



## Memorandum

Date: March 14, 2013

To: Common Council

From: Adam Alix, Assistant Superintendent of Buildings and Parks

Re: 2012 Leftover Police and Fire Funds - Intentions of Use

When the Public Protection Facility's air conditioning components were replaced, we elected to use R410a refrigerant as R22 is being phased out. If you recall this switch resulted in a change order to the project where our engineer recommended adding energy management module boards to the condensers instead of replacing the existing piping which was to provide a near step-less capacity control. However, what we have found is that we do have limitations with the system's ability to cool the facility on low cooling load conditions. This seems to be quite often and we should have changed the size of the refrigerant piping at that time.

The issue is more than just with the comfort of the facility's occupants; it's about the life expectancy of the cooling components. The EMM boards have enabled us to set a low end capacity at which the compressors will operate safely; however, in order to do so, the compressors short cycle, turning on and then off in short periods of time. This resulted in us programming a timeout delay to require the compressors to remain off for the sake of the compressors longevity, as well as the energy savings we were counting on. Once the refrigerant lines have been replaced with a smaller diameter pipe the compressors will be able to operate at much lower capacities as designed by the manufacturer providing true step-less capacity control.

It was my original intent to accomplish this work last fall/winter in the 2012 fiscal period as there were sufficient funds left in the building repairs and maintenance subaccounts. However, I was unable to do so and am now ready to move forward with this project. With the use of the experience of one of our Department of Public Works employees, we will provide a majority of the labor needed to complete this project. I estimate the cost for reclaiming and recharging the systems, pipe, fittings and materials to be around \$4,000. At the end of the 2012 fiscal period there is approximately \$5,500 in the Police building repairs and maintenance subaccount and \$2,900 in the Fire building repairs and maintenance subaccounts. All system wide expenditures at the Public Protection Facility are split 60/40 respectively so \$2,400 from the Police and \$1,600 from the Fire leftover funds will be used to complete this work.