

Small Cities Climate Action Partnership Case Study: San Pablo Administration Building

Case Study: Dealing with “Quick Fixes”

In many small local governments where resources and staff time are particularly limited, municipal staff can be daunted by the prospect of implementing energy efficiency projects. When old equipment needs to be replaced or occupants complain about their comfort level, rather than conducting a thorough, comprehensive investigation and assessing the impacts of proposed solutions, often times, “quick” fixes and repairs are implemented. Over time, energy systems in many municipal buildings become out-of-sync as a result of “patchy” repairs, making system improvements an even more overwhelming task. Adding to the challenge of improving the overall system are unsolicited bids from contractors whose main interest may be focused on sales rather than improving the energy efficiency and comfort level of city buildings.



Figure 2: San Pablo Administration Building

The Challenge

Energy and comfort issues in one of the City of San Pablo’s Administration Buildings provide a good case example demonstrating common building system challenges that many municipal maintenance staff

currently face. Originally built as a hotel, the building has undergone several retrofits focused on upgrading the HVAC system. When last audited, some occupants complained of being too hot, while the occupants across the hall complained of being too cold. The quick-fix response was to disconnect several ducts in the attic. Additional problems included drafty rooms and the thermostat being located in the closet next to the natural gas heater (See Figure 2). This led to temperature readings that did not accurately reflect the temperature in the rooms that were occupied by staff.

The Solution: Energy Audit and Findings

Uneven heating and cooling experienced by the building occupants was causing a significant comfort issue. However, the City’s maintenance staff were having a hard time pinpointing the cause of the uneven temperature fluctuations.

Climate Protection Actions in Small Cities

Over two-thirds of U.S. citizens reside in jurisdictions with populations under 100,000. Unfortunately, these communities often lack the staffing resources and economies of scale necessary to plan for climate protection, access project funds, and accelerate energy efficiency efforts.

As the State aims to achieve a significant reduction in GHG emissions in the coming years, small local governments are facing similar challenges related to energy and climate action planning. Increasingly, small communities are realizing the benefits of collaboration. Acting together at a regional level, small local governments are leveraging resources, sharing best practices, and taking collective action to achieve California’s climate and energy goals.

Realizing the benefits of collaboration, with support from Strategic Energy Innovations, a non-profit sustainability organization, seven small California Bay Area local governments – the Cities of Albany, Benicia, El Cerrito, Moraga, Orinda, Piedmont, and San Pablo – have come together to form the ScCAP to address climate change in their communities. The funding for ScCAP has been provided by the U.S. Department of Environmental Protection Agency and Pacific Gas and Electric Company (PG&E). Not only has this partnership empowered small local governments to implement climate protection measures that they would not have pursued on their own, it has also made it possible for small local governments to become leaders in addressing climate change.



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In early 2012, led by the Small Cities Climate Action Partnership (ScCAP), the support team enlisted a group of five volunteer engineering professionals who were participating in a vocational training program at Foothill College. The volunteers performed a detailed audit on the building. In order to survey the system, the engineering students inventoried equipment and installed monitoring devices throughout the building that could be read remotely. As participants in a vocational program, students were able to be objective in conducting their energy audits at no cost, without bias or interest in the sale of equipment.

Through the building audit, students found the following:

- Local zone controls could override HVAC program set points.
- Air gaps existed throughout the building and attic.
- Several of the variable airflow dampers were broken.
- Air filters were not being cleaned on a regular basis.
- Thermostats were located in the closet next to the natural gas heater giving false readings (Figure 2).
- There were exposed wires, exposed junction boxes, and unattached ductwork in the attic.
- Return air vents located on the first floor were blocked, causing an imbalanced pressure system.
- One of the HVAC units in the building was programmed to run on Sunday when the building was unoccupied. All four HVAC units in the building were programmed to turn on at 6:00 am, an hour and a half before the start of the workday.



Figure 2: Thermostats were located in the utility closet with the natural gas heater in Building 3 of the Administration Building. This led to readings that did not accurately reflect the temperature in the rooms that were occupied by staff.

Next Steps and Results

By reviewing the comprehensive, independent energy analysis conducted by the vocational engineering professionals, the City of San Pablo's Environmental Program Analyst was able to identify a list of opportunities for resolving heating and cooling discomfort issues while saving the City money in energy costs.

Upon receiving the audit results, the City took immediate action to address some of the no- and low-cost recommendations. For example, City maintenance staff re-opened the return air vent and properly programmed all thermostats in the building. Additionally, the City worked with local weatherization companies to obtain quotes for a weatherization upgrade for all City Hall buildings. The ScCAP support team analyzed each proposal and helped the City select the most appropriate and cost-effective proposal.

As a result of the analysis, the City is currently moving forward on a weatherization project for all City Hall buildings. The \$42,000 project includes cellulose attic insulation, duct repair, and weather-stripping and is expected to save the City on their electricity and natural gas bills, while reducing maintenance staff time spent responding to occupant discomfort complaints. The up-front cost for this project in the short term will pay for itself in the longer term with increased utility bill savings after the retrofits are implemented.

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