

WARREN COUNTY SCHOOL DISTRICT

Department of Buildings and Grounds Services

PRIORITIES RATIONALE EXECUTIVE SUMMARY

September 2005

While no one can accurately predict the future, it is uncontested that energy costs in the Warren County School District represent the single most volatile aspect with respect to budget formulation and management. Factors including the severity and duration of winter weather, hurricane damage, fluctuation of natural gas markets, war, terrorism and even the market's perception of the above can influence the cost of energy. With respect to natural gas, we are currently experiencing a 99% increase ($6.25 \times 1.99 = 12.43$).

While there is little we can do with respect to the commodity price of natural gas, we can aggressively take meaningful measures to reduce our consumption. For these reasons, it is in the district's financial interest to expend 60% of the capital reserve fund on projects that will reduce energy consumption from the most inefficient buildings within the district. The fuel bills from Beaty, Warren Area High School and Eisenhower Middle/High School represent 53.8% of the total natural gas budget. By reducing the heat loss in these facilities, the shortest payback time will be realized.

The absence of a Facilities Master Plan impairs the ability to forecast the next PlanCon reimbursable project necessitating the disbursement of funds to all three facilities rather than just two. Hence justifying \$600,000 to replace inefficient windows at Beaty, Eisenhower and WAHS. It must be clearly understood that the proposed plan is an attempt to reduce heat loss at three facilities over a phased time period. It may require the application of this formula over a 3 or 4-year period to complete all aspects of the project.

The second area of concentration of capital reserve funds are projected to be in years 4, 5, 6 and again are targeted at cost avoidances related to energy consumption. The proposed project would replace the boilers at Eisenhower, WAHS and Beaty. In that, the Facilities Master Plan will be completed. By next year the replacement of all three facilities heat systems may change to only two if a PlanCon project is anticipated. Nonetheless, the replacement of any of these systems will produce a significant reduction in the amount of natural gas burned. This will make the payback even more attractive as prices escalate.

1. Window replacement at Eisenhower
2. Window replacement at WAHS
3. Window replacement at Beaty
4. Sewer treatment improvements at Eisenhower
5. Beaty restoration, Phase II
6. Eisenhower fire alarm system upgrade
7. South Street Early Learning Center

An analysis of the school district's natural gas consumption indicates that Eisenhower, Beatty, and Warren Area High School are our three largest users of natural gas. The reason for this is three-fold; they are the largest by total square footage, the age of the facilities and the type of construction all play a major role in their inability to operate efficiently. This is documented in the Dancu study.

1. Eisenhower High School (constructed circa 1955, renovated 1966)

Eisenhower High School is the district's largest consumer of natural gas. Factors that contribute to this include total square footage, the R-value of the walls and windows and the type and age of the heating system. Eisenhower has 120,125 square feet. The walls are of masonry construction with large expanses of single-glazed, aluminum-framed windows. Dancu reported, "The structural frame is in good condition. The masonry walls are also in good condition. The window system is original and includes glass block, aluminum frames and non-insulated glazing- all in poor condition. The windows should be replaced to improve energy efficiency and occupant comfort."

The heat plant is a 1966 vintage steam boiler system with a primary and secondary boiler. The Number One boiler has had sections within it replaced because of metal fatigue in 2003 and 2004. The Number Two boiler is the same age, and similar problems with this boiler can be expected. Replacing this system will require more funds than are presently available. However, as a first step in reducing the heat loss at this facility, replacing the windows with a more energy efficient would prove to be the best option with an immediate return in the form of cost avoidance via natural gas. This is also a logical approach in that when developing heat gain/heat loss calculations necessary in sizing the new heat plant, the amount of glazing and R-value of the windows is a key component in the calculations. In theory, with a more efficient window system in place, the size of the heat plant would be reduced. The district would realize another cost avoidance with a smaller heat plant.

The 2003 Dancu report confirms this recommendation; "The building's heating system, including piping and equipment, is in poor condition beyond its useful service life and should be replaced."

2. Warren Area High School

Constructed in 1961 with slightly more than 146,000 square feet, the window system has remained unimproved for 44 years. The windows have been covered with metal panels that are in poor condition. "The window system includes aluminum frames and un-insulated glazing as well as curtain walls with un-insulated glazing. These systems are deteriorating and should be replaced." (Dancu, 2003)

The same logic that applied to Eisenhower High School regarding the building's heat plant can be similarly applied to Warren Area High School. A reduction in heat loss will best serve the district in cost avoidance applied to natural gas.

3. Beaty-Warren Middle School

Originally built in 1929 and renovated in 1936, 1953 and 1966, Beaty-Warren Middle School is a 142,000 square foot facility. The hot water heating system utilizes forty-year old technology to provide heat. The vast areas of the facility's windows are metal framed, single-glazed units. The Dancu report made the following comments regarding the facility's exterior. "The masonry walls are deteriorating. Exterior restoration should be considered if the building will be retained as a long-term asset...the window systems also vary and include wood and aluminum frames as well as insulated and un-insulated glazing. They are all generally in poor condition and should be replaced. Extensive repairs would be needed to maintain the building's long-term serviceability." Again, the arguments that apply to the need for installing energy efficient systems are valid for Beaty-Warren Middle School.

4. Eisenhower Sewer Treatment Plant

The Eisenhower Sewer Treatment Plant is of the same vintage as the high school (circa 1964). The same conditions that gradually erode the mortar from our buildings compounded with chlorine fumes used to treat the water have corroded the components of this essential, but often forgotten plant. In February of 2001, H.F. Lenz conducted a study to derive necessary repairs with probable cost (\$125,000). There is a real danger that this facility could fail, in which case the Department of Environmental Protection would order the district to discontinue operating the plant. Without an operable sewage treatment plant, the students would need to immediately relocate.

5. Beaty Restoration, Phase II

The consequences of weather, freeze/thaw cycles and the low pH of local rainwater have compromised the integrity of the building by decaying the mortar joints. Of particular concern are the six ventilation chimneys and the concrete caps on top of them. In 2002, the district addressed the failing brick of the façade of Beaty in a 100-foot section of decayed lintel steel. Dancu reported, "The masonry walls are deteriorating. Exterior restoration should be considered if the building will be retained as a long-term asset." At the present time, water is infiltrating through two of the chimneys and the concern is that, left unattended, eventual crumbling of the structures may harm passersby. Additionally, there are between 25 and 30 exhaust hoods, vent caps and fan housings that are rusted beyond repair and are in dire need of replacement.

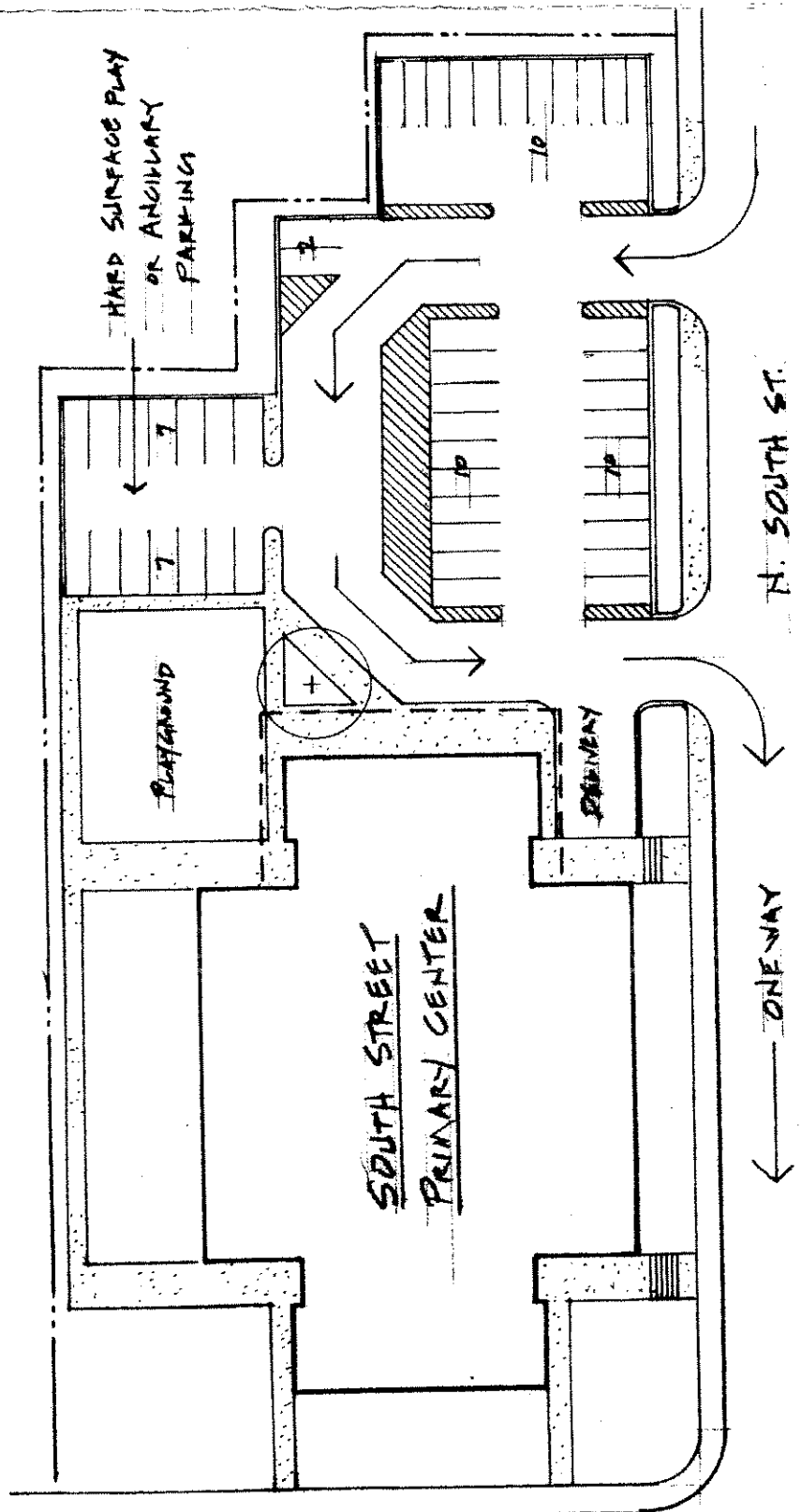
6. Eisenhower Fire Alarm System

In previous budgets, funds were expended on fire alarm upgrade projects. The oldest and the worst systems were addressed first. The fire alarm system at Eisenhower is now the worst system in the district. Waiting for a PlanCon project is no longer an option. Although the existing system still functions and is "grand fathered by code", we need to have parity.

Beaty, WAHS, Youngsville Elementary, Warren Area Elementary Center and Russell are equipped with new systems that integrate smoke and fire detectors as well as strobe lights for the hearing impaired and horns for the visually impaired.

7. South Street Early Learning Center

Congested traffic, narrow streets and small lot size have all contributed to an inefficient traffic flow at this site. This situation could be greatly improved if buses could get off of the street to discharge students. The attached schematic drawing depicts a preliminary scheme to resolve this situation. The project budget would fund the purchase of the property adjacent to the school as well as the demolition, site work and paving relevant to this project.



studio **Z** architects

paul edward zippel, AIA, NCARB - architect
1626 forest ridge drive, pittsburgh, pa 15237 / 412-367-3067
p.zippel@att.net

WARREN COUNTY SCHOOL DISTRICT
PROPOSED SITE IMPROVEMENTS
SOUTH ST. PRIMARY CENTER

PROJECT NO. 05016 SEPT. 2, 2005

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