

## **Town of Derby EPC – Project Status Update – 8/6/19**

### **Lighting - Fixture Retrofit (20% complete)**

**Work to be performed at the following building(s):** High School, Middle School, Bradley Elementary, Irving Elementary, City Hall, DPW, Senior Center, Community Center, WPCA, Library, Police, Fire 1, Fire 2, Fire 3, Fire 4

**Scope:** Upgrade T8 and T12 lamps to LED lamps. Recessed troffers will be retrofit with LED Volumetric retrofit kits equipped with fixture integrated occupancy sensor; Incandescent compact fluorescent lamps to be replaced with LED bulbs; High bay and low bay fixtures to be replaced with new LED High/Low Bay fixtures equipped with fixture integrated sensors, emergency ballasts to be replaced with new direct drive LED lamps.

**Status:** Interior lighting work has been complete at Irving ES, Interior work at Bradley is underway and scheduled to be completed by the end of the week; Derby HS lighting upgrades scheduled to begin on or before 8/12/19.

**Schedule for remaining work:** August – September

### **Lighting - Exterior Lighting Upgrades (5% complete)**

**Work to be performed at the following building(s):** High School, Middle School, Bradley Elementary, Irving Elementary, City Hall, DPW, Senior Center, Community Center, WPCA, Library, Police, Fire 1, Fire 2, Fire 3, Fire 4, Murcucio Sports Field

**Scope:** Replace exterior HID fixtures (115 Watts and higher) with new LED fixtures; Low voltage Exterior HID fixtures (50-100W) to be retrofitted with LED Bulbs and Linear Tubes. Existing Drum Fixtures to be replaced with New 14W LED Drum Fixtures.

**Status:** Submittal package has been reviewed and approved, material has been ordered and is on hand;

**Schedule for remaining work:** Aug- Mid September

### **Energy Management System - Temperature Setback (0% Complete)**

**Work to be performed at the following building(s):** Irving Elementary School, the Community Center

**Scope (Irving Elementary School) -** Provide conversion of the existing controls to DDC controls for the equipment listed below. Boiler Room: Steam Boilers (2), Heat Exchangers (2), Cir Pumps (4); Classrooms: Mount and wire new DDC thermostats;

Gym (2 AHU's): New DDC control on two existing air handling units;

Café AHU: New DDC thermostat to be furnished installed and connected to new DDC controls;

Exhaust Fan Relief Dampers: New start/stop and status on existing exhaust fans, Relief dampers to have new damper actuators and DDC control;

**Status:** Work has not yet begun

**Schedule for remaining work:** Work to take place over the summer prior to heating season;

**Scope (Community Center):** AHU Scope of work to include web based control system that can be viewed from any web browser (mobile/tablet/computer); Demolition of existing pneumatic AHU controls; Supervisory Controllers and software will be installed on Derby IT Departments Virtual Server; DDC Control of HV 1 and 2;

Terminal equipment scope to include demo of pneumatic controls and installation of new DDC Control of Radiation Zones, new BACnet controllers with space sensor & control valve; DDC Control of Unit Heaters, with new BACnet Controllers, Space Sensor, Aquastat & Control Valve;

DDC Control of Exhaust Fans (Qty 8) – Provide new BACnet controllers with Fan Start/Stop and Status

**Status:** Work has not yet begun

**Schedule for remaining work:** Work to take place over the summer prior to heating season;

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### **Energy Management System – Recommissioning (66% Complete)**

**Work to be performed at the following building(s):** Middle School, City Hall

**Scope (Middle School):** Re-Commissioning of existing Alerton Controls System. JCI will provide repair and refurbishment of existing Alerton DDC controls, stroke all end devices, verify operation of all control devices, and calibrate all; Provide operation of night setback controls.

**Status:** Work has not yet begun

**Schedule for remaining work:** Work to take place late August / early September;

**Scope (City Hall):** Validation of all existing operating programs and sequences of operation; recommissioning of all existing Trane controls, including System Controller and associated control programs; Replacement of any non-functional or inoperative Trane controllers and/or System Controller;

**Status:** Recommissioning work is now complete; Report has been received from Trane, however, needs to be revised;

**Schedule for remaining work:** Should receive revised report over the next few weeks;

### **Heating Distribution System - Pipe and Valve Insulation (100% Complete)**

**Work to be performed at the following building(s):** Middle School, Bradley Elementary, Irving Elementary, Community Center, Library, Fire 1, Fire 2, Fire 4

**Scope:** Insulate exposed piping and valves in various locations. Pipe insulation to be pre-formed fiberglass with protective all-service jacketing, with R-Value to meet current energy code guidelines. Valves, flanges, Heat exchanger heads to be insulated with custom fabricated removable insulation blankets. Tanks & Heat exchanger bodies to be insulated with fiberglass pipe & tank wrap, covered with all-service protective jackets.

**Status:** Installation work is now complete;

**Schedule for remaining work:** Prepare report / asbuilts, perform final inspection over the next few weeks;

### **Boiler/Burner Replacements - Oil to Gas Conversion (0% Complete)**

**Work to be performed at the following building(s):** Bradley Elementary, Irving Elementary

**Scope (Bradley Elementary):** Replace two existing boilers / burners; Bring new natural gas service to boiler room and connect to new gas train (New service to be installed from Utility provided meter at building exterior); new breaching and header isolation valves to be installed; Boilers will be equipped with lead lag control performed by the DDC control system.

**Status:** Submittal package including light levels and product cut sheets have been sent to project engineer of record, ECG for review;

**Schedule for remaining work:** Release boilers/burners (approx. 7 week lead time), demo to begin / installation to take place early August, complete boiler install end of August, final commissioning / controls by Sept 15<sup>th</sup>.

**Scope (Irving Elementary):** Replace two existing burners (boilers to remain); Bring new natural gas service to boiler room and connect to new gas train (New service to be installed from Utility provided meter at building exterior); new breaching and header isolation valves to be installed; Boilers will be equipped with lead lag control performed by the new DDC controls.

**Status:** Equipment has been released

**Schedule for remaining work:** Aug - Mid September

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### **Energy Efficient Domestic Hot Water Heater Installation (35% Complete)**

**Work to be performed at the following building(s):** High School

**Scope:** Replace three (3) DHW heaters serving Boys Locker Room, Girls Locker Room, and kitchen with one (1) AO Smith Model BTH-500 gas fired, condensing domestic hot water heater that will supply both the boys' and girls' locker rooms, as well as the kitchen. Furnish & install new breaching, replace re-circulation pumps, replace Domestic Hot Water 3 Way Mixing Valves, seal new roof penetrations.

**Status:** The existing DHWH is temped out while installation is taking place; Demo is complete; Installation of new piping has begun, and the new unit is on site;

**Schedule for remaining work:** Need to coordinate gas shut off with utility in order to perform tie in. Work to be complete by the end of August;

### **Computers - Power Management (REMOVED FROM SCOPE)**

**Work to be performed at the following building(s):** High School, Middle School, Bradley Elementary, Irving Elementary

**Scope:** JCI to install computer power management software in Schools to increase efficiency and optimize savings. Furnish and install Surveyor Perpetual computer power management software; Software to be pushed to client computers with the assistance of School District IT Department;

**Status:** Work is being removed from scope; IT dept has installed alternative software;

**Schedule for remaining work:** N/A;

### **Water Conservation (100% Complete)**

**Work to be performed at the following building(s):** High School, Middle School, Bradley Elementary, Irving Elementary, City Hall, DPW, Senior Center, Community Center, WPCA, Library, Police, Fire 1, Fire 2, Fire 3, Fire 4

**Scope:** 36 existing flushometer toilets to be replaced like for like with new, 1.28 gpf toilets; 8 existing tank toilets to be replaced like for like with new, 1.1 or 1.28 gpf tank fixtures; 23 existing Toto piston valves that are flushing higher than the rated 1.6 gpf to be screw adjusted back to the rated flow; 14 existing high flow urinals will have their flush valves retrofit to 0.5 gpf; Existing high flow faucets on 152 sinks (lavatory, classroom, and kitchenette/hand/other) to be retrofit to low flow specifications, (In general, lavatory sinks will have lower flow and utility sinks will be retrofit to higher flows); 23 existing high flow showerheads/wands will be replaced like for like with new, 1.5 gpm showerheads/wands;

**Status:** Work has been completed;

**Schedule for remaining work:** N/A

### **Vending Machine Controllers (0% Complete)**

**Work to be performed at the following building(s):** High School, Middle School, Bradley Elementary, Irving Elementary, Police, Fire 2

**Scope:** Johnson Controls to install Vending Miser controls on vending machines in (8) locations. Utilizing a custom passive infrared sensor, the controller powers down a vending machine when the area surrounding it is unoccupied and automatically re-powers the vending machine when the area is reoccupied.

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**Status:** Work has not yet begun;

**Schedule for remaining work:** Work to be scheduled with Lighting work, summer/fall 2019;

### **Renewable Energy- Photovoltaic Electric Generation (0% Complete)**

**Work to be performed at the following building(s):** High School, Middle School, Bradley Elementary

**Scope:** Furnish & Install ballasted or attached roof mounted PV racking systems at selected locations. Approx. 600 KWH total; Furnish and install ballast for systems on flat roofs, including protective slip sheets under racking systems. Panels to be Hyundai (or equivalent) solar modules; Furnish and Install string Solar Edge Inverters (or equivalent) and accompanying supports; Perform necessary electrical, mechanical, and structural testing and inspections; Furnish and Install Data Acquisition System, including Revenue Grade Electrical Metering.

**Status:** Work has not yet begun;

**Schedule for remaining work:** Need to coordinate with Superintendent about application for CT School Construction Grant Program; Work to begin Sept '19 inside of buildings, roof mount install to take place Oct-Nov '19;

### **Plug Load Controllers (0% Complete)**

**Work to be performed at the following building(s):** High School, Middle School, Bradley Elementary, Irving Elementary, City Hall, DPW, Senior Center, Community Center, Library

**Scope:** Johnson Controls will install a plug load management system that will gain control of numerous plug load equipment as listed below. The system will use an existing Wi-Fi network that will communicate to an energy management user interface. Through the user interface, equipment can be monitored, scheduled and turned on / off. In areas where no Wi-Fi connection exists, plugs shall be programmed with the intended schedule for the equipment.

**Status:** JCI is working with the school IT dept to configure devices to work on the districts network;

**Schedule for remaining work:** Work to begin late summer 2019;

### **VRF Installation (0% Complete)**

**Work to be performed at the following building(s):** Irving Elementary

**Scope:** RTU 1 which currently serves the kitchen is to be replaced with a new unit and curb adapter. The new unit is equipped with 15 ton cooling plus heating capability (previous unit was heating only); RTU 2 currently serves multiple rooms on basement, first, and second floor. Unit will be replaced with new 20 ton unit capable of both cooling and heating (existing unit did not have cooling, zone dampers, or control) Kitchen ductwork to be insulated; RTU 3 – (New) Gym multipurpose room – significant structural work will be required; VRF – 2 roof top mounted condensing units (one for first floor, one for second floor), will sit on the structural steel that will be added for RTU 3;

**Status:** Work has not yet begun; Submittal package including light levels and product cut sheets have been sent to project engineer of record, ECG for review;

**Schedule for remaining work:** Work to begin September 2019;

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### **Air Conditioning Compressor Controllers (99% Complete)**

**Work to be performed at the following building(s):** Irving Elementary, City Hall, DPW, Senior Center, Community Center, WPCA, Library, Police, Fire 1, Fire 2, Fire 3, Fire 4

**Scope:** Johnson Controls shall install new IntelliCon-CAC controllers on the individual compressor units at various locations throughout the town. Controls to be installed on RTU's, AHU's, and Condensing Units

**Status:** Work has commenced and controllers have been installed on all 47 units; Technical concerns have been raised at City Hall which caused an RTU to lockout. JCI is working through this issue with our installer and will revisit the situation at the end of the cooling season.

**Schedule for remaining work:** October 2019

### **Transformers – Replacements (0% Complete)**

**Work to be performed at the following building(s):** Middle School, WPCA

**Scope:** Johnson Controls to replace existing transformers with new efficient Powersmith x-formers at various locations;

**Status:** Work has not yet begun; The Middle School and WPCA replacements will take place at the same time; WPCA will require that work take place during the fall to prevent power shut down during peak months;

**Schedule for remaining work:** Fall 2019

### **Refrigeration Compressor Controllers (100% Complete)**

**Work to be performed at the following building(s):** High School, Middle School

**Scope:** Johnson Controls shall install new IntelliCon-RU controllers on walk in freezers/refrigerators at various locations;

**Status:** Work is complete;

**Schedule for remaining work:** N/A

### **RTU Replacement (10% Complete)**

**Work to be performed at the following building(s):** City Hall

**Scope:** The Carrier Rooftop unit located at City Hall is at the end of its useful life. Johnson Controls will replace the existing unit, reclaim refrigerant from the existing Carrier 48MA-028 multi-zone unit and dispose of according to state and federal regulations in effect at the time of contract signing; JCI will provide and install one (1) Alliance Air Rooftop Unit (gas fired heat, 208/230 Volt, 3-Phase, combination heating and cooling, with 10 zones); Existing rooftop curb will be re-used, (The Alliance Air RTU is designed to fit the existing Carrier roof curb);

**Status:** Equipment has been ordered; Due to lead time, JCI has furnished temp cooling equipment during the summer months;

**Schedule for remaining work:** Temp cooling equipment to be removed first week of October; New RTU scheduled to arrive early October;