REBUILD ATLANTA
ENERGY AUDITOR'S REPORT
POLICE ZONE ONE PRECINCT

Prepared: July 8, 2004
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REPORT PREFACE

The information contained in this report consists of findings and recommendations conducted by the City of Atlanta's Energy Conservation Program through the Rebuild Atlanta initiative. The following information was gathered during a walk-through type audit designed to assess the general condition of the facility with an emphasis on discovering energy efficiency opportunities. All related observations and recommendations are based on the best available knowledge of the auditors and should not be considered conclusive, but rather an indication of building conditions. Any actions taken should be done so with the independent advice of experts. The Energy Conservation Program will be pleased to assist the Atlanta Police Department in coordinating this technical assistance.

Building Summary

Police Zone One Precinct **2315 Donald Lee Hollowell Hwy.** **Atlanta, Georgia 30318**	
Year Built:	1993
Building Size:	9,468 square feet (two stories)
Occupants:	35 FTE, three shifts
Operating Schedule:	Twenty four hours/day, seven days/week, year round
Electricity Cost (2003):	$19,921
Electricity Usage (2003):	369,180 kWh
Cost Per Square Foot:	$2.10/ft^2
Usage Per Square Foot:	38.99 kWh/ft^2

Recommendations

This section focuses on items that will be pursued by the Energy Conservation Program in cooperation with your department. Follow-up actions are outlined in more detail in Appendix A.

- Lighting
    - Retrofit all fixtures with T12 lamps and magnetic ballasts to T8 and electronic ballasts
    - Retrofit all incandescent downlamps with compact fluorescent lamps
    - Replace incandescent exit signs with LED/ENERGY STAR fixtures
    - Consider occupancy sensors for bathrooms, classrooms and other infrequently occupied areas

- Heating, Ventilation and Cooling
    - Tune-up ("recommission") HVAC controls (repair/replace equipment) in order to return system to functioning status
    - Check for proper functioning of air handling units (AHU) inlet guide vanes, possibly replace with variable frequency drive
    - Complete cleaning of AHU, ductwork, grills and diffusers, replace AHU filters
    - Replace nominal efficiency fan motor with premium efficiency motor
    - Replace long runs of flex duct with metal duct
    - Seal off air supply to attic area

Reported Items

This section contains items that were noted during the energy audits but do not fall under the scope of the Energy Conservation Program. Additional detail on these items is provided in Appendix B.

- HVAC
    - Replace corroded insulation on refrigerant lines to condenser
    - Clean outdoor coils and air intakes
- Building Envelope/Fit & Finish
    - Daylight seen through roof – sunlight coming through to attic area
    - Soffitt on SW corner of building in need of repair
    - Water damage evident on entrance vestibule trim
    - It is unclear where ceiling roof insulation is located, may be candidate for insulation
- Miscellaneous
    - Install door grills on any restrooms with no supply diffusers
    - Install roof access to service roof equipment
    - Replace carpet in lobby to improve air quality
    - Drainage tile unearthed by motorcycle parking on north side of building

Narrative

Police Zone One Precinct is among the largest facilities used by the Atlanta Police Department. The facility operates twenty four hours a day, seven days a week, housing three shifts of approximately thirty five APD personnel each day. Comprised of two stories and approximately ten-thousand square feet, the building contains almost all original equipment and is due for a system upgrade in the near future.

Several minor issues were raised during the walkthrough.

> The landscaping was sloped towards the building prompting flooding of the lobby area during heavy rains. This problem has since been remedied, but the carpet in the front lobby shows evidence of water damage that can lead to indoor air quality problems.
>
> Occupants described an unpleasant odor from the floor drain in the restrooms. It appears that there is inadequate make-up air to supply the bathroom exhaust, placing the room under negative pressure and drawing in air from the floor drain.
>
> There was no access to the roof to service any roof mounted equipment. Building staff indicated that they rented a lift each time to access the roof.

The building shows evidence of poor design and maintenance that has led to more serious problems. Observations and conversations with building staff reveal the following:

> Occupants are unable to effectively control the buildings climate due to malfunctioning building controls and inoperable windows. Building staff indicated that an HVAC contractor is called about once a month to remedy HVAC problems and is required to pay special visits to switch the building from heating mode to cooling mode by using the exterior mounted fused disconnect switch.
>
> An inspection of the attic area where most HVAC equipment is housed found that the equipment is in various states of working order with parts strewn about, access panels left open with wires hanging out and other signs of suboptimal maintenance practices. There is also a short duct on the main supply that simply blows conditioned air into the attic for reasons unknown. The equipment itself seemed to be in good condition with few parts showing excessive wear or old age, suggesting that a building "tune-up" will likely restore the system to full working condition.
>
> Additionally, there are penetrations in the building envelope that leak conditioned air and require additional heating and cooling energy to maintain an acceptable comfort level.

Goals

The goals for this building are focused on two areas, lighting and HVAC.

Due to the relatively simple nature and straightforward benefits of a lighting retrofit, this building is an excellent candidate for a lighting retrofit in accordance with the *City of Atlanta Lighting Guidelines*. Due to the twenty four hour nature of this facility, it will have a faster than average payback. Some lighting technologies installed will have greater life and will reduce maintenance resources required for upkeep.

The second major goal for the facility is to establish occupant control over the HVAC system. It is not clear whether energy savings will result from this measure. However due to frequent calls to maintenance contractors, considerable maintenance savings are likely. The scope of work to repair the building controls will also include all necessary repairs to the HVAC system itself to ensure properly operating climate control.

Conclusion

The facility offers potential for improvement that will result in energy savings and increased occupant comfort as noted above.

Police Support Services is responsible for operation maintenance and repair of police facilities. PSS has noted that several police stations share similar issues. This offers promising opportunities for conducting repairs and improvements at several precincts at once reducing costs and improving quality control for all services performed, particularly the lighting retrofits and HVAC controls recommissioning. Further study of additional facilities is needed to confirm.

Appendix A: Recommended Actions (Follow-up Actions Planned)

Lighting

Schedule lighting retrofit for all T12 fixtures and LED Exit Signs as recommended by the *City of Atlanta Lighting Retrofit Guidelines*.

HVAC

Issue RFP/Request for Bid: *Atlanta Police Department, Zone One Precinct HVAC System Repair Services,* attached as separate document.

Consider replacing inlet guide vanes with a variable frequency drive when replacing broken equipment. A quote and specifications will be requested RFP/Request for Bid: *Atlanta Police Department, Zone One Precinct HVAC System Repair Services* for future reference.

Appendix B: Reported Items (No Follow-up Action Planned)

HVAC

Replacing refrigerant line insulation and cleaning outdoor coil may be added to HVAC service contractors' scope of services.

Envelope

There were envelope penetrations found in attic area (i.e. daylight was visible from inside) that leads energy loss. Sealing these penetrations with caulk, foam board, expanding foam or with other materials can reduce conditioned air loss.

It is possible that the building lacks ceiling /roofing insulation. If needed, spray-on foam insulation may be applied to reduce energy requirements for heating and cooling.

Miscellaneous

The carpet in the front lobby showed evidence of water damage; this can lead to indoor air quality problems if not replaced.

There is no permanent roof access to service rooftop equipment. Police Support Services explained that a lift must be brought onsite each time staff needs to access roof. An externally-mounted ladder or interior hatch may eliminate the lift rental costs.

There are no gutters on the building, which may lead to water infiltration during heavy rain events.

Appendix C: Additional Resources

Lighting

Please see separate attachments, *City of Atlanta Lighting Retrofit Guidelines*, for information on how to conduct a building lighting upgrade.

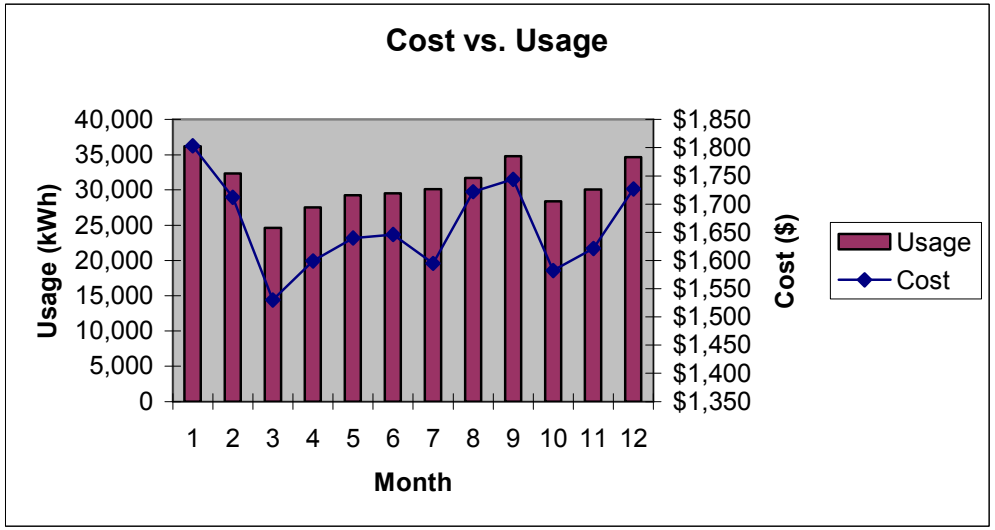
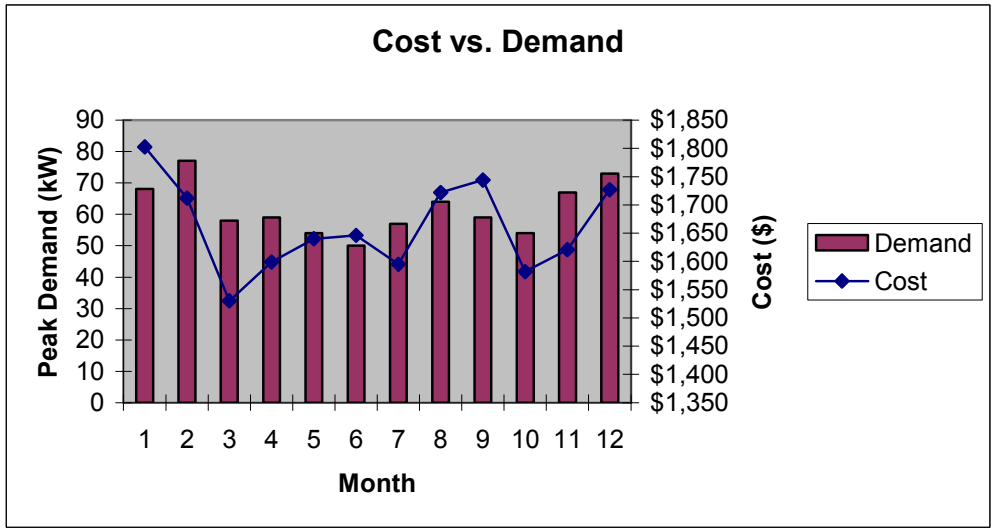
HVAC

Please see the separate attachment, Request for Proposal/Bid, *Atlanta Police Department, Zone One Precinct HVAC System Repair Services*, for information on how to correct HVAC system and control problems.

Operations & Maintenance

Please see the separate attachment, *Equipment Replacement Guidelines*, for equipment upgrades options when replacing equipment that has reached the end of its service life.

Appendix D: 12 Month Utility Data

The Table on the following page shows the electricity use, cost and peak demand for the year 2003. The top graph, labeled "Cost vs. Usage" shows the relationship between electricity consumption and cost for the year 2003. The bottom graph, labeled "Cost vs. Demand" shows the relationship between cost and peak demand for the year 2003

Month	kWh	Peak kW	Cost
Jan-03	36,180	68	$1,803
Feb-03	32,340	77	$1,712
Mar-03	24,660	58	$1,530
Apr-03	27,540	59	$1,599
May-03	29,280	54	$1,640
Jun-03	29,520	50	$1,646
Jul-03	30,120	57	$1,595
Aug-03	31,680	64	$1,722
Sep-03	34,800	59	$1,744
Oct-03	28,380	54	$1,582
Nov-03	30,060	67	$1,621
Dec-03	34,620	73	$1,727
Total	**369,180**	**N/A**	**$19,921**