September 30, 2009

Borough of Media
Attn: Ms. Karen Taussig-Lux
EAC Council Member
301 N. Jackson St.
Media, PA 19063

Re: Energy Consumption Evaluation/Audit for Media Borough Hall

Dear Ms. Taussig-Lux:

In accordance with our June 19, 2009 proposal, Practical Energy Solutions (PES) has prepared an analysis of your energy consumption at the Media Borough Hall, in Media Borough, Delaware County.

The purpose of this analysis is to determine trends of consumption, rate analysis for electricity where the complex rate structure has an impact on the dollar value of savings strategies, perform a cursory review of building management operations, and provide some information on the primary energy using systems in the buildings

This report is based on the results of an on-site survey conducted on September 22, 2009, air temperature data gathered from September 22 through September 29, and an analysis of twenty-nine (29) months of utility bills. The results provide a snapshot of consumption trends, energy costs, building management operations and heating and air conditioning (HVAC) system usage patterns.

We have included an ENERGY STAR benchmark for the facility, provided consumption and financial analyses of electricity use, identified facility operations having the greatest impact on energy consumption, and recommended several immediate energy- and cost-saving opportunities. We have also suggested areas for further evaluation within the body of this report.

Based upon our findings, Media Borough is eligible to apply for and receive an Energy Star award. We could assist you in applying for this honor.

We appreciate the opportunity to prepare this report for you. We hope you find it useful in learning more about your current energy consumption, and the possibilities for reducing energy consumption.

Sincerely,

Justin S. Murray
Project Manager

Paul D. Spiegel, P.E., LEED AP
President

770 E. Market Street, Suite 250 West Chester PA 19382
(610) 430-1382 (610) 430-1375 fax www.practicalenergy.net

ENERGY CONSUMPTION AND EVALUATION REPORT

Prepared for:

Media Borough Hall

September 2009

Prepared by:

770 E. MARKET STREET
SUITE 250
WEST CHESTER, PA 19382
www.practicalenergy.net

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APPENDICES

EXECUTIVE SUMMARY

The Media Borough Hall complex is a public municipal campus of three (3) attached buildings located in Media Borough, PA. Media Borough established this facility on the site in 1994. Since that time, major renovations included: a lighting retrofit, a complete replacement of the original building's HVAC roof top units (RTUs), which are now 15 years old, and full renovation of the building now used as the Community Center.

Investigation

PES visited the Media Borough Hall complex on September 22, 2009 and conducted a full lighting inventory, occupancy evaluation, assessment of plug loads, and heating/air conditioning system inventory.

A return visit was performed on September 29, 2009 to retrieve temporary air temperature loggers, placed on September 22, 2009. These devices were installed to record ambient and supply air temperatures in 15-minute intervals from September 22-September 29, to determine overall HVAC performance and usage patterns.

Buildings

The building systems reviewed by PES in this report are contained in the following building sections: Old Mansion, New Section, and the Community Center.

Approximate square footage of the entire investigated campus is about 38,000 square feet. Each sections's estimated footprint is as follows (sq. ft.):

- Old Mansion (12,000)
- New Section (18,000)
- Community Center (8,000)

Utility Consumption

Current energy costs are about average for this type of facility. For the April '08-March '09 year, energy costs totaled $62,000, with 56% of these costs due to electricity use, 44% due to natural gas. The energy cost per square foot is $1.60. Regional averages range from $1.19 to $1.25 per square foot (Virgina & New York). This indicates some room for reducing energy use and cost savings.

For the April '08-March '09 year, the Media Borough Hall used:

- 295,200 kWh of electricity
- 18,859 Ccf of natural gas

Energy Star

The overall energy efficiency of the facility is currently rated a **85** out of 100, according to the ENERGY STAR Portfolio Manager™ benchmarking system, meaning that the complex is more energy efficient than **85%** of comparable facilities nationwide (less efficient than **15%**).

This rating indicates that Media Borough is eligible to apply for an Energy Star award.

The following section is a brief summary of the recommendations that we offer for your facility. A full recommendations listing is included in the *Recommendations* section of this report.

(Executive Summary cont'd)

Recommendations

Immediate energy- and cost-saving opportunities identified by PES include:

Additional energy savings can be realized by:

- *Reduction of plug loads.* By turning off the computers and copy machines located throughout the campus, the Borough could save an additional 1,500 kWh per month, for an additional estimated annual cost savings of roughly **$2,300**. (This assumes observed behavior is typical.)
    - Turn "off" or unplug devices when not in use.
    - Place timers on vending machines that don't require cooling, to shut down at night.
    - Promote using shared refrigerators, instead of individual, small units.

- *HVAC Controls.*
    - Consider replacing the manual thermostats with new programmable ones.
    - Adjust the Community Center programmable thermostat with appropriate occupied and unoccupied settings. There is more detail on this in the report. Savings of roughly **$6,000.**

- *Turning lights off during unoccupied periods.* In general, installing occupancy sensors in hallways, locker rooms, and otherwise intermittently occupied locations, can potentially lead to a 50% or greater lighting energy usage reduction. Media Borough currently uses these devices, but there were a few locations that could benefit from additional installation.

- *Educational Programs* PES has had tremendous success with cost and energy use savings as a direct result of educational programs that we have tailored and implemented throughout various facilities. This is a cost effective and practical way to cut energy costs without implementing any capital improvements. **(~10%**)

Following these recommendations, it is estimated that the Media Borough Hall could achieve an estimated energy savings of over **$8,300** at today's prices (13% of current energy bill) and significantly reduce CO2 emissions.

Note that this is an initial energy assessment and evaluation report. Based on our findings, Media Borough is currently operating near highest efficiency, but with a few changes, could be even better.

ENERGY CONSUMPTION AND EVALUATION REPORT

Prepared for:

Media Borough Hall

September 2009

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ENERGY CONSUMPTION ANALYSIS

PES received 29 months of electricity bills (April '07 - August '09) for the PECO electricity and natural gas accounts for this time period. See Appendix A for a graphical and tabular analysis.

Electricity Consumption.

Electricity costs for the April '08 – March '09 year were $35,223, or $0.93 per square foot. This is a 7% decrease from the previous year's electrical usage. Total usage for this time period was 310,880 kWh.

Costs and usage are *projected** to be $36,190.83, and 297,797 kWh for the 12 month period ending March 2010.

Rate Summary

The electricity account is on the PECO General Service (GS) rate, and each bill which includes generation, distribution, and transmission charges for electricity. There is also a separate charge from PECO for transition charges. These transition charges allow PECO to recover capital costs on a gradual basis, mostly for their investment in nuclear facilities. These costs are capped every month, and the transition charges will be eliminated when rate caps are removed in January of 2011.

In addition, electricity demand is averaged every half hour during the billable month, and the highest 30-minute average appears as peak demand (measured in kW). PECO segregates the bill into tiers, or rate blocks, and as peak demand rises, PECO places more kWhs into the top (most expensive) billing tier. Under this rate structure, the last kilowatt hours purchased are billed at the lowest rates, which needs to be taken into account when planning capital upgrades for energy projects and computing payback periods and ROI.

Analysis

The PES analysis contained in Appendix A shows that the highest electricity consumption at the Media Borough Hall is in the summer. This is typical, as air conditioned spaces tend to experience the highest electrical demand during the summer months.

****projected values based on a 2% increase in monthly consumption over the prior two years per month average consumption***

Natural Gas Consumption

The entire heated portion of the Borough Hall is heated using energy produced from natural gas. There are two (2) meters located at the Borough Hall.

Natural gas charges and usage totaled $26,766, and 18,359 Ccf for the July '08 - June '09 year, or $0.67 per square foot. This was a 1% decrease in cost from the prior year, with a 7% decrease in usage. This discrepancy is due to the fluctuating cost of natural gas.

Costs and usage are *projected** to be $25,548.98 and 18,840 Ccf for the 12 month period ending June 2010.

The bulk of natural gas consumption is winter space heat; however, domestic hot water is also fueled by natural gas. The consumption pattern is fairly typical, given the heating schedule, and does not contain any anomalies (e.g., heat being distributed during summer months).

projected values based on a 2% increase in monthly consumption over the prior two years per month average consumption

CO_2 EMISSIONS

Energy use at the Media Borough Hall complex has led to CO_2 emissions of:

- 640,489 pounds (lbs.) for the 12 months ending March 2008
- 603,918 pounds (lbs.) in the 12 months ending March 2009
- 604,443 pounds (lbs.) *projected** for the 12-months leading up to March 2010

The Media Borough Hall complex produced approximately **603,918 pounds** of CO_2 pollution for the April '08-March '09 year, which is the annual emissions equivalent of more than **53 passenger cars** (based on 11,450 lbs. per car, epa.gov).

Implementation of Carbon Cap and Trade programs through the Waxman Markey bill in Congress may lead to restrictions in the emissions of CO_2, so tracking is important. Also, if the municipal body is able to reduce CO_2 emissions through energy conservation programs, there will be some positive promotional opportunities in the press.

Appendix B contains detailed CO2 emissions information.

projected values based on a 2% increase in monthly consumption over the prior two years per month average consumption

ENERGY STAR™ RATING
AND WHOLE BUILDING EFFICIENCY

To determine the overall energy efficiency of the municipal complex, 29 months (April '07-August '09) of utility bills were entered in the ENERGY STAR Portfolio Manager™ benchmarking system, which rates the energy efficiency of the building based on the energy intensity per square foot, or site energy use intensity (EUI). The rating is corrected for facility size, operating hours, occupancy, general climate conditions, and local weather conditions during the years in question.

The PES analysis shows an annual EUI (kbtu/sq.ft.) of **82** for the '07/'08 and **77** '08/'09 years respectively, which correlates roughly with the ENERGY STAR benchmarking results (Appendix A).

The ENERGY STAR rating for the current year (June'08-May '09) is **85**, meaning that the Media Borough Hall complex is more energy-efficient than 85% of similar campuses across the country (*Less efficient than 15%).* This suggests that there is some room for improvement, but very little. For more information on ENERGY STAR for buildings see:

http://www.energystar.gov/index.cfm?c=business.bus_index.

See Appendix B for the ENERGY STAR benchmarking report.

Congratulations!!
Media Borough would qualify for an energy star award.

If you would like to move toward applying for the distinction of being an Energy Star™ facility, PES would be happy to provide additional consultation to move you forward in achieving this goal.

BUILDING DESCRIPTION AND OCCUPANCY

PES visited the Media Borough hall on September 22, 2009 and conducted a full lighting inventory, occupancy evaluation, assessment of plug loads, and heating/air conditioning system inventory.

A return visit was performed on September 29, 2009 to retrieve temporarily placed air temperature loggers. These devices were installed to record ambient and supply air temperatures in 15-minute intervals from September 22-September 29, to determine overall HVAC performance and usage patterns.

The Media Borough Hall is a public municipal building consisting of three (3) distinct sections: The Mansion (circa 1850s), the New Section (1950s), and the Community Center (1990s). Media Borough Hall was established at the site in 1994, and has an approximate municipal employee population of approximately 45 people. Since that time, major renovations included: a lighting retrofit (T-12 – T-8 bulbs, a complete replacement of the original building's HVAC roof top units (RTUs) (1994), and renovation of the building that now houses the community center.

The Media Borough Hall total building square footage is 38,018 square feet. The primary occupancy of the complex occurs mainly during the work week (Mon-Fri), from 8:00am – 6:00pm. A portion of the main municipal building houses the Media Borough Police Department. This wing is occupied with police staff 24 hours per day, seven (7) days per week, (24/7). There are various community and municipal meetings that take place multiple times a month during the calendar year, usually after 7:00pm within the community hall (Board of Supervisors room).

BUILDING DESCRIPTIONS and ENVELOPE ISSUES

The following section describes the buildings contained within the Media Borough Hall Complex, and investigated by PES on September 21, 2009:

- The *Old Mansion* portion of the Borough Hall is the oldest building portion, and the smallest on the campus and is approximately 150 years old (1850s). It is a stone construction building whose footprint is approximately 12,000 s.f. It is cooled with a retrofitted central air powered by 16 electrical exterior condenser units, located on the roof of the New Section (Center Section). Heat is provided to this section via wall mounted hot water radiators. The hot water is produced by one of three (3) boilers located in the basement.

- The *New Section* was renovated in 1994, but it was originally built in the 1950s. It is a steel construction building with a masonry exterior that is connected to the old mansion via two (2) (one upper, and one lower) walk-ways, and is approximately 18,000 sf. The main usage of this portion of the building is for the Police Department. The space is heated and cooled just like the Old Mansion portion with base board heat and central air conditioning.

- The *Community Center* was renovated in the mid-1990s shortly after the Borough Hall was occupied. It is a steel frame construction building with a masonry exterior, whose footprint is approximately 8,000 s.f. It is connected to the *New Section* via a walkway exiting the police department. The primary usage of this space is for community activities, and for community meetings. It is cooled via a central air system; three (3) condensers are located outside of the community center along the exterior wall. Heat is provided to this space with a boiler

Most of the units located on the roof were identified as SEER 10, and all are approximately 15 years old. It is recommended that for additional energy savings and for a capital improvement project, that the Borough should consider replacing these units with higher efficiency units.

Building Envelope Issues

The Old Mansion portion of the building seemed to have the most pressing envelope issues. This is primarily due to its age and its construction. The following are some observations that were made during our investigation:

- Windows currently installed in the building appear to be single pane and are not as effective at preventing heat loss as a double pane window. Typically, in older buildings there is substantial air flow and heat loss/gain around the window opening due to shrinking and swelling of the building materials. This can be addressed with spray foam and/or caulk. In order to properly identify areas, thermographic imagery could be performed during periods with significant temperature differentials between the inside and outside of the building (winter is the optimal time for these studies).

- The entrance to the Mansion had visible light penetrating around its entire door frame. This could be addressed with weather stripping material. Another option would be to construct a “breezeway” entrance to assist in trapping cold/warm air from entering/leaving the occupied space.

HVAC SYSTEMS

The building portions listed in the previous section have controls in place to regulate the building climate system. Some are programmable, while others are manual.

The majority of the Borough Hall facility utilizes manual thermostats located in each zone for air conditioning. C*onsider installing programmable thermostats to further reduce your energy costs*.

The interviewed staff at Media Borough indicated that the current target settings for occupied periods are 71°F for cooling and at 67°F for heating. These settings may be difficult to maintain, however, because the thermostats are mostly manually controlled, except in the parlor of the old mansion and in the community center, where heating and cooling are controlled by programmable thermostats.

Savings Opportunity:

Install programmable thermostats at all locations, and program to engage at 73°F (80°F unoccupied), for cooling and 68°F (60°F unoccupied) for heating. If necessary, lock the thermostat, so that individual adjustments cannot be made. Set proper occupied & unoccupied time periods.

We installed temperature loggers in both the supply air duct and in the ambient conditions, in multiple locations, during the week of September 21 to September 29 and documented that during this late summer, early autumn week the cooling for the community center was being distributed during the evening unoccupied time period (50°F +/- supply air). The Community Center has high ceilings and has irregular occupancy, which means that unoccupied heating and cooling of the space wastes significant amounts of energy.

Please review the attached building monitoring reports contained in Appendix C.

Savings Opportunity:

A substantial opportunity for immediate energy savings lies with properly programming the programmable thermostat located in the Community Center.

Consider the following when programming your thermostat:

- **Examine the "true" occupied hours of the facility, and set the occupied and unoccupied time periods in the thermostats accordingly.**
- **Establish occupied set points of 72 - 73°F for cooling and 68 - 70°F for heating, and unoccupied setpoints of 80 - 82°F for cooling and 60 - 62°F for heating .**
- **If the unit is battery powered, check the batteries often.**

The other portions of the facility seem to be managed the best they can with manual thermostats. However it was indicated to us during our meeting that the building's heating system seems to be unbalanced and has a hard time "keeping up" during the coldest winter days.

Please note that the scope of this report included a review but not a comprehensive study of the HVAC systems (including heating season, balance, room response, etc.). Having PES perform this study and make recommendations for adjustments and development of management guidelines for these systems can have a payback of less than one year.

LIGHTING

The interior space throughout the complex is primarily lit with standard (T-8) fluorescent bulbs.

Based on assumed variable burn times associated with different space usage, lighting accounts for approximately 25% or 78,552 kWh, of the yearly electrical use based on the April 2008 – March 2009 electricity usage (310,880 kWh).

Media Borough LIGHTING USAGE					
	T-8 (main) #	**T-8 (Police) #**	**T-8 (Community)**	**T-5 (Community)**	**32 Watt CFL #**
	204	189	56	76	42
Watts	32	32	32	25	32
kW	6.528	6.048	1.792	1.9	1.344
hours/week	60	168	20	20	20
weeks	52	52	53	54	52
Burn time/yr	3120	8736	1060	1080	1040
kWh	20,367.4	52,835.3	1,899.5	2,052.0	1,397.8
Total Lighting kWh	**78,552**				
Total Annual kWh (Facility)	**310,880**				
% of Total (Electric)	**25%**				

New lighting and controls have been installed throughout the building since the owner's initial occupancy. T-8 (1" dia.) fluorescent fixtures and occupancy sensors provide the majority of the lighting and lighting controls within this facility. T-8 bulbs use electricity at a rate of 32 watts, while the occupancy sensors help to conserve light usage by turning off the lights when unoccupied.

Lighting Savings Strategies

For lighting, there are 2 basic strategies for saving energy –

a) Have lights use less energy when they are on

b) Have the lights go off for more hours each day/week/year

There are two ways to take advantage of strategy a):

- Replace lights with more efficient fixtures that generate the same amount of light for less wattage, such as replacing T-12 (34 – 40 watts per bulb) with more efficient T-8 (32 watts) or T-5 (28 watts).
    - Media Borough currently uses T-8, and T-5 lighting, so there is very little opportunity for change here, unless you decided to fully convert to T-5 fluorescent lighting throughout the facility.

- Reduce lighting levels in spaces that are over lit per the IESNA lighting code for the actual use of the space.
    - One such area identified in our study was the large conference room and the meeting room, both on the second floor, which are lit to 90 foot candles and 131 foot candles respectively. The IESNA lighting code calls for approximately a 50% reduction of luminescence to 50-70 foot candles.
    - To accomplish a reduction, simply de-lamp, or remove one or two of the bulbs in the fixture. This will potentially cut your lighting energy usage per fixture by 25%-50%. Note that this procedure has been performed in other spaces throughout the facility.
    - Additional light level recordings are listed below. A compete lighting study could be performed as part of an additional phase of comprehensive building monitoring.

Taking advantage of strategy b) involves:

- Using occupancy sensors, timers, and getting people to manage the lights in their own space more effectively. Much of the Media Borough facility already takes advantage of this technology.

Measured light levels throughout the Municipal Building:

Location	Area	Reading	Reading	Reading	IESNA
Conf. Rm	Table	90 F.C.	75 F.C.		50-70F.C.
Mtg Rm	Workspace	131 F.C.			50-70F.C.
Squad Rm (Police)	Workspace	61 F.C.	57 F.C.	70 F.C.	50-70F.C.

Exterior Lights

Exterior lighting, comprising of metal halide (HID) and high pressure sodium (HSP) parking and driveway lighting as well as security lighting throughout the complex is controlled by manually adjusted timers. **It is important to seasonally adjust timers so that the lights turn on or off as lighting needs change throughout the year.**

As a capital improvement project, Media Borough should also consider using LED lighting technology for exterior lighting, parking lot lighting, and street lighting.

PHANTOM PLUG LOADS

The Media Borough Hall complex can achieve additional and *significant* energy and cost savings by reducing phantom plug loads throughout the Borough Hall.

It was noted that there are:

- 24 PCs
- 9 printers
- 2 large process copiers.

Projectors, copiers, printers, computers, task lighting, etc. are considered "phantom plug loads" because these devices very commonly are left on all the time and continually consume electricity while not being used.

Some of these devices have "sleep" modes, but in order to most effectively conserve energy, each device should be *turned off* every night.

Besides the copiers, printers and computers, other office equipment or plug loads found in the buildings include:

- coffee makers
- microwaves
- vending machines
- refrigerators
- toasters

Many of these draw some energy even when off, so *unplugging coffee makers and microwave ovens can save some energy and some heat.*

Keep in mind that office equipment typically uses 10% - 20% of the energy for a building(s), and during cooling season, that can add significantly to the cooling load for the building(s).

Computers
A 200-watt PC system uses approximately 134 kWh each month if it runs 24/7. The screen saver mode does not reduce this energy requirement at all; the sleep mode reduces the energy requirement by approximately 60% to 70%. While the circumstances likely change as people come and go, the PES survey showed that there were many computers all on screen saver setting (no energy savings).

If this practice were to occur each day, and overnight, for 1 year the energy consumption would be approximately 38,000 kWh, or 12% of the total electricity usage.

> **Savings Opportunity:**
> **By turning off the computers and other devices that are left on all the time, it is possible to save nearly 6% of the total electricity expenditures each year.**

RECOMMENDATIONS

The roughly 38,000 square-foot Media Borough Hall complex, established in 1994, has an ENERGY STAR rating of **85**, which means that there are a few practical, relatively inexpensive solutions available to further reduce the annual energy expenditures and usage.

One of the greatest and most effective changes that could be made at the Media Borough complex, to reduce energy consumption would be to properly program the programmable thermostat in the Community Center and install programmable thermostats throughout the facility, so that energy is not being wasted by heating and/or cooling unoccupied building space.

By adjusting the thermostat aggressively so that the system runs 70% less than it currently runs (currently 6am -12am - 7 days/wk), Media Borough could see a cost and energy savings of about 6% for electricity ($2,200), and possibly 15% for natural gas ($4,000), for a total combined energy savings of over **$6,000** at today's energy rates.

Additional energy savings can be realized by:

- *Reduction of plug loads*. By turning off the computers and copy machines located throughout the campus, the Borough could save an additional 1,500 kWh per month, for an additional estimated annual cost savings of roughly **$2,300**. (This assumes observed behavior is typical.)
    - Turn "off" or unplug devices when not in use.
    - Place timers on vending machines that don't require cooling, to shut down at night.

- *HVAC controls*
    - Set the cold supply air 1°F warmer (e.g., 56°F, instead of 55°F) could reduce electrical demand by **1%**.
    - Establish a policy for specific occupied and unoccupied temperature settings.
    - Use aggressive setbacks during unoccupied periods.

- *Turning lights off during unoccupied periods.* Installing additional occupancy sensors, in intermittently occupied locations, where there currently are none, can lead to greater lighting energy usage reduction.

- *Educational Programs* PES has had tremendous success with cost and energy use savings as a direct result of educational programs that we have tailored and implemented throughout various facilities. This is a cost effective and practical way to cut energy costs without implementing any capital improvements.

Following these recommendations, it is estimated that the Media Borough Hall could achieve an energy savings of over **$8,300** at today's prices (13% of current energy bill) and significantly reduce CO2 emissions.

Media Borough is currently operating near highest efficiency, but has some small room for improvement. Congratulations on your exceptional Energy Star™ rating!

APPENDIX A

Energy Consumption Summary and Charts

Media Borough Hall

Energy Usage Summary

Facility Name: **Media Borough**
Facility Type: Public
Electric Utility: PECO
Gas Utility: PECO

Electric Meter # 4077618
Gas Meter # 27805683
Gas Meter # (Comm Ctr) 28729545

Gross Square Footage 38,018

Year: 2007-2008		Electricity							Gas						
Month	# of Days in Billing Period	Total kWh Usage	kWh month/ kWh year	Electric Demand kW	Monthly Electric Cost $	Electric Unit Cost ($/kWh)	Electric Kbtu (kWh X 3.412)	Load Factor (kWh / kW x Days x 24)	Total Gas Usage CCF	Gas Usage Therms	Gas Cost $	Gas Cost $ (Comm Ctr)	Total Gas Cost $	Gas UnitCost ($/Therm)	Gas KBtu (Therms x 100)
Apr-07	30	19,520	6.3%	51	$2,374.75	$ 0.122	67	0.53	2,613	2,678.3	$2,352.68	$1,179.48	$3,532.16	$ 1.319	268
May-07	32	24,960	8.0%	74	$3,135.81	$ 0.126	85	0.44	517	529.9	$338.81	$383.06	$721.87	$ 1.362	53
Jun-07	29	31,520	10.1%	93	$4,247.32	$ 0.135	108	0.49	236	241.9	$155.11	$189.99	$345.10	$ 1.427	24
Jul-07	30	35,360	11.4%	96	$4,652.77	$ 0.132	121	0.51	181	185.5	$161.82	$109.54	$271.36	$ 1.463	19
Aug-07	31	38,240	12.3%	89	$4,654.63	$ 0.122	130	0.58	152	155.8	$163.16	$69.31	$232.47	$ 1.492	16
Sep-07	30	31,360	10.1%	82	$4,058.15	$ 0.129	107	0.53	146	149.7	$157.80	$66.63	$224.43	$ 1.500	15
Oct-07	29	27,040	8.7%	89	$3,510.60	$ 0.130	92	0.44	338	346.5	$313.34	$168.54	$481.88	$ 1.391	35
Nov-07	33	22,080	7.1%	51	$2,517.21	$ 0.114	75	0.55	2,740	2,808.5	$2,709.72	$991.78	$3,701.50	$ 1.318	281
Dec-07	31	20,960	6.7%	43	$2,236.37	$ 0.107	72	0.66	3,471	3,557.8	$2,917.93	$1,578.36	$4,496.29	$ 1.264	356
Jan-08	33	20,960	6.7%	40	$2,171.06	$ 0.104	72	0.66	3,746	3,839.7	$3,129.85	$1,675.25	$4,805.10	$ 1.251	384
Feb-08	29	18,720	6.0%	39	$2,386.94	$ 0.128	64	0.70	3,244	3,325.1	$2,767.36	$1,417.96	$4,185.32	$ 1.259	333
Mar-08	29	20,160	6.5%	44	$2,211.22	$ 0.110	69	0.66	2,842	2,913.1	$2,499.67	$1,459.62	$3,959.29	$ 1.359	291
TOTAL 2008		**310,880**			**$38,157**	**0.121**			**20,226**	**20,732**			**$26,957**	**$1.30**	**2,073**

Year: 2008-2009		Electricity							Gas						
Month	# of Days in Billing Period	Total kWh Usage	kWh month/ kWh year	Electric Demand kW	Monthly Electric Cost $	Electric Unit Cost $/kWh	Electric Kbtu (kWh X 3.412)	Load Factor kWh / kW x Days x 24	Total Gas Usage CCF	Gas Usage Therms	Gas Cost $	Gas Cost $ (Comm Ctr)	Total Gas Cost $	Gas UnitCost $/Therm	Gas KBtu Therms x 100
Apr-08	31	21,600	6.9%	58	$2,615.83	$ 0.121	74	0.50	1,427	1,462.7	$1,258.64	$753.97	$2,012.61	$ 1.376	146
May-08	30	19,360	6.6%	59	$2,438.23	$ 0.126	66	0.46	642	658.1	$641.35	$279.86	$921.21	$ 1.400	66
Jun-08	29	33,280	11.3%	94	$4,391.56	$ 0.132	114	0.81	215	220.4	$183.67	$198.47	$382.14	$ 1.734	22
Jul-08	33	40,800	13.8%	86	$4,669.23	$ 0.114	139	0.60	230	235.8	$199.65	$216.49	$416.14	$ 1.765	24
Aug-08	29	31,360	10.6%	77	$3,910.25	$ 0.125	107	0.59	201	206.0	$176.05	$191.21	$367.26	$ 1.783	21
Sep-08	30	28,800	9.8%	80	$3,776.31	$ 0.131	98	0.50	148	151.7	$180.11	$86.76	$266.87	$ 1.759	15
Oct-08	31	21,600	7.3%	59	$2,636.47	$ 0.122	74	0.49	645	661.1	$862.66	$194.51	$1,057.17	$ 1.599	66
Nov-08	29	19,360	6.6%	45	$2,204.11	$ 0.114	66	0.62	2,070	2,121.8	$2,296.23	$1,033.28	$3,329.51	$ 1.569	212
Dec-08	35	21,920	7.4%	43	$2,280.86	$ 0.104	75	0.60	3,715	3,807.9	$3,088.44	$1,913.02	$5,001.46	$ 1.313	381
Jan-09	31	20,000	6.8%	47	$2,285.16	$ 0.114	68	0.58	3,824	3,919.6	$3,280.94	$2,026.06	$5,307.00	$ 1.354	392
Feb-09	30	19,200	6.5%	40	$2,065.02	$ 0.108	66	0.67	3,408	3,493.2	$2,974.85	$1,788.77	$4,763.62	$ 1.364	349
Mar-09	30	17,920	6.1%	37	$1,950.08	$ 0.109	61	0.67	2,334	2,392.4	$2,022.00	$919.45	$2,941.45	$ 1.230	239
TOTAL 2009		**295,200**			**$35,223**	**0.118**			**18,859**	**19,330**			**$26,766**	**$1.38**	**1,933**

Media Borough Hall

Energy Usage Summary

Year: 2009-2010		Electricity							Gas						
Month	# of Days in Billing Period	Total kWh Usage	kWh month/ kWh year	Electric Demand kW	Monthly Electric Cost $	Electric Unit Cost $/kWh	Electric Kbtu (kWh x 3.412)	Load Factor kWh / kW x Days x 24	Total Gas Usage CCF	Gas Usage Therms	Gas Cost $	Gas Cost $ (Comm Ctr)	Total Gas Cost $	Gas UnitCost $/Therm	Gas KBtu Therms x 100
Apr-09	28	20,000	6.8%	54	$2,508.11	$ 0.121	68	0.55	1,299	1,331.5	$1,084.20	$575.05	$1,794.01	$ 1.347	133
May-09	30	22,240	7.5%	66	$2,902.28	$ 0.126	76	0.47	484	496.1	$172.45	$363.22	$395.58	$ 1.381	50
Jun-09	29	28,640	9.6%	94	$3,803.02	$ 0.133	98	0.44	124	127.1	$111.00	$75.73	$200.86	$ 1.580	13
Jul-09	33	33,280	11.2%	91	$4,101.01	$ 0.123	114	0.46	91	93.3	$84.84	$64.17	$150.54	$ 1.614	9
Aug-09	29	35,496	11.9%	83	$4,373.30	$ 0.123	121	0.62	180	184.5	$177.18	$124.97	$302.14	$ 1.637	18
Sep-09	30	30,682	10.3%	81	$3,996.70	$ 0.130	105	0.53	150	153.7	$178.88	$71.55	$250.43	$ 1.629	15
Oct-09	31	24,806	8.3%	74	$3,124.23	$ 0.126	85	0.45	501	513.9	$590.03	$178.18	$768.21	$ 1.495	51
Nov-09	29	21,134	7.1%	48	$2,407.77	$ 0.114	72	0.64	2,453	2,514.4	$2,597.47	$1,032.35	$3,629.82	$ 1.444	251
Dec-09	35	21,869	7.3%	43	$2,304.43	$ 0.105	75	0.61	3,665	3,756.5	$3,075.78	$1,764.90	$4,840.69	$ 1.289	376
Jan-10	31	20,890	7.0%	43	$2,275.29	$ 0.109	71	0.65	3,861	3,957.2	$3,291.90	$1,863.18	$5,155.08	$ 1.303	396
Feb-10	30	19,339	6.5%	39	$2,272.94	$ 0.118	66	0.69	3,393	3,477.3	$2,939.80	$1,619.66	$4,559.46	$ 1.311	348
Mar-10	30	19,421	6.5%	41	$2,121.77	$ 0.109	66	0.67	2,640	2,705.8	$2,306.58	$1,195.58	$3,502.16	$ 1.294	271
TOTAL 2010		**297,797**			**$36,191**	**0.120**			**18,840**	**19,311**			**$25,549**	**$1.32**	**1,931**

Note: Assumed 2% growth in natural gas usage from 2008 for Sep through Dec 2009, and an increase in cost per kWh based on historical trend.

Year: 2010-2011									Gas						
Month	# of Days in Billing Period	Total kWh Usage	kWh month/ kWh year	Electric Demand kW	Monthly Electric Cost $	Electric Unit Cost $/kWh	Electric KBtu kWh X 3.412	Load Factor kWh / kW x Days x 24	Total Gas Usage CCF	Gas Usage Therms	Gas Cost $	Gas Cost $ (Comm Ctr)	Total Gas Cost $	Gas UnitCost $/Therm	Gas KBtu Therms x 100
Apr-10	28	21,216	7.1%	38	$2,572.26	$ 0.121	2129	0.83	1,390	1,425.0	$1,245.68	$694.74	$1,940.42	$ 1.362	143
May-10	30	21,216	7.0%	66	$2,670.34	$ 0.126	72	0.45	574	588.6	$481.19	$337.27	$818.46	$ 1.390	59
Jun-10	29	31,579	10.4%	90	$4,189.17	$ 0.133	108	0.51	173	177.2	$156.80	$136.87	$293.67	$ 1.657	18
Jul-10	33	37,781	12.5%	86	$4,485.61	$ 0.119	129	0.55	164	167.8	$145.73	$137.78	$283.51	$ 1.690	17
Aug-10	29	34,097	11.3%	84	$4,226.17	$ 0.124	116	0.58	194	199.2	$180.18	$160.42	$340.60	$ 1.710	20
Sep-10	30	30,336	10.0%	71	$3,964.64	$ 0.131	104	0.60	152	155.7	$186.09	$77.80	$263.89	$ 1.694	16
Oct-10	31	23,667	7.8%	67	$2,934.78	$ 0.124	81	0.48	585	599.2	$741.62	$185.42	$927.04	$ 1.547	60
Nov-10	29	20,652	6.8%	47	$2,352.02	$ 0.114	70	0.63	2,307	2,364.5	$2,509.23	$1,052.60	$3,561.84	$ 1.506	236
Dec-10	35	22,332	7.4%	45	$2,338.52	$ 0.105	76	0.60	3,764	3,857.8	$3,150.75	$1,868.42	$5,019.17	$ 1.301	386
Jan-11	31	20,854	6.9%	40	$2,327.04	$ 0.112	71	0.70	3,919	4,017.2	$3,364.54	$1,971.61	$5,336.15	$ 1.328	402
Feb-11	30	19,655	6.5%	38	$2,212.01	$ 0.113	67	0.72	3,468	3,555.0	$3,023.38	$1,731.18	$4,754.56	$ 1.337	355
Mar-11	30	19,044	6.3%	49	$2,076.48	$ 0.109	65	0.54	2,537	2,600.0	$2,210.30	$1,070.76	$3,281.06	$ 1.262	260
TOTAL 2011		**302,428**			**$36,349**	**0.119**			**19,227**	**19,707**			**$26,820**	**$1.36**	**1,971**

Media Borough Hall

Total Energy Usage and EUI

Year: 2007-2008		Electricity		Gas		Totals			Energy Use Index		
Month	# of Days in Billing Period	Total kWh Usage	Monthly Cost $	Total Gas Usage CCF	Total Gas Cost $	kBtu Consumed	Cost of Energy	CO2 Emmitted lbs.	EUI KBtu/Sq.Ft	Cost $/Sq.Ft.	Cum Cost $/Sq.Ft.
Apr-07	30	19,520	$2,374.75	2,613	$3,532.16	334,435	$ 5,906.91	56,735	9	$0.16	$ 0.16
May-07	32	24,960	$3,135.81	517	$721.87	138,156	$ 3,857.68	37,809	4	$0.10	$ 0.26
Jun-07	29	31,520	$4,247.32	236	$345.10	131,736	$ 4,592.42	42,618	3	$0.12	$ 0.38
Jul-07	30	35,360	$4,652.77	181	$271.36	139,201	$ 4,924.13	46,780	4	$0.13	$ 0.51
Aug-07	31	38,240	$4,654.63	152	$232.47	146,055	$ 4,887.10	50,052	4	$0.13	$ 0.64
Sep-07	30	31,360	$4,058.15	146	$224.43	121,965	$ 4,282.58	41,309	3	$0.11	$ 0.75
Oct-07	29	27,040	$3,510.60	338	$481.88	126,905	$ 3,992.48	38,228	3	$0.11	$ 0.85
Nov-07	33	22,080	$2,517.21	2,740	$3,701.50	356,187	$ 6,218.71	61,523	9	$0.16	$ 1.02
Dec-07	31	20,960	$2,236.37	3,471	$4,496.29	427,293	$ 6,732.66	69,103	11	$0.18	$ 1.19
Jan-08	33	20,960	$2,171.06	3,746	$4,805.10	455,481	$ 6,976.16	72,485	12	$0.18	$ 1.38
Feb-08	29	18,720	$2,386.94	3,244	$4,185.32	396,383	$ 6,572.26	63,488	10	$0.17	$ 1.55
Mar-08	29	20,160	$2,211.22	2,842	$3,959.29	360,091	$ 6,170.51	60,358	9	$0.16	$ 1.71
TOTAL 2008		**310,880**	**$ 38,157**	**20,226**	**$26,957**	**3,133,888**	**$ 65,114**	**640,489**	**82**	**$0.14**	**$ 1.71**

Year: 2008-2009		Electricity		Gas		Totals			Energy Use Index		
Month	# of Days in Billing Period	Total kWh Usage	Monthly Cost $	Total Gas Usage CCF	Gas Cost $	kBtu Consumed	Cost of Energy	CO2 Emmitted lbs.	EUI KBtu/Sq.Ft	Cost $/Sq.Ft.	Cum Cost $/Sq.Ft.
Apr-08	31	21,600	$2,615.83	1,427	$2,012.61	219,967	$ 4,628.44	44,768	6	$0.12	$ 0.12
May-08	30	19,360	$2,438.23	642	$921.21	131,861	$ 3,359.44	32,290	3	$0.09	$ 0.21
Jun-08	29	33,280	$4,391.56	215	$382.14	135,589	$ 4,773.70	44,577	4	$0.13	$ 0.34
Jul-08	33	40,800	$4,669.23	230	$416.14	162,785	$ 5,085.37	54,237	4	$0.13	$ 0.47
Aug-08	29	31,360	$3,910.25	201	$367.26	127,603	$ 4,277.51	41,986	3	$0.11	$ 0.58
Sep-08	30	28,800	$3,776.31	148	$266.87	113,436	$ 4,043.18	38,108	3	$0.11	$ 0.69
Oct-08	31	21,600	$2,636.47	645	$1,057.17	139,812	$ 3,693.64	35,150	4	$0.10	$ 0.79
Nov-08	29	19,360	$2,204.11	2,070	$3,329.51	278,231	$ 5,533.62	49,855	7	$0.15	$ 0.93
Dec-08	35	21,920	$2,280.86	3,715	$5,001.46	455,579	$ 7,282.32	73,314	12	$0.19	$ 1.12
Jan-09	31	20,000	$2,285.16	3,824	$5,307.00	460,200	$ 7,592.16	72,235	12	$0.20	$ 1.32
Mar-09	31	19,200	$2,065.02	3,408	$4,763.62	414,830	$ 6,828.64	66,110	11	$0.18	$ 1.50
Mar-09	29	17,920	$1,950.08	2,334	$2,941.45	300,378	$ 4,891.53	51,287	8	$0.13	$ 1.63
TOTAL 2009		**295,200**	**$35,223**	**18,859**	**$26,766**	**2,940,270**	**$ 61,990**	**603,918**	**77**	**$0.14**	**$ 1.63**

Year: 2009-2010	Electricity	Gas	Totals	Energy Use Index

Media Borough Hall

Total Energy Usage and EUI

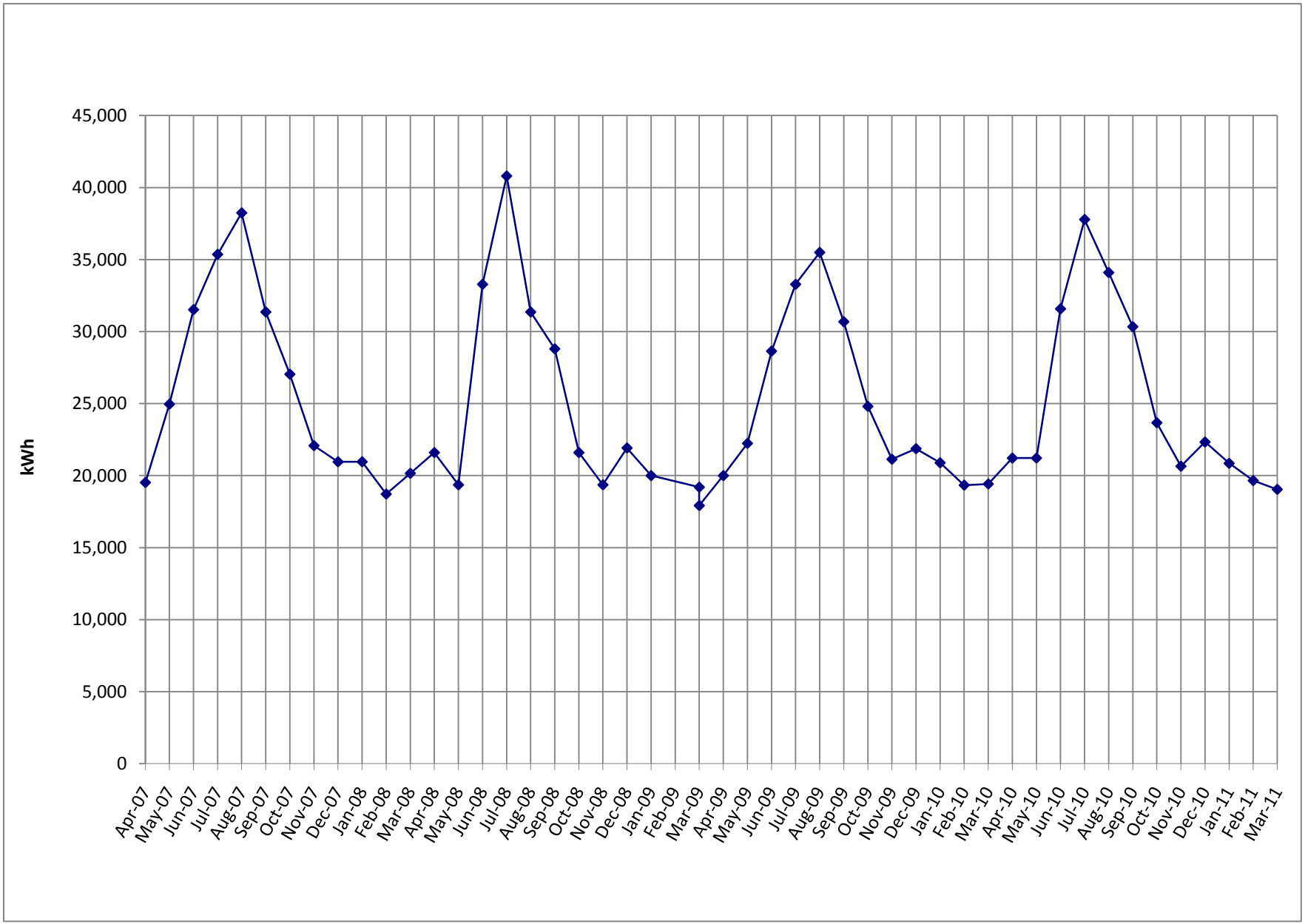
Month	# of Days in Billing Period	Total kWh Usage	Monthly Cost $	Total Gas Usage CCF	Gas Cost $	kBtu Consumed	Cost of Energy	CO2 Emmitted lbs.	EUI KBtu/Sq.Ft	Cost $/Sq.Ft.	Cum Cost $/Sq.Ft.
Apr-09	28	20,000	$ 2,427.605	1,299	$1,794.01	201,388	$ 4,302.12	41,178	5	$0.11	$ 0.11
May-09	30	22,240	$ 2,797.515	484	$395.58	104,526	$ 3,297.86	31,460	3	$0.09	$ 0.20
Jun-09	29	28,640	$ 3,819.258	124	$200.86	110,430	$ 4,003.88	37,612	3	$0.11	$ 0.31
Jul-09	33	33,280	$ 4,093.852	91	$150.54	122,879	$ 4,251.55	43,052	3	$0.11	$ 0.42
Aug-09	29	35,496	$ 4,373.295	180	$302.14	139,565	$ 4,675.44	46,939	4	$0.12	$ 0.54
Sep-09	30	30,682	$ 3,996.695	150	$250.43	120,054	$ 4,247.12	40,503	3	$0.11	$ 0.65
Oct-09	31	24,806	$ 3,124.226	501	$768.21	136,026	$ 3,892.44	37,422	4	$0.10	$ 0.75
Nov-09	29	21,134	$ 2,407.765	2,453	$3,629.82	323,553	$ 6,037.58	56,802	9	$0.16	$ 0.91
Dec-09	35	21,869	$ 2,304.434	3,665	$4,840.69	450,264	$ 7,145.12	72,632	12	$0.19	$ 1.10
Jan-10	31	20,890	$ 2,275.286	3,861	$5,155.08	466,997	$ 7,430.37	73,808	12	$0.20	$ 1.30
Feb-10	30	19,339	$ 2,272.942	3,393	$4,559.46	413,719	$ 6,832.40	66,095	11	$0.18	$ 1.48
Mar-10	30	19,421	$ 2,121.771	2,640	$3,502.16	336,839	$ 5,623.94	56,939	9	$0.15	$ 1.62
TOTAL 2010		**297,797**	**$ 36,015**	**18,840**	**$25,549**	**2,926,240**	**$ 61,740**	**604,443**	**77**	**$0.14**	**$ 1.62**

Note: Assumed 2% growth in natural gas usage from 2008 for Sep through Dec 2009, and an increase in cost per kWh based on historical trend.

Year: 2010-2011		**Gas**				**Totals**			**Energy Use Index**		
Month	# of Days in Billing Period	Total kWh Usage	Monthly Cost $	Total Gas Usage CCF	Gas Cost $	kBtu Consumed	Cost of Energy	CO2 Emmitted lbs.	EUI KBtu/Sq.Ft	Cost $/Sq.Ft.	Cum Cost $/Sq.Ft.
Apr-10	28	21,216	$ 2,572.265	1,779	$1,940.42	214,891	$ 4,512.69	43,832	6	$0.12	$ 0.12
May-10	30	21,216	$ 2,670.343	629	$818.46	131,251	$ 3,488.81	33,796	3	$0.09	$ 0.21
Jun-10	29	31,579	$ 4,189.169	227	$293.67	125,469	$ 4,482.84	41,916	3	$0.12	$ 0.33
Jul-10	33	37,781	$ 4,485.607	224	$283.51	145,688	$ 4,769.12	49,617	4	$0.13	$ 0.45
Aug-10	29	34,097	$ 4,226.173	194	$340.60	136,256	$ 4,566.77	45,352	4	$0.12	$ 0.57
Sep-10	30	30,336	$ 3,964.644	152	$263.89	119,080	$ 4,228.53	40,092	3	$0.11	$ 0.69
Oct-10	31	23,667	$ 2,934.778	585	$927.04	140,677	$ 3,861.82	37,012	4	$0.10	$ 0.79
Nov-10	29	20,652	$ 2,352.021	2,307	$3,561.84	306,910	$ 5,913.86	54,395	8	$0.16	$ 0.94
Dec-10	35	22,332	$ 2,338.517	3,764	$5,019.17	461,980	$ 7,357.69	74,433	12	$0.19	$ 1.14
Jan-11	31	20,854	$ 2,327.038	3,919	$5,336.15	472,871	$ 7,663.19	74,482	12	$0.20	$ 1.34
Feb-11	30	19,655	$ 2,212.006	3,468	$4,754.56	422,560	$ 6,966.56	67,425	11	$0.18	$ 1.52
Mar-11	30	19,044	$ 2,076.479	2,537	$3,281.06	324,981	$ 5,357.54	55,196	9	$0.14	$ 1.66
TOTAL 2011		**302,428**	**$ 36,349**	**19,784**	**$26,820**	**3,002,613**	**$ 63,169**	**617,547**	**79**	**$0.14**	**$ 1.66**

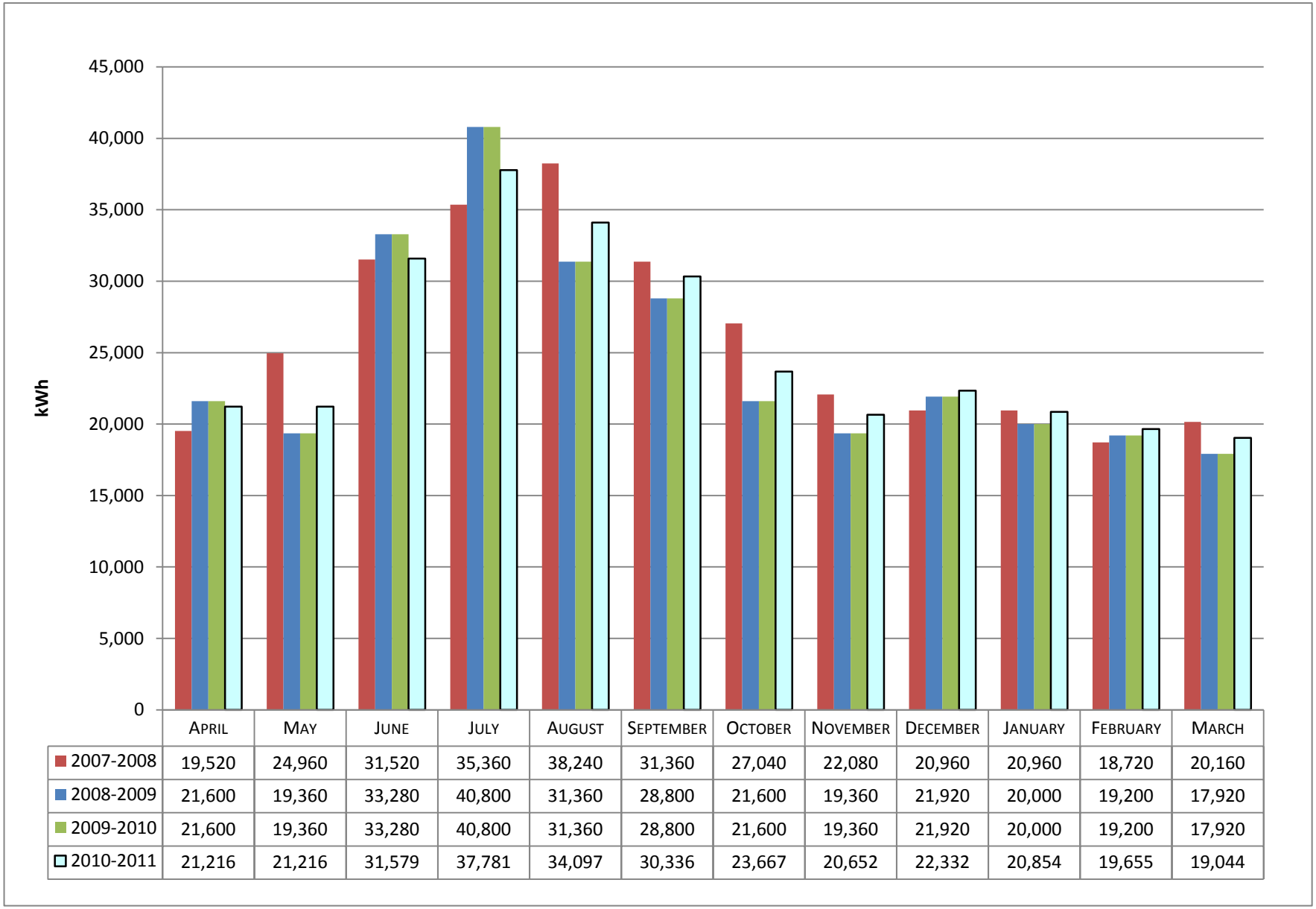
MEDIA BOROUGH HALL

2007-YTD Electrical Consumption



MEDIA BOROUGH HALL

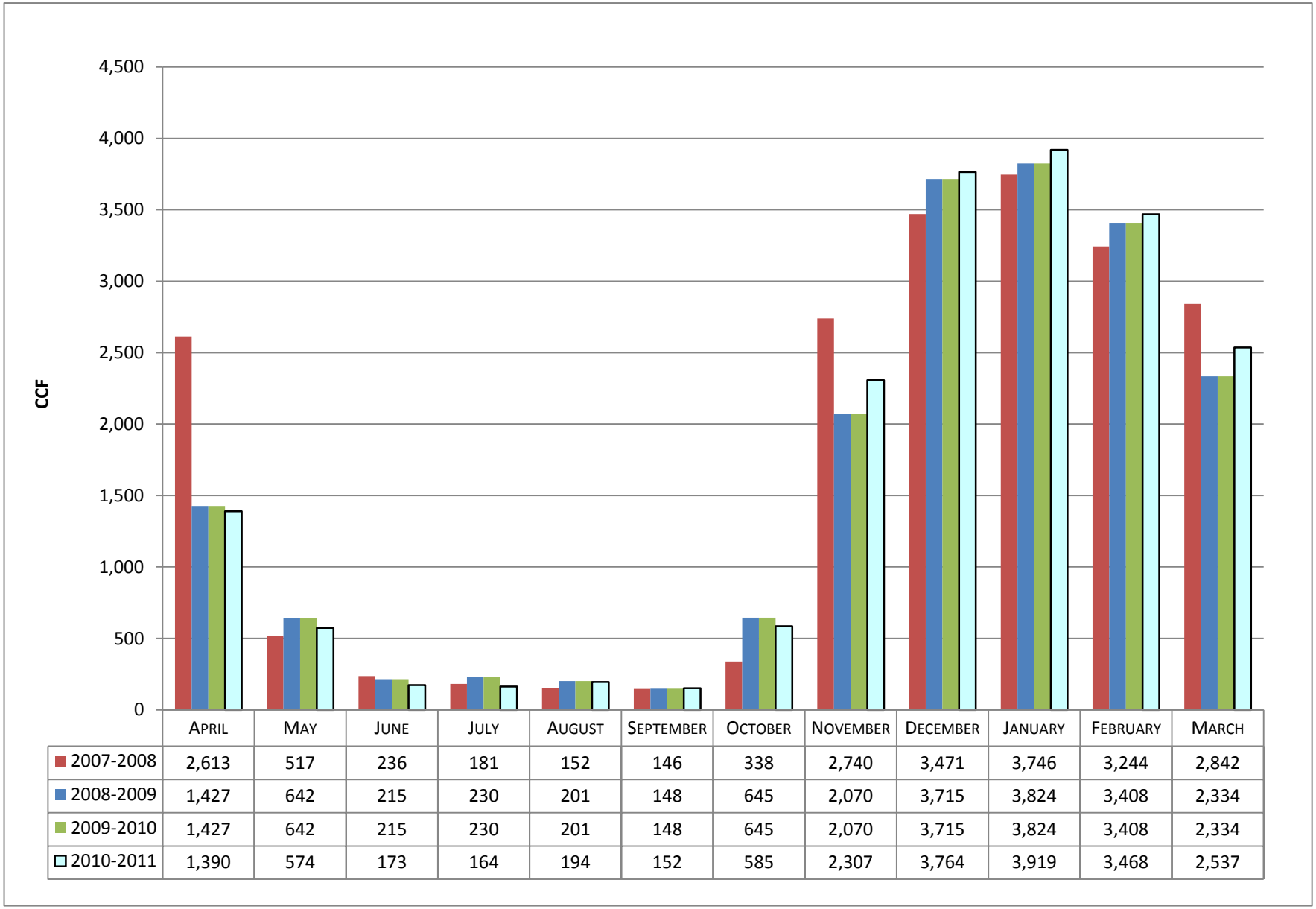
Total Electrical Usage



	April	May	June	July	August	September	October	November	December	January	February	March
2007-2008	19,520	24,960	31,520	35,360	38,240	31,360	27,040	22,080	20,960	20,960	18,720	20,160
2008-2009	21,600	19,360	33,280	40,800	31,360	28,800	21,600	19,360	21,920	20,000	19,200	17,920
2009-2010	21,600	19,360	33,280	40,800	31,360	28,800	21,600	19,360	21,920	20,000	19,200	17,920
2010-2011	21,216	21,216	31,579	37,781	34,097	30,336	23,667	20,652	22,332	20,854	19,655	19,044

MEDIA BOROUGH HALL

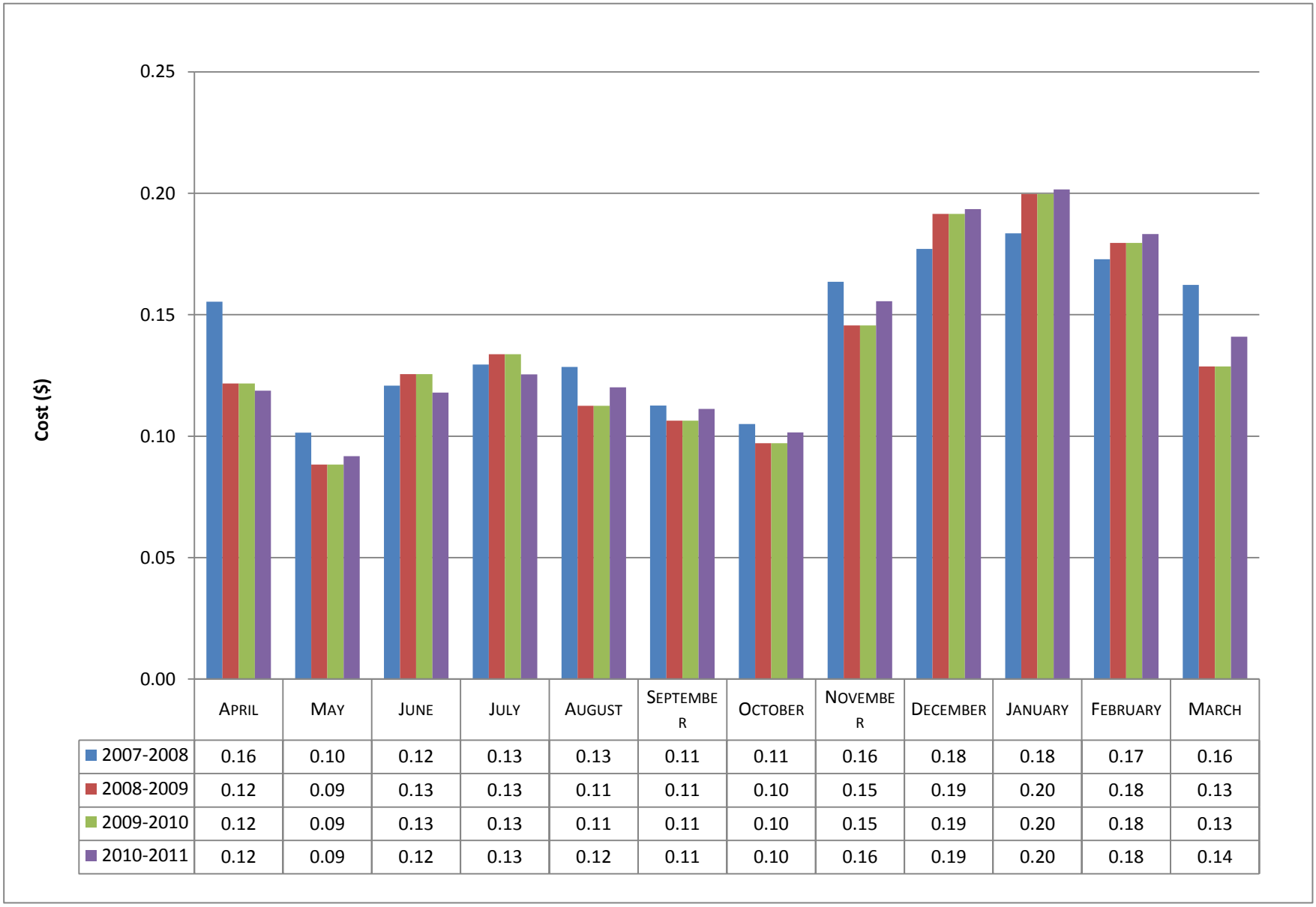
Total Natural Gas Usage



	April	May	June	July	August	September	October	November	December	January	February	March
2007-2008	2,613	517	236	181	152	146	338	2,740	3,471	3,746	3,244	2,842
2008-2009	1,427	642	215	230	201	148	645	2,070	3,715	3,824	3,408	2,334
2009-2010	1,427	642	215	230	201	148	645	2,070	3,715	3,824	3,408	2,334
2010-2011	1,390	574	173	164	194	152	585	2,307	3,764	3,919	3,468	2,537

MEDIA BOROUGH HALL

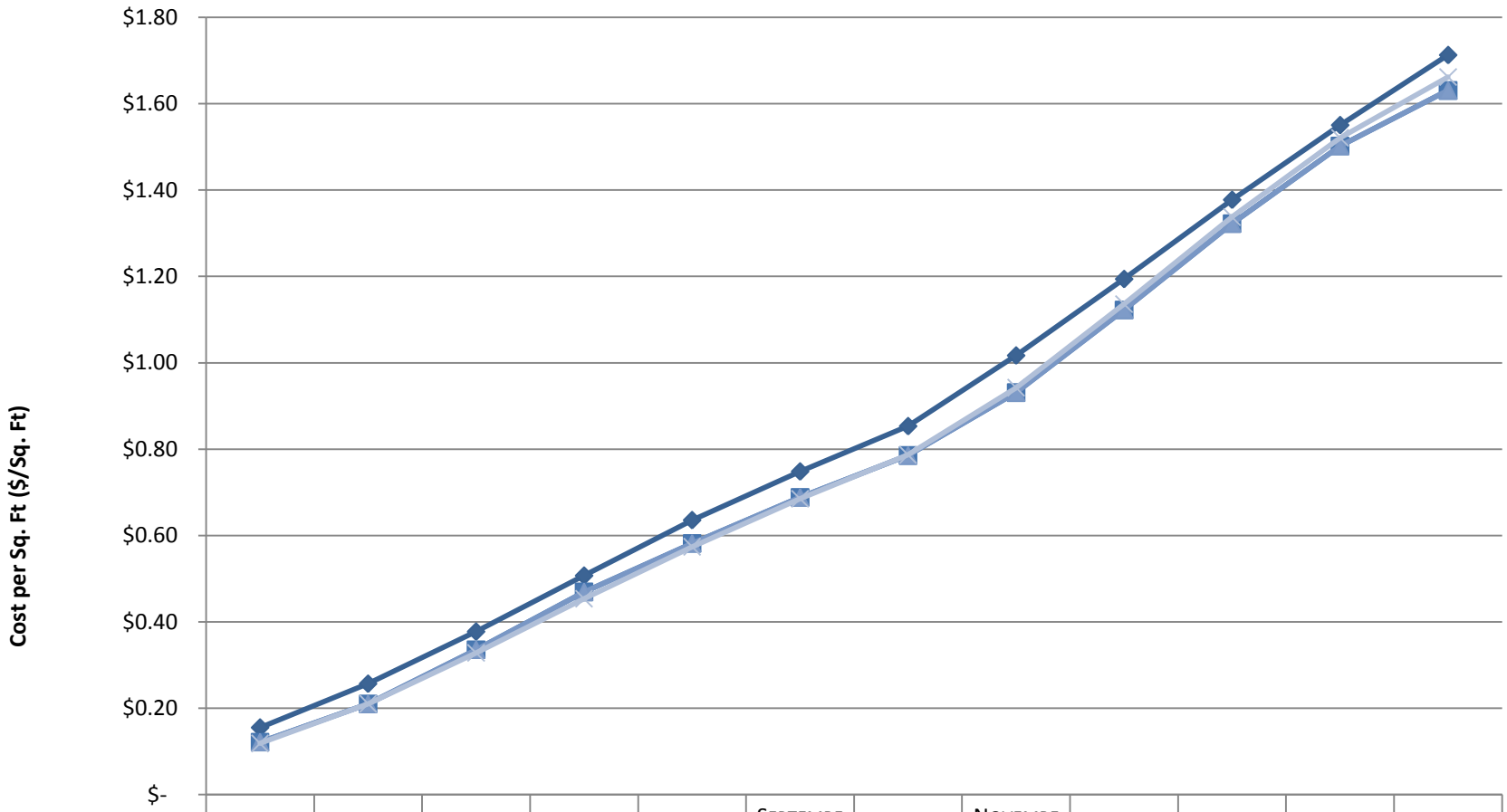
Energy Cost/Sq. Ft.



	April	May	June	July	August	Septembe r	October	Novembe r	December	January	February	March
2007-2008	0.16	0.10	0.12	0.13	0.13	0.11	0.11	0.16	0.18	0.18	0.17	0.16
2008-2009	0.12	0.09	0.13	0.13	0.11	0.11	0.10	0.15	0.19	0.20	0.18	0.13
2009-2010	0.12	0.09	0.13	0.13	0.11	0.11	0.10	0.15	0.19	0.20	0.18	0.13
2010-2011	0.12	0.09	0.12	0.13	0.12	0.11	0.10	0.16	0.19	0.20	0.18	0.14

MEDIA BOROUGH HALL

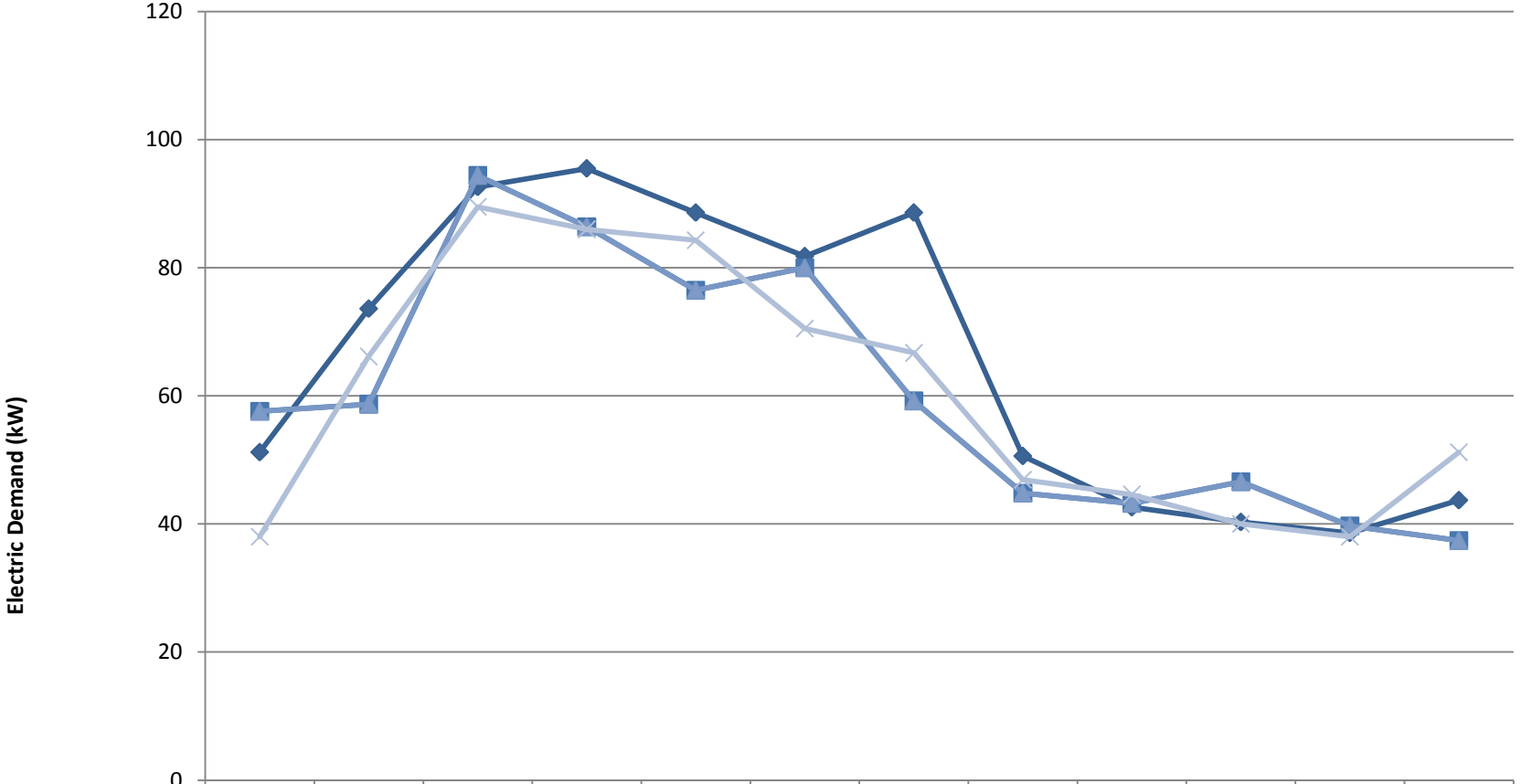
Cumulative Cost/Sq. Ft.



	April	May	June	July	August	Septembe r	October	Novembe r	December	January	February	March
2007-2008	$0.16	$0.26	$0.38	$0.51	$0.64	$0.75	$0.85	$1.02	$1.19	$1.38	$1.55	$1.71
2008-2009	$0.12	$0.21	$0.34	$0.47	$0.58	$0.69	$0.79	$0.93	$1.12	$1.32	$1.50	$1.63
2009-2010	$0.12	$0.21	$0.34	$0.47	$0.58	$0.69	$0.79	$0.93	$1.12	$1.32	$1.50	$1.63
2010-2011	$0.12	$0.21	$0.33	$0.45	$0.57	$0.69	$0.79	$0.94	$1.14	$1.34	$1.52	$1.66

MEDIA BOROUGH HALL

Peak Electric Demand



	April	May	June	July	August	September	October	November	December	January	February	March
2007-2008	51	74	93	96	89	82	89	51	43	40	39	44
2008-2009	58	59	94	86	77	80	59	45	43	47	40	37
2009-2010	58	59	94	86	77	80	59	45	43	47	40	37
2010-2011	38	66	90	86	84	71	67	47	45	40	38	51

APPENDIX B

CO2 Emission Data

MEDIA BOROUGH

CO_2 Emissions

Year: 2007-2008		CO_2		Totals
Month	# of Days in Billing Period	Electrical CO_2 Emissions lbs.	Gas CO_2 Emissions lbs.	CO2 Emmitted lbs.
Apr-07	30	24,595	32,140	56,735
May-07	32	31,450	6,359	37,809
Jun-07	29	39,715	2,903	42,618
Jul-07	30	44,554	2,226	46,780
Aug-07	31	48,182	1,870	50,052
Sep-07	30	39,514	1,796	41,309
Oct-07	29	34,070	4,157	38,228
Nov-07	33	27,821	33,702	61,523
Dec-07	31	26,410	42,693	69,103
Jan-08	33	26,410	46,076	72,485
Feb-08	29	23,587	39,901	63,488
Mar-08	29	25,402	34,957	60,358
TOTAL 2008		**391,709**	**248,780**	**640,489**

Year: 2008-2009		CO_2		Totals
Month	# of Days in Billing Period	Electrical CO_2 Emissions lbs.	Gas CO_2 Emissions lbs.	CO2 Emmitted lbs.
Apr-08	31	27,216	17,552	44,768
May-08	30	24,394	7,897	32,290
Jun-08	29	41,933	2,645	44,577
Jul-08	33	51,408	2,829	54,237
Aug-08	29	39,514	2,472	41,986
Sep-08	30	36,288	1,820	38,108
Oct-08	31	27,216	7,934	35,150
Nov-08	29	24,394	25,461	49,855
Dec-08	35	27,619	45,695	73,314
Jan-09	31	25,200	47,035	72,235
Mar-09	31	24,192	41,918	66,110
Mar-09	29	22,579	28,708	51,287
TOTAL 2009		**371,952**	**231,966**	**603,918**

MEDIA BOROUGH

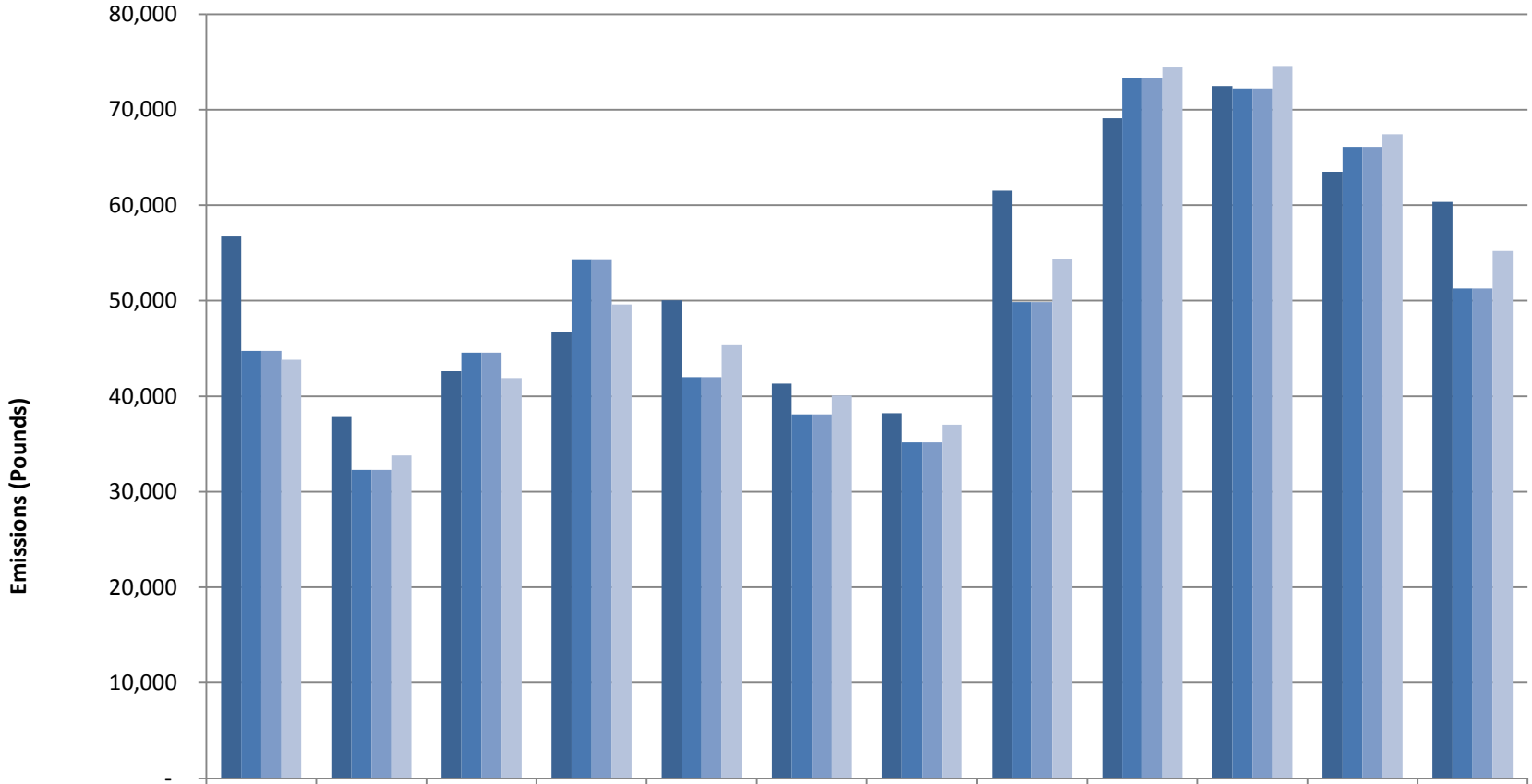
CO_2 Emissions

Year: 2009-2010		CO_2		Totals
Month	# of Days in Billing Period	Electrical CO_2 Emissions lbs.	Gas CO_2 Emissions lbs.	CO2 Emmitted lbs.
Apr-09	28	25,200	15,978	41,178
May-09	30	28,022	3,437	31,460
Jun-09	29	36,086	1,525	37,612
Jul-09	33	41,933	1,119	43,052
Aug-09	29	44,725	2,214	46,939
Sep-09	30	38,659	1,844	40,503
Oct-09	31	31,256	6,166	37,422
Nov-09	29	26,629	30,173	56,802
Dec-09	35	27,555	45,078	72,632
Jan-10	31	26,321	47,487	73,808
Feb-10	30	24,367	41,728	66,095
Mar-10	30	24,470	32,469	56,939
TOTAL 2010		**375,224**	**229,219**	**604,443**

Year: 2010-2011		CO_2		Totals
Month	# of Days in Billing Period	Electrical CO_2 Emmissions lbs.	Gas CO_2 Emmissions lbs.	CO2 Emmitted lbs.
Apr-10	28	26,732	17,100	43,832
May-10	30	26,732	7,063	33,796
Jun-10	29	39,790	2,127	41,916
Jul-10	33	47,604	2,014	49,617
Aug-10	29	42,962	2,390	45,352
Sep-10	30	38,223	1,869	40,092
Oct-10	31	29,821	7,191	37,012
Nov-10	29	26,022	28,373	54,395
Dec-10	35	28,139	46,294	74,433
Jan-11	31	26,276	48,206	74,482
Feb-11	30	24,765	42,660	67,425
Mar-11	30	23,995	31,200	55,196
TOTAL 2011		**381,060**	**236,487**	**617,547**

MEDIA BOROUGH HALL

Pounds CO_2 Emitted



	April	May	June	July	August	Septembe r	October	Novembe r	December	January	February	March
2007-2008	56,735	37,809	42,618	46,780	50,052	41,309	38,228	61,523	69,103	72,485	63,488	60,358
2008-2009	44,768	32,290	44,577	54,237	41,986	38,108	35,150	49,855	73,314	72,235	66,110	51,287
2009-2010	44,768	32,290	44,577	54,237	41,986	38,108	35,150	49,855	73,314	72,235	66,110	51,287
2010-2011	43,832	33,796	41,916	49,617	45,352	40,092	37,012	54,395	74,433	74,482	67,425	55,196

APPENDIX C

ENERGY STAR Report

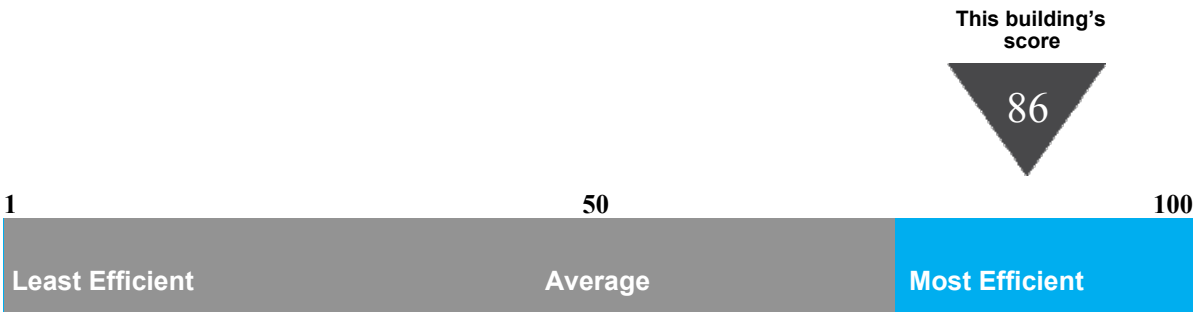
Statement of Energy Performance

2009

Media Borough Hall
301 N Jackson St, FL 2
Media, PA 19063

Portfolio Manager Building ID: 1852775

The energy use of this building has been measured and compared to other similar buildings using the Environmental Protection Agency's (EPA's) Energy Performance Scale of 1–100, with 1 being the least energy efficient and 100 the most energy efficient. For more information, visit energystar.gov/benchmark.



This building uses 139 kBtu per square foot per year.*

*Based on source energy intensity for the 12 month period ending June 2009

Buildings with a score of 75 or higher may qualify for EPA's ENERGY STAR.

I certify that the information contained within this statement is accurate and in accordance with U.S. Environmental Protection Agency's measurement standards, found at energystar.gov

Date of certification

EPA United States Environmental Protection Agency

Date Generated: 10/01/2009

OMB No. 2060-0347

STATEMENT OF ENERGY PERFORMANCE
Media Borough Hall

Building ID: 1852775
For 12-month Period Ending: June 30, 2009[1]
Date SEP becomes ineligible: N/A

Date SEP Generated: October 01, 2009

Facility
Media Borough Hall
301 N Jackson St, FL 2
Media, PA 19063

Facility Owner
Media Borough
301 N Jackson St
Media, PA 19063

Primary Contact for this Facility
N/A

Year Built: 1990
Gross Floor Area (ft²): 38,018

Energy Performance Rating[2] (1-100) 86

Site Energy Use Summary[3]

Electricity - Grid Purchase(kBtu)	982,236
Natural Gas (kBtu)[4]	1,899,584
Total Energy (kBtu)	2,881,820

Energy Intensity[5]

Site (kBtu/ft²/yr)	76
Source (kBtu/ft²/yr)	139

Emissions (based on site energy use)

Greenhouse Gas Emissions ($MtCO_2e$/year)	251

Electric Distribution Utility
PECO Energy Co

National Average Comparison

National Average Site EUI	125
National Average Source EUI	229
% Difference from National Average Source EUI	-39%
Building Type	Office

Stamp of Certifying Professional

Based on the conditions observed at the time of my visit to this building, I certify that the information contained within this statement is accurate.

Meets Industry Standards[6] **for Indoor Environmental Conditions:**

Ventilation for Acceptable Indoor Air Quality	**N/A**
Acceptable Thermal Environmental Conditions	**N/A**
Adequate Illumination	**N/A**

Certifying Professional
Paul Spiegel, P.E.
770 E. Market Street Suite 250
West Chester, PA 19382

Notes:
1. Application for the ENERGY STAR must be submitted to EPA within 4 months of the Period Ending date. Award of the ENERGY STAR is not final until approval is received from EPA.
2. The EPA Energy Performance Rating is based on total source energy. A rating of 75 is the minimum to be eligible for the ENERGY STAR.
3. Values represent energy consumption, annualized to a 12-month period.
4. Natural Gas values in units of volume (e.g. cubic feet) are converted to kBtu with adjustments made for elevation based on Facility zip code.
5. Values represent energy intensity, annualized to a 12-month period.
6. Based on Meeting ASHRAE Standard 62 for ventilation for acceptable indoor air quality, ASHRAE Standard 55 for thermal comfort, and IESNA Lighting Handbook for lighting quality.

FOR YOUR RECORDS ONLY. DO NOT SUBMIT TO EPA.

Please keep this Facility Summary for your own records; do not submit it to EPA. Only the Statement of Energy Performance (SEP), Data Checklist and Letter of Agreement need to be submitted to EPA when applying for the ENERGY STAR.

Facility
Media Borough Hall
301 N Jackson St, FL 2
Media, PA 19063

Facility Owner
Media Borough
301 N Jackson St
Media, PA 19063

Primary Contact for this Facility
N/A

General Information

Media Borough Hall	
Gross Floor Area Excluding Parking: (ft^2)	38,018
Year Built	1990
For 12-month Evaluation Period Ending Date:	June 30, 2009

Facility Space Use Summary

Police Station	
Space Type	Office
Gross Floor Area(ft^2)	20,136
Weekly operating hours	168
Workers on Main Shift[d]	46
Number of PCs	12
Percent Cooled	50% or more
Percent Heated	50% or more

Community Center	
Space Type	Other - Social/Meeting
Gross Floor Area(ft^2)	3,800
Number of PCs[o]	N/A
Weekly operating hours[o]	N/A
Workers on Main Shift[o]	N/A

Station and Mansion	
Space Type	Office
Gross Floor Area(ft^2)	14,082
Weekly operating hours	60
Workers on Main Shift[d]	32
Number of PCs	13
Percent Cooled	50% or more
Percent Heated	50% or more

Energy Performance Comparison

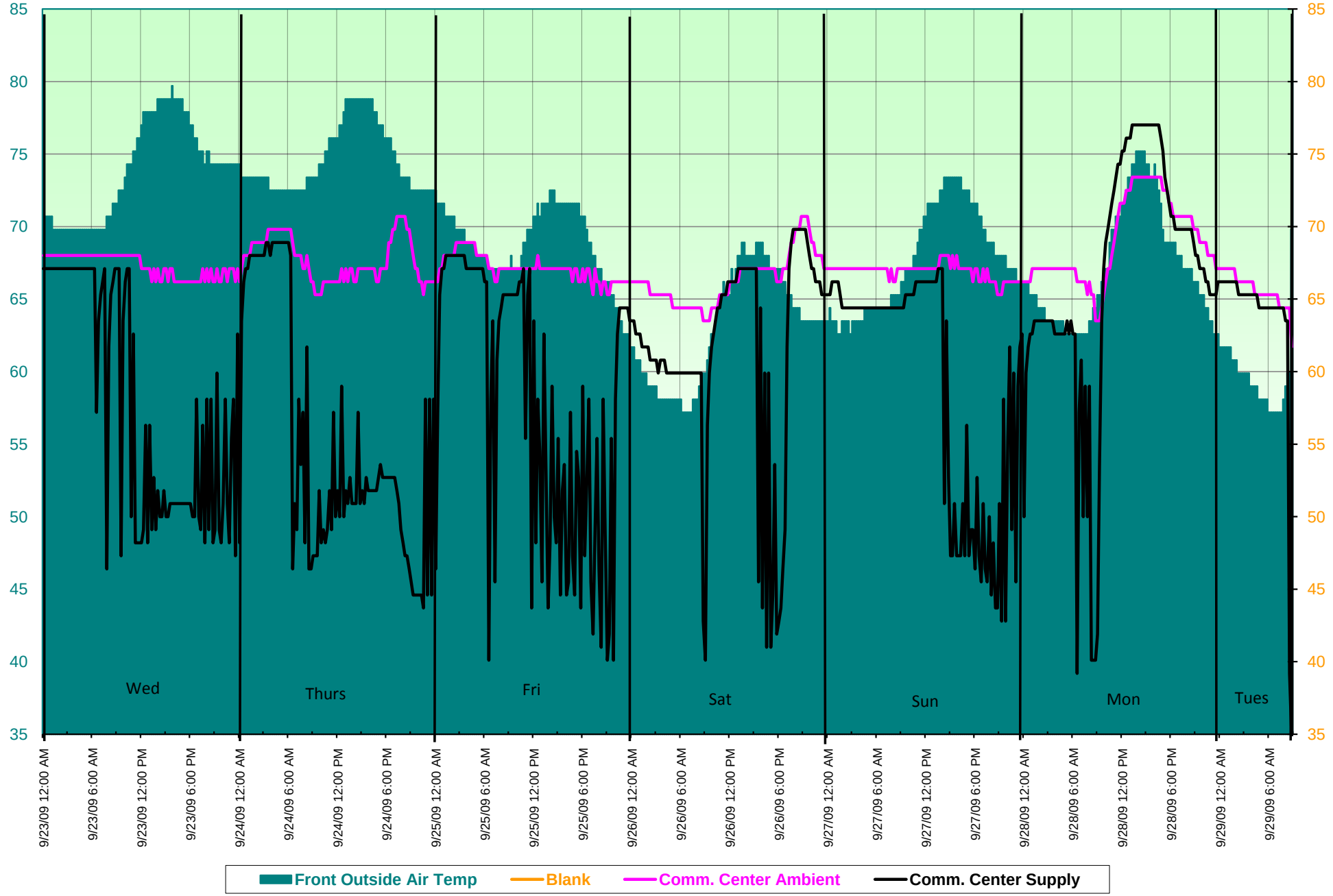
	Evaluation Periods		Comparisons		
Performance Metrics	**Current** (Ending Date 06/30/2009)	**Baseline** (Ending Date 05/31/2008)	**Rating of 75**	**Target**	**National Average**
Energy Performance Rating	86	83	75	N/A	50
Energy Intensity					
Site (kBtu/ft^2)	76	79	93	N/A	125
Source (kBtu/ft^2)	139	146	169	N/A	229
Energy Cost					
$/year	$ 60,335.85	$ 63,274.58	$ 73,700.48	N/A	$ 99,649.67
$/$ft^2$/year	$ 1.59	$ 1.66	$ 1.94	N/A	$ 2.63
Greenhouse Gas Emissions					
$MtCO_2e$/year	251	264	307	N/A	415
$kgCO_2e/ft^2$/year	7	7	9	N/A	12

More than 50% of your building is defined as Office. Please note that your rating accounts for all of the spaces listed. The National Average column presents energy performance data your building would have if your building had an average rating of 50.

Notes:
o - This attribute is optional.
d - A default value has been supplied by Portfolio Manager.

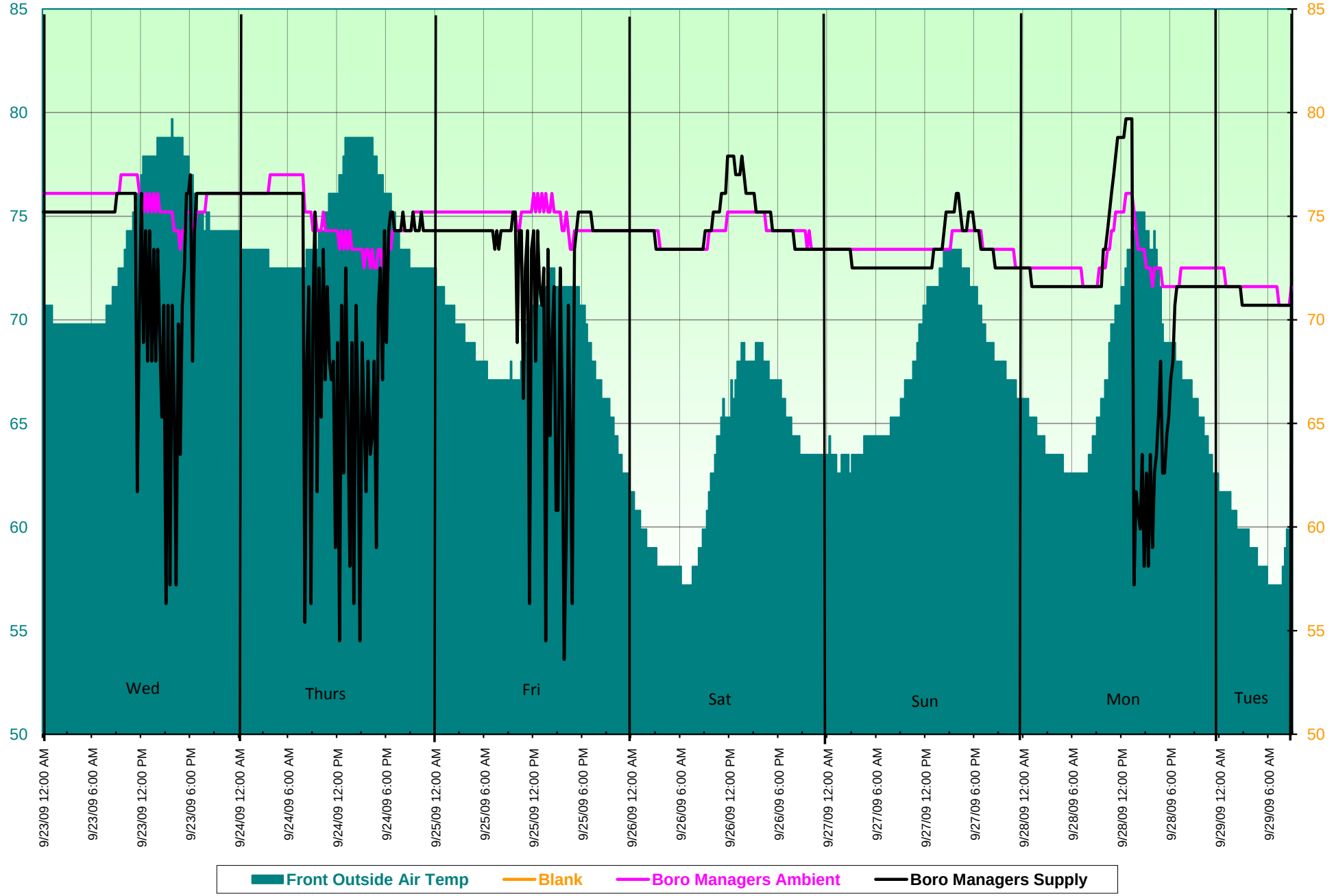
Appendix D
Building Monitoring

Media Borough - Community Center - September 22 - 29, 2009



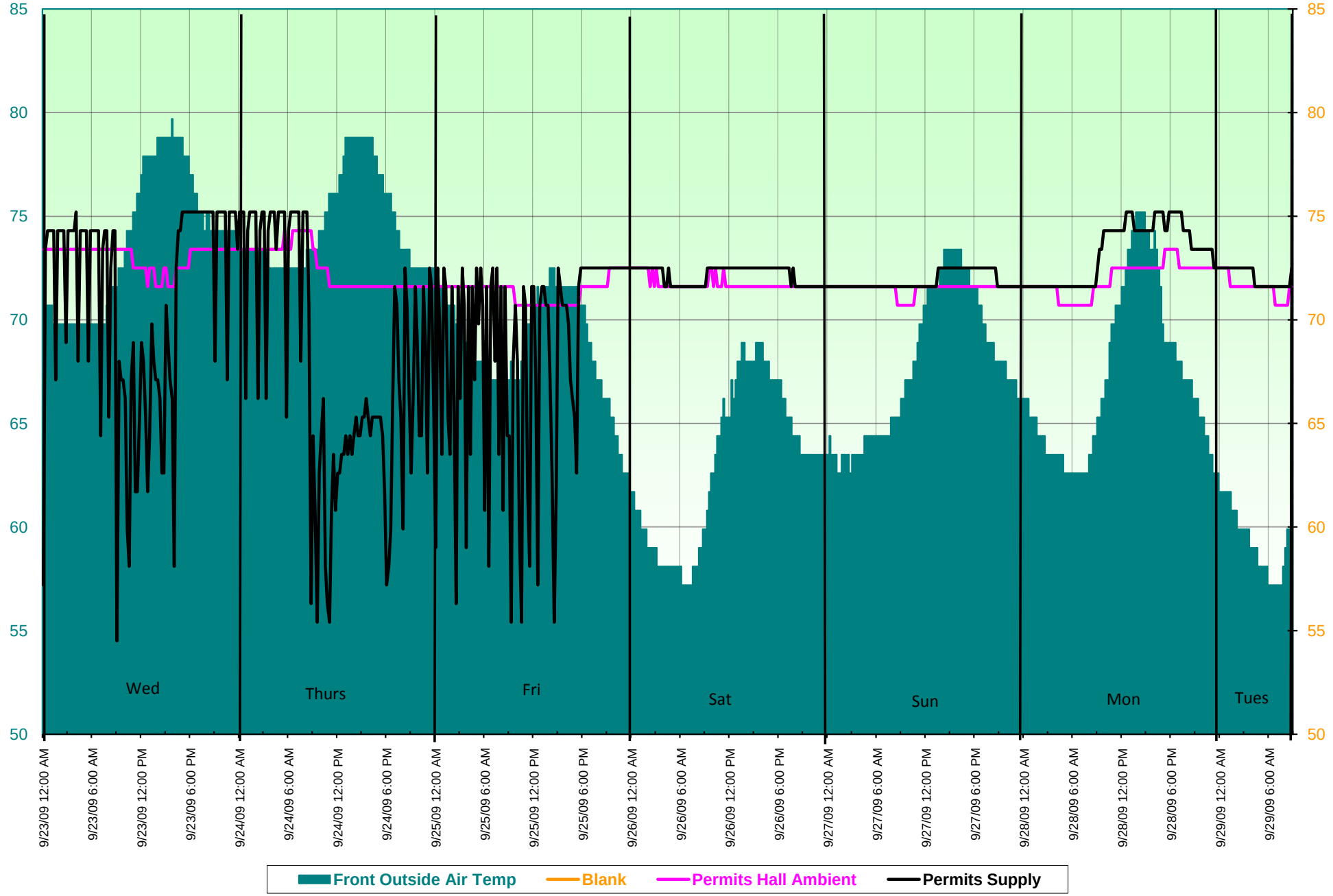
Practical Energy Solutions 770 E. Market Street, Suite 250 West Chester PA 19382 (610) 430-1382 *www.practicalenergy.net*

Media Borough - Manager's Office- September 22 - 29, 2009



Practical Energy Solutions 770 E. Market Street, Suite 250 West Chester PA 19382 (610) 430-1382 *www.practicalenergy.net*

Media Borough - Permit's Hall and Office - September 22 - 29, 2009



Practical Energy Solutions 770 E. Market Street, Suite 250 West Chester PA 19382 (610) 430-1382 *www.practicalenergy.net*

Appendix E
Proposal for PHASE II

practical energy solutions

October 12, 2009

Borough of Media
Attn: Ms. Karen Taussig-Lux
EAC Board Member
301 North Jackson St.
Media, PA 19063

Re: ***Proposal for Phase 2 Building Evaluation/Monitoring and Energy Consulting Services***

Dear Ms. Taussig-Lux:

In accordance with our proposal for providing initial evaluation and benchmarking services for the facility in September of 2009, we are providing this additional proposal for ongoing energy consulting services for the Borough of Media Buildings at 301 N. Jackson St., as an attachment to our audit report.

Though the facility at 301 N. Jackson Street currently has an ENERGY STAR rating of **85**, meaning that the Media Borough Hall complex is more energy-efficient than 85% of similar facilities across the country (l*ess efficient than 15%)*, The ENERGY STAR Portfolio Manager has just added a requirement that the kilowatt hours of electricity generated by solar panels or other renewable sources be added to the electricity consumption for buildings. Additional analysis of the rating using data from the solar installation may be warranted, and would be required before submitting the Borough Hall for an Energy Star award.

Based on our initial audit of your facilities, we feel there are opportunities to reduce the energy consumption, energy costs, and CO2 emissions from the building operations, as well as identify projects that would be good candidates for grant applications in the future. Practical Energy Solutions can guide you through your implementation of operational changes and minor capital investments to assure the greatest impact on your energy consumption with the lowest cost. We can provide monthly tracking of your energy use to verify the savings generated.

Detailed List of Services

Practical Energy Solutions can provide many types of support for any energy or environmental initiatives that Media Borough has in progress. We would like to start by providing the following services.

- Update Portfolio Manager account to reflect energy generated by solar panels during the past 24 months, and if the rating remains over 75, submit the results of the energy use to ENERGY STAR to obtain an ENERGY STAR award for the low level of energy consumption
- Peer review of renewable energy design and installations (solar, geothermal, wind)

- Identification of scope of projects and review of cost proposals for energy efficiency upgrades (capital purchases), especially those that would qualify for upcoming grant programs, including Act 129 funding
- Assist with writing an energy management policy
- Provide periodic monitoring of energy using systems, and further study of heating systems in winter, as well as setup of programmable thermostats for heating and cooling
- Develop and implement an energy awareness campaign for energy savings, which includes monthly tracking of energy use in one or more Borough-owned buildings, to report the results of any energy saving initiatives to Borough staff and the entire community, including cost savings and environmental impacts
- Assist with starting a program for LEED-EB (green building) certification for Borough Hall by preparing a LEED Assessment or report card
- Work with public relations and marketing staff to help inform other stakeholders and the community at large about the results of the Borough energy and environmental programs
- Per subsequent discussions, we recommend further study of the separately metered street lights in Media Borough and the viability of LED retrofits.

Based on our analysis, we are estimating that there are opportunities to save another 13% (10% - 15%) on electricity costs. This equates to $8,300 per year in savings, net any rate increases.

We have attached a rate schedule for the specific services listed above. This fee-for-service agreement will involve PES identifying additional environmental and energy savings opportunities related to buildings and operations, and may include but will not be limited to PES providing assistance in studying the heating systems during heating seasons, implementation of strategies, solicitation and review of bids for energy related upgrades, scheduling and coordination of contractors, and tracking of energy savings and emission reductions. Also included would be some energy and environmental education presentations for the staff, to get the entire community involved in an energy initiative.

Your current level of energy consumption has shown the Borough to be a leader in the region related to energy consumption and environmental impact, and PES can assist you in acknowledging your efforts to date, and guiding you through future steps in the process.

I appreciate the opportunity to submit this proposal, and look forward to working with you and others at Borough of Media to reduce your energy costs, consumption of irreplaceable energy producing resources, and your impact on the environment. If you have any questions, please do not hesitate to contact me by e-mail or by phone. To accept this proposal, please sign in the space indicated below, and return a copy to my attention. Thanks again for the opportunity to work with you.

Sincerely yours,

Jeff Byrne
Director of Business Development

Paul D. Spiegel, P.E., LEED AP
President

practical energy solutions

Billing Rates for Energy and Environmental Services at Media Borough

Company Principal	$150.00/hour
Professional Engineer or LEED Accredited Professional	$115.00/hour
Grant Writer (to provide assistance writing the scope for energy grants)	$ 90.00/hour
Project Manager/Staff Engineer	$ 75.00/hour
Engineering Technician	$ 50.00/hour

Monthly Tracking and Report – Energy and Environmental Impacts

Borough Hall and Community Center	$150.00/month

Expenses

Mileage	$ 0.50/mile
All other expenses (printing, travel, etc.)	cost + 10%

Services are provided only at the request of the client. Acceptance of these rates does not commit the Borough of Media (client) to actually using any services. It merely establishes acceptance of billing rates to allow the Borough to request services on short notice. If requested by the Borough, Practical Energy Solutions will provide a total cost estimate for a specific project or phase of services for budgetary purposes, using the rates shown above.

Rates provided in this proposal are firm through December 31, 2010. Invoices will be prepared each month that services are provided, with payment due net 30 days. To accept these rates, please sign one copy in the space below, and mail or fax back to Attn: Paul Spiegel or Jeff Byrne at 610-430-1375.

ACCEPTED BY:_____ DATE:_____

770 e market street, suite 250 west chester pa 19382 610.430.1382 fax 610.430.1375

www.practicalenergy.net