

**COUNTY OF MILWAUKEE
INTEROFFICE COMMUNICATION**

DATE: November 4, 2019

TO: Supervisor Theodore Lipscomb, Sr., Chairman, County Board of Supervisors

FROM: Stuart Carron, Director, Facilities Management Division, Department of Administrative Services

SUBJECT: **From the Director of Facilities Management Division, Department of Administrative Services, providing an Informational Report on Building Retro-Commissioning and Recommending Transfer of \$190,000 from Unallocated Contingency to a new Capital Improvement Project named Building Retro-Commissioning-Phase 1 (WO64101).**

Introduction

The Facilities Management Division is seeking to reduce County-wide energy use and greenhouse gas emissions; and proposes to retro-commission Milwaukee County's largest and most critical buildings. The DAS-PSB fund transfer packet for the December 2019 committee cycle includes a \$190,000 transfer from Unallocated Contingency (expenditure object 8901) to support Phase 1 of this two-phase project.

Previous Legislation

This report supports the following County Board legislation:

- File No. 17-506, committing Milwaukee County to the principles and greenhouse gas emissions reduction targets of the Paris Climate Agreement.
- File No. 19-582, creating the Milwaukee City-County Joint Taskforce on Climate and Economic Equity that shall provide a roadmap of governmental actions to accomplish community greenhouse gas reduction goals.

Background

Commercial building energy use accounts for roughly 18 percent of U.S. greenhouse gas emissions¹. Moreover, on average from 2014-18, Milwaukee County spent \$19.3 million per year on building energy use. Thus, operating buildings more effectively and efficiently can reduce the County's operating costs and lower its greenhouse gas emissions.

The Department of Administrative Services and County Executive Abele have established an ambitious goal to reduce energy use by 20 percent in Milwaukee County buildings within five years. Relative to 2014, building energy use (electric, gas, steam and chilled water) was 11 percent less during 2018 - after removing the impact of weather. These savings have been accomplished through a combination of energy conservation, energy efficiency, and building footprint reduction. Additional efforts are needed for the County to achieve the 20 percent energy reduction goal.

Description of Proposed Project

The Facilities Management Division, Office of Sustainability proposes that the next major step in County-wide building energy-use reduction be retro-commissioning (RCx). Building RCx is regarded as one of the single most cost-effective measures for energy use reduction. Retro-commissioning provides a "tune up" of building heating, ventilation, and air-conditioning (HVAC), lighting, and other systems to ensure that they operate as designed; resulting in energy savings, reduced maintenance issues, and enhanced occupant comfort - usually requiring no additional capital improvements.

Project Economics

According to a national survey, retro-commissioning projects provide a median payback period of 2.2 years.² Prior County experience supports this statistic: A 2014 RCx project at Milwaukee Mitchell International Airport yielded an estimated \$146,040 per year in cost savings (see Exhibit A). The project qualified for \$125,643 in Focus on Energy (FoE)³ incentives, providing a payback of 0.9 years.

¹ Source: U.S. Environmental Protection Agency. *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2015* (Washington, DC: U.S. Environmental Protection Agency, 2017), Table ES-3. Accessed 11/1/19 from <https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2015>

² Source: Building Commissioning Association. *Value of Commissioning 2018 Market Survey*. Accessed 11/1/19 from <https://www.bcxa.org/wp-content/uploads/2019/07/Cx-Market-Survey-Report-Final-2019.07.16-V.3..pdf>

³ **Focus on Energy** is Wisconsin utilities' statewide energy efficiency and renewable resource program funded by the state's investor-owned energy utilities and participating municipal and electric cooperative utilities.

Facilities Management estimates that the County's retro-commissioning audits will cost approximately \$0.16 per square foot before any applicable FoE incentives. FoE incentives will provide a cost offset of approximately \$0.11 per square foot. Assuming Milwaukee County achieves results comparable to other area projects, the County will save approximately \$548,000 per year by retro-commissioning its facilities (see Project Methodology for potential RCx sites). Of course, results will vary by building and some buildings may require further investments to harvest projected savings.

Project Methodology

Phase 1 of the retro-commissioning project involves auditing large County buildings with high energy use per square foot to identify potential energy conservation measures (ECMs). Retro-commissioning sites may include but are not limited to the County Courthouse, Criminal Justice Facility, Mental Health Center (D-16), Mitchell Park, and/or other facilities. Identified low- and no-cost ECMs may be implemented immediately. Additional practical, cost-effective ECMs will be proposed and implemented during Phase 2 of the project.

Centralized project management will overcome past hurdles in implementing additional energy reductions. The Office of Sustainability will lead the project and use Focus on Energy-certified consultants to conduct the audits. With building owner (County department) cooperation, the audit team will identify and prioritize energy conservation measures to address. Centralized funding and coordination will eliminate impacts to Department operational budgets and reduce department resources needed to execute the project.

The Facilities Management Division, Office of Sustainability will report Phase 1 results to the Board, and a separate funding request for additional cost-effective ECMs may be proposed and implemented during Phase 2 of the project.

Recommendation

The Director of the Facilities Management Division, Department of Administrative Services respectfully recommends approval of a transfer of \$190,000 from Unallocated Contingency to a new Capital Improvement Project named Building Retro-Commissioning Phase 1 (WO64101) – so that the project can be initiated. The DAS-PSB fund transfer packet for the December 2019 committee cycle includes this transfer.

Prepared by: Steve Hinkens, Energy Program Manager, Facilities Management
Division, Department of Administrative Services

Gordie Bennett, Sustainability Director, Facilities Management Division,
Department of Administrative Services

Approved by:

A handwritten signature in black ink, appearing to read "Stuart Carron", written over a horizontal line.

Stuart Carron

Director, Facilities Management Division, Department of Administrative Services

cc: Chris Abele, County Executive
Raisa Koltun, Chief of Staff, County Executive's Office
Kelly Bablitch, Chief of Staff, County Board
Teig Whaley-Smith, Director, Department of Administrative Services
Vince Masterson, Fiscal & Strategic Asset Coordinator, DAS

**Exhibit A. Actual Savings: Milwaukee Mitchell International Airport
2014 Airside HVAC Retro-Commissioning Project⁴**

FACILITY IMPROVEMENT MEASURE (FIM)/PAYBACK SUMMARY (FOCUS INCENTIVE BASED)

AREA	ESTIMATED ELECTRICAL KW/YEAR SAVINGS	ESTIMATED NATURAL GAS THERMS/YEAR SAVINGS	TOTAL COST SAVINGS PER YEAR	OPINION OF COST FOR IMPLEMENTATION	ESTIMATED SIMPLE PAYBACK - YEARS	ESTIMATED FOCUS INCENTIVE	ESTIMATED SIMPLE PAYBACK WITH FOCUS REBATE - YEARS
MAIN TERMINAL ALL FIM's	154,015	64,245	43,258	57,625	1.3	33,918	0.5
CONCOURSE C ALL FIM's	247,841	28,175	35,064	109,247	3.1	23,114	2.5
CONCOURSE D ALL FIM's	127,170	65,229	40,121	44,665	1.1	36,374	0.2
CONCOURSE E ALL FIM's	131,415	49,026	27,597	40,570	1.5	32,237	0.3
FACILITY TOTAL	660,441	206,675	\$146,040	\$252,107	1.7	\$125,643	0.9

⁴ GRAEF in conjunction with Cervantes Consulting Engineers, LLC. (2014). Retro-Commissioning and Ventilation Report. General Mitchell International Airport. Prepared for the Milwaukee County Department of Transportation.