	
2019	SC4	City/Borough	Galena City	Galena Interior Learning Academy Classroom Renovation Phase 2	\$7,073,013	
2019	SC6	City/Borough	Aleutians East	Sand Point K-12 School Paving	\$287,060	
2019	SC8	REAA	Southeast Island	Kasaan K-12 School Covered Play Area Construction	\$440,433	
2019	SC9	City/Borough	Aleutians East	King Cove K-12 School Paving	\$71,532	
2019	SC10	REAA	Southeast Island	Thorne Bay K-12 School Playground Upgrades	\$221,614	
2019	MM01	REAA	Saint Mary's	St Mary's Campus Upgrade Phase 2	\$3,449,928	
2019	MM02	City/Borough	Denali Borough	Cantwell K-12 School Roof Replacement	\$741,463	
2019	MM03	City/Borough	Bristol Bay Borough	Bristol Bay School Renovation, Phase 2	\$8,464,845	
2019	MM04	City/Borough	Ketchikan	Houghtaling Elementary Roof Replacement	\$2,353,187	
2019	MM05	REAA	Yukon-Koyukuk	Allakaket K-12 School Renovation	\$9,193,949	
2019	MM06	REAA	Northwest Arctic	Davis Ramoth K-12 School Window Replacement, Selawik	\$189,212	
2019	MM07	REAA	Southeast Island	Thorne Bay Maintenance Building Roof Replacement	\$158,446	
2019	MM08	REAA	Lower Kuskokwim	Bethel Campus Fire Pump House & Fire Protection Upgrades	\$2,922,446	
2019	MM09	City/Borough	Craig City	Craig Middle School Gym Floor Replacement	\$418,154	
2019	MM10	City/Borough	Petersburg Borough	Petersburg Middle-High School Entry Renovation	\$31,397	
2019	MM11	City/Borough	Nome	Nome Beltz Jr/Sr High School Partial Roof Replacement	\$1,556,442	
2019	MM12	City/Borough	Denali Borough	Tri-Valley School Coal Heat Conversion	\$71,938	
2019	MM13	REAA	Alaska Gateway	Tok K-12 School Sprinkler Renovation	\$1,763,021	
2019	MM14	City/Borough	Petersburg Borough	Petersburg Middle-High School Underground Storage Tank	\$115,502	
2019	MM15	REAA	Lower Kuskokwim	Nuniwaarmiut K-12 School Wastewater Upgrades, Mekoryuk	\$876,590	
2019	MM16	City/Borough	Craig City	Craig Elementary School Door & Flooring Replacement	\$110,766	
2019	MM17	City/Borough	Craig City	Craig Elementary Middle School Siding & Windows	\$116,994	
				2019 Ranked Project Total		\$82,665,391

**Which districts are getting their 5-year  
PM Program review site visit during this  
school year...**



[illegible]

\*Year of Next Visit™ dates are subject to change at the department's discretion. School Districts will be notified in a timely manner if scheduled visit dates listed on this report are altered.

## FY 2019 PM SITE VISIT SCHEDULE

TRIP	DISTRICT NAME	July 1 general annual site visit information letter sent	Proposed Site Visit Date
A	Skagway	6/30/2018	9/5/2018
B	Yukon-Koyukuk	6/30/2018	11/12-13/2018
B	Yukon Flats	6/30/2018	11/14-16/2018
C	Lake & Peninsula	6/30/2018	1/15-17/2019
C	Bristol Bay Borough	6/30/2018	1/18-19/2019
D	St. Mary's	6/30/2018	2/8/2019
D	Bering Strait	6/30/2018	2/11-12/2019
D	Iditarod Area	6/30/2018	2/14-15/2019
E	Lower Yukon	6/30/2018	3/20-22/2019
E	Lower Kuskokwim	6/30/2018	3/25-27/2019



**Which districts are getting their 5-  
year PM Program review site visit  
next school year...**



# PM State-of-the-State

## Report of DEED Maintenance Assessments and Related Data

AS OF 8/15/2018

District	Date of Last Visit	Year of Next Visit	Approved FAIS	Maintenance Management	Energy	Custodial	Training	R&R Schedule	Status	Maint. Program	Program Name	CIP Eligible
Alaska Gateway	3/30/2017	2022	Y	Y	Y	Y	Y	Y	5 of 5	W	School Dude	Yes
Aleutian Region	7/19/2011	2016	Y	N	Y	Y	Y	Y	4 of 5	W	School Dude	No
Aleutians East	12/17/2014	2020	Y	Y	Y	Y	Y	Y	5 of 5	W	Maximo*	Yes
Anchorage	1/23/2018	2023	Y	Y	Y	Y	Y	Y	5 of 5	W	School Dude	Yes
Annette Island	12/3/2015	2021	Y	Y	Y	Y	Y	Y	5 of 5	W	School Dude	Yes
Bering Strait	3/19/2014	2019	Y	Y	Y	Y	Y	Y	5 of 5	W	School Dude	Yes
Bristol Bay Borough	4/14/2014	2019	Y	Y	Y	Y	Y	Y	5 of 5	W	Maximo*	Yes
Chatham	3/6/2017	2022	Y	Y	Y <sup>P</sup>	Y	Y	Y	5 of 5	W	Maximo*	Yes
Chugach	1/26/2018	2023	Y	Y	Y <sup>P</sup>	Y	Y	Y	5 of 5	W	Maximo*	Yes
Copper River	3/31/2017	2022	Y	Y	Y <sup>P</sup>	Y	Y	Y	5 of 5	W	School Dude	Yes
Cordova	1/13/2015	2020	Y	Y	Y	Y	Y	Y	5 of 5	W	School Dude	Yes
Craig City	11/14/2016	2022	Y	Y	Y	Y	Y	Y	5 of 5	W	Maximo*	Yes
Delta/Greely	3/28/2017	2022	Y	Y	Y	Y	Y	Y	5 of 5	W	School Dude	Yes
Denali Borough	3/24/2015	2020	Y	Y	Y	Y	Y	Y	5 of 5	W	Maximo*	Yes
Dillingham City	2/2/2016	2021	Y	Y	Y	Y	Y	Y	5 of 5	W	Maximo*	Yes
Fairbanks	3/27/2018	2023	Y	Y	Y <sup>P</sup>	Y	Y	Y	5 of 5	W	Web Help Desk	Yes
Galena	3/22/2018	2023	Y	Y	Y <sup>P</sup>	Y	Y	Y	5 of 5	W	Maximo*	Yes
Haines	11/17/2015	2021	Y	Y	Y	Y	Y	Y	5 of 5	W	School Dude	Yes
Hoonah City	4/17/2017	2022	Y	Y	Y <sup>P</sup>	Y	Y	Y	4 of 5	W	Maximo*	Yes
Hydaburg City	11/16/2016	2022	Y	N	Y	Y	N	Y	3 of 5	W	MPulse	No
Iditarod Area	3/14/2014	2019	Y	Y	Y	Y	Y	Y	5 of 5	W	School Dude	Yes
Juneau	11/3/2015	2021	Y	Y	Y	Y	Y	Y	5 of 5	L	TMA	Yes
Kake City	2/4/2015	2020	Y	Y	Y	Y	Y	Y	5 of 5	W	Maximo*	Yes
Kashunamiut	11/13/2014	2020	Y	Y	Y	Y	Y	Y	5 of 5	W	Maximo*	Yes
Kenai Peninsula	3/1/2018	2023	Y	Y	Y	Y	Y	Y	5 of 5	W	School Dude	Yes
Ketchikan	12/2/2015	2021	Y	Y	Y	Y	Y	Y	5 of 5	W	School Dude	Yes
Klawock City	12/19/2016	2022	Y	Y	Y	Y	Y	Y	5 of 5	W	Maximo*	Yes
Kodiak Island	10/29/2014	2020	Y	Y	Y	Y	Y	Y	5 of 5	W	School Dude	Yes
Kuspuk	2/24/2015	2020	Y	Y	Y	Y	Y	Y	5 of 5	W	Maximo*	Yes
Lake & Peninsula	4/16/2014	2019	Y	Y	Y	Y	Y	Y	5 of 5	W	Manager Plus	Yes
Lower Kuskokwim	1/21/2014	2019	Y	Y	Y	Y	Y	Y	5 of 5	W	Manager Plus	Yes
Lower Yukon	1/23/2014	2019	Y	Y	Y	Y	Y	Y	5 of 5	W	School Dude	Yes
Mat-Su Borough	2/3/2017	2022	Y	Y	Y	Y	Y	Y	5 of 5	W	School Dude	Yes
Nenana City	3/26/2015	2020	Y	Y	Y	Y	Y	Y	5 of 5	W	Maximo*	Yes
Nome City	4/28/2017	2022	Y	Y	Y	Y	Y	Y	5 of 5	W	School Dude	Yes
North Slope Borough	5/21/2018	2023	Y	Y	Y	Y	Y	Y	5 of 5	W	School Dude	Yes
Northwest Arctic	2/23/2016	2021	Y	Y	Y	Y	Y	Y	5 of 5	W	Maximo*	Yes
Pelican City	4/9/2018	2023	Y	Y	Y <sup>P</sup>	Y	Y <sup>P</sup>	Y	5 of 5	W	School Dude	Yes
Petersburg City	1/7/2016	2021	Y	Y	Y	Y	Y	Y	5 of 5	W	School Dude	Yes
Pribilof Island	4/23/2015	2020	Y	Y	Y	Y	Y	Y	5 of 5	W	Maximo*	Yes
Sitka City Borough	4/24/2017	2022	Y	Y	Y	Y	Y	Y	5 of 5	W	School Dude	Yes
Skagway City	5/5/2014	2019	Y	Y	Y	Y	Y	Y	5 of 5	L	MC	Yes
Southeast Island	11/18/2016	2022	Y	Y	Y	Y	Y	Y	5 of 5	W	MPulse	Yes
Southwest Region	2/4/2016	2021	Y	Y	Y	Y	Y	Y	5 of 5	W	School Dude	Yes
St Mary's	1/27/2014	2019	Y	Y	Y	Y	Y	Y	5 of 5	W	Maximo*	Yes
Tanana City	3/23/2018	2023	Y	Y	Y <sup>P</sup>	Y	Y <sup>P</sup>	Y	5 of 5	W	Maximo*	Yes
Unalaska City	12/18/2014	2020	Y	Y	Y	Y	Y	Y	5 of 5	W	School Dude	Yes
Valdez City	4/18/2018	2023	Y	Y	Y	Y	Y	Y	5 of 5	W	School Dude	Yes
Wrangell City	1/8/2016	2021	Y	Y	Y	Y	Y	Y	5 of 5	W	Maximo*	Yes
Yakutat City	1/14/2015	2020	Y	Y	Y	Y	Y	Y	5 of 5	W	Maximo*	Yes
Yukon Flats	3/11/2014	2019	Y	Y	Y	Y	Y	Y	5 of 5	W	Maximo*	Yes
Yukon-Koyukuk	3/7/2014	2019	Y	Y	Y	Y	Y	Y	5 of 5	W	Maximo*	Yes
Yupit	4/7/2015	2020	Y	Y	Y	Y	Y	Y	5 of 5	W	Maximo*	Yes

<b>In Compliance</b>			53	51	53	53	52	53	50			51
<b>Legend</b>												
N = Not in compliance			W = Web-based Computerized Maintenance Management System									
Y = In full compliance			L = Local Area Network (LAN) Computerized Maintenance Management System									
Y <sup>P</sup> = Provisional compliance			* = Use Maximo through SERRC Service Contract									
FAIS = Fixed Asset Inventory System			<b>Bold</b> - Site visit pending									

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## FY 2020 PM SITE VISIT SCHEDULE

TRIP	DISTRICT NAME	July 1 general annual site visit information letter sent	Proposed Site Visti Date
A	Kodiak Island SD		28-30 OCT 2019
B	Kashunamiut SD		11/15/2019
B	Yupiit SD		12-13 Nov 2019
C	Aleutians East SD		17-18 Dec 2019
C	Unalaska City SD		12/20/2019
D	Cordova City SD		14-15 Jan 2020
D	Yakutat City SD		1/16/2020
E	Kake City SD		4-5 Feb 2020
F	Kuspuk City SD		25-26 Feb 2020
G	Denali Borough SD		24-25 Mar 2020
G	Nenana City SD		3/26/2020
H	Pribilof Island SD		22-23 Apr 2020



**Following recent site visits, where do we  
find most struggles for compliance in  
our districts' PM Programs...**

## 2017-18 TRACKING OF SCHOOL DISTRICTS PROVISIONAL STATUS PM REPORTS DUE\*

District	Reports due by:	Period covered:	Send e-mail reminders on:	Item Requirements
Hoonah SD	30 NOV 2018	MAY-OCT 2018	15 OCT 2018; 15 NOV 2018	Energy (oil + waste heat)
(extended 12 months)	15 MAY 2019	NOV 2018-APR 2019	15 APR 2019; 1 MAY 2019	
Copper River SD	30 NOV 2018	MAY-OCT 2018	15 OCT 2018; 15 NOV 2018	Energy (oil)
(extended 12 months)	15 MAY 2019	NOV 2018-APR 2019	15 APR 2019; 1 MAY 2019	
Chatham SD	30 NOV 2018	MAY-OCT 2018	15 OCT 2018; 15 NOV 2018	Energy (oil + biomass)
(extended 12 months)	15 MAY 2019	NOV 2018-APR 2019	15 APR 2019; 1 MAY 2019	
Tanana City SD	30 NOV 2018	MAY-OCT 2018	15 OCT 2018; 15 NOV 2018	Energy (oil + biomass), Custodial training
	15 MAY 2019	NOV 2018-APR 2019	15 APR 2019; 1 MAY 2019	
Galena City SD	30 NOV 2018	MAY-OCT 2018	15 OCT 2018; 15 NOV 2018	Energy (oil + biomass)
	15 MAY 2019	NOV 2018-APR 2019	15 APR 2019; 1 MAY 2019	
Pelican City SD	30 NOV 2018	MAY-OCT 2018	15 OCT 2018; 15 NOV 2018	Energy (oil + hydro), Custodial training
	15 MAY 2019	NOV 2018-APR 2019	15 APR 2019; 1 MAY 2019	

# What does the current energy consumption regulation call for...

## 4 AAC 31.013. PREVENTIVE MAINTENANCE AND FACILITY MANAGEMENT COMPLIANCE

- ▶ (a) For a district to be eligible for state aid under AS 14.11.011, the district must have a facility management program that addresses the following five elements of facility and maintenance management:
  - ▶ (2) an energy management plan that includes **recording energy consumption for all utilities on a monthly basis for each building**; for facilities constructed before 12/15/2004, a district may record energy consumption for utilities on a monthly basis when multiple buildings are served by one utility plant



# What are the energy challenges?

- ▶ Energy consumption is not being recorded on a monthly basis
- ▶ Monthly energy consumption (e.g. oil) no to be confused with monthly deliveries
- ▶ Energy consumption is taken randomly throughout the month
- ▶ Biomass and / or waste heat is not being monitored for consumption on a monthly basis per facility
- ▶ Execution of supplemental heat projects (e.g. waste heat, biomass heat) do not incorporate the means to determine consumption following project commissioning (e.g. installation of BTU meters)

# What needs to happen to meet this requirement?

- ▶ Create an energy plan (your plan should answer the following 5 “Ws” and “How”: Who, What, When, Where, Why, and How).
- ▶ Set reminders for when it’s time to take energy measurements (e.g. calendar, e-calendar, phone app, CMMS Work Order, auto e-mail reminder to distant sites (e.g. to principal, maintenance personnel))
- ▶ Instruct personnel on how to take measurements
- ▶ Ensure new energy projects (e.g. biomass, waste heat tie-ins) have the means to give out monthly energy consumption information (e.g. installation of BTU meters) per individual facility
- ▶ Create easy-to-use spreadsheet with the names of all facilities requiring monthly energy monitoring

# What does the training regulation call for...

## 4 AAC 31.013. PREVENTIVE MAINTENANCE AND FACILITY MANAGEMENT COMPLIANCE

- ▶ (a) For a district to be eligible for state aid under AS 14.11.011, the district must have a facility management program that addresses the following five elements of facility and maintenance management:
  - ▶ (4) a maintenance training program that specifies training for custodial and maintenance staff and records training received by each person



# What are the training challenges?

- ▶ Ensure training is recorded for training received by each person
- ▶ Custodial personnel not receiving any training

# What needs to happen to meet this requirement?

- ▶ Create an annual training plan (your plan should answer the following 5 “Ws” and “How”: Who, What, When, Where, Why, and How).
- ▶ (e.g. what’s going to happen throughout the year such as online training, meet once a month, shadow elevator inspector in May, attendance to October Maintenance conference, etc.)
- ▶ Create easy-to-use training spreadsheet with the names of all maintenance and custodial employees
- ▶ Record training for individual employees after each session (don’t wait!) (CMMS WO creation is also good practice)

# Proposed changes to the energy consumption regulation...

## 4 AAC 31.013. PREVENTIVE MAINTENANCE AND FACILITY MANAGEMENT COMPLIANCE

- ▶ (a) For a district to be eligible for state aid under AS 14.11.011 or AS 14.11.100, the district must have a facility management program that addresses the following five elements of facility and maintenance management:
  - ▶ (2) an energy management plan that includes
    - ▶ (A) the recording of energy consumption for all utilities on a monthly basis for each building; for facilities constructed before 12/15/2004, a district may record energy consumption for utilities on a monthly basis when multiple buildings are served by one utility plant; and
    - ▶ (B) regular evaluation of the effectiveness of and need for commissioning existing buildings;



## **TO: School Facilities & Maintenance Directors**

The Department of Education and Early Development is proposing to adopt two sets of regulation changes in the Alaska Administrative Code dealing with the school facility planning and construction. Written public comment is open until November 12, 2018. Please see the online public notices for details and how to comment:

- [Proposed Changes to School Facility Planning and Construction – Commissioning](#)

Thank you for participating in the regulatory process, your input is valued.

<https://aws.state.ak.us/OnlinePublicNotices/Notices/View.aspx?>

 **State of Alaska**

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## Public Notice - Notice of Proposed Changes to School Facility Planning and Construction Commissioning

NOTICE OF PROPOSED CHANGES TO

SCHOOL FACILITY PLANNING AND CONSTRUCTION

THE DEPARTMENT OF EDUCATION AND EARLY DEVELOPMENT

**Tools**

- [Print](#)
- [Short URL](#)
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# **Retro-Commissioning**

**Improving the Performance of our  
Schools through Retro-  
commissioning (RCx) while achieving  
Significant Savings at Minimal Cost**

# What is RCx?

- ▶ **RCx is a process to improve the efficiency of an existing school's equipment and systems. The philosophy is that it pays for itself.**



# **What can RCx do for my organization?**

## **► It can often:**

- resolve problems that occurred during design or construction.**
- address problems that have developed throughout the school's life as equipment has aged.**
- address problems that have developed when building usage has changed (e.g. going from 85 students to 37).**

# How does RCx work?

- ▶ **RCx involves a systematic evaluation of opportunities to improve energy-using systems. If the same process were applied to a car, mechanics would make adjustments to the settings, controls, components and design of the engine based on how the owner actually drives.**

# **The kinds of problems that RCx will identify and fix include:**

- ▶ **Systems that simultaneously heat and cool.**
- ▶ **Equipment or lighting that is on when it may not need to be.**
- ▶ **Belts and valves that are not functioning properly.**
- ▶ **Thermostats and sensors that are out of calibration.**
- ▶ **Variable-Frequency Drives (VFDs) that operate at unnecessarily high speeds or that operate at a constant speed even though the load being served is variable.**
- ▶ **Air balancing systems that are less than optimal.**
- ▶ **Controls sequences that are functioning incorrectly.**
- ▶ **Economizers that are not working as designed.**

# **Why is RCx important?**

- ▶ **Our schools frequently undergo operational and occupancy changes that challenge the mechanical, electrical and control systems, therefore hindering optimal performance.**
- ▶ **In today's complex buildings, systems are highly interactive, with sophisticated controls that can create a trickle-down effect on school operations – small problems have big effects on performance.**
- ▶ **All schools can experience performance degradation over time.**



# **How often should RCx be considered, and why?**

- ▶ **Operations and controls elements of the RCx process may be worth repeating with greater frequency than current practice.**
- ▶ **Complex and modern school systems can quickly drift out of sync; the low cost and high energy savings associated with RCx makes it a worthwhile investment for the school owner / operator.**

# **Cost and Benefits**

- ▶ **Better equipment performance.**
- ▶ **Increase in net operating income.**
- ▶ **Reduced operating costs from the energy savings.**
- ▶ **School occupants are more comfortable.**
- ▶ **More consistent temperature control.**
- ▶ **Better Indoor Air Quality (IAQ).**
- ▶ **Fewer occupant complaints.**
- ▶ **Increased ability to manage school systems.**

ขอบคุณ

Díky

תודה

Tesekkürler

Gracias

Köszönettel

Hvala

Bedankt

Euxapiotō

Thank You

شكراً

Merci

Thank you  
For all the work that You  
do!

Vielen  
Dank

Grazie

Obrigado!







**PM program updates and Facilities Retro-Commissioning**

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**DEED Maintenance & Facility Management Presentation**

**October 17, 2018**