

City of Rapid City

2010 Annual Energy Report for City Buildings

**Compiled by Gunar Dzintars
Energy Plant Manager
October 3, 2011**

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INTRODUCTION

It is estimated, considering the current electricity rates, that the City of Rapid City could conservatively save \$300,000 annually by following the operational and behavioral guidelines outlined in the City Energy Policy. Studies and experience have shown that these operational and behavioral changes result in a 10-50% annual savings in energy use and costs.

An estimated additional \$300,000 annual savings could be achieved by making capital investments in higher efficiency lighting, hvac and facility equipment for existing City buildings and facilities. Most improvements and upgrades to mechanical and electrical systems result in a 10-50% improvement in efficiency. Most of these improvements would pay for themselves in less than 10 years.

The following report is presented to show where energy is used and the associated costs for the City buildings and facilities. This information is presented to help City Department Heads determine priorities in upgrading and/or replacing City facilities.

If you have specific questions please contact me, Gunar Dzintars, 394-2660, or the Department Head that oversees the building you are interested in. More specific and detailed information than what’s contained in this report can be provided for all the City buildings and facilities.

CITY OF RAPID CITY BUILDING'S 2010 SQUARE FOOTAGES

The following is a comprehensive list of all the City-owned buildings and facilities. Most have their utility costs paid by the City of Rapid City. Some City-owned buildings and facilities have their utility costs paid by outside entities, e.g. softball, baseball, soccer associations, etc.

	Facility Name	Ft²
1.	450 St. Joseph Street Parking Lot – No building	0
2.	St. Joseph Street / 5 th Street Parking Lot – No building	0
3.	Main Street / 6 th Street Parking Lot – No building	0
4.	Main Street / 7 th Street Parking Lot – No building	0
5.	Main Street / 8 th Street Parking Lot – No building	0
6.	Sioux Park Tennis Courts – No building	0
7.	South Middle School Tennis Courts – No building	0
8.	Stevens High School Tennis Courts – No building	0
9.	Wilson Park Tennis Courts – No building	0
10.	Denver Street Soccer Field Irrigation Pump House	64
11.	LaCroix Golf Course Irrigation Pump House	144
12.	Wilson Park Restrooms	216
13.	Executive Golf Course Irrigation Pump House	220
14.	Storybook Island Entry Booth	220
15.	Canyon Lake Park Storage Shed	225
16.	College Park Restrooms	230
17.	Landfill Site Building	240
18.	College Park Shelter	280
19.	Meadowbrook Golf Starter Shack/Shelter	280
20.	Jamie Johnson Pony League Field Restrooms	300
21.	Storybook Island Entry Restrooms	300
22.	Canyon Lake Park West Restrooms	330
23.	Canyon Lake Park Gazebo	350
24.	Roosevelt Park West Shelter	400
25.	Whitehead Softball Fields Concession	400
26.	Wilderness Park Restrooms	450
27.	Memorial Park Tennis Court Restrooms	475
28.	North Middle School Tennis Court Restrooms	480
29.	Meadowbrook Golf Course Irrigation Pump House	550
30.	Sioux Park Restrooms	600
31.	Fairmont Blvd. Softball Field Building	616
32.	Canyon Lake Gazebo	680
33.	Mt. View Cemetery Storage Garage	720
34.	Roosevelt Park North Shelter	720
35.	Storybook Island South Restrooms	735
36.	Landfill Scale Building	840
37.	Street Department Brown Storage Shed	895
38.	Storybook Island Office	1,065
39.	Robbinsdale Park South Shelter/Restrooms	1,104
40.	Robbinsdale Park West Shelter/Restrooms	1,104
41.	Canyon Lake Park #1 Shelter	1,125

42.	Canyon Lake Park #2 Shelter	1,125
43.	Canyon Lake Park #3 Shelter	1,125
44.	Thomsen Park Shelter/Restrooms	1,125
45.	Storybook Island Office/Storage	1,165
46.	Parks Department Complex Shelter	1,176
47.	Water Reclamation Lift Stations	1,245
48.	Storybook Island Entrance Booth & Restrooms	1,255
49.	Horace Mann Park Shelter	1,300
50.	Pete Lien Field Announcer/Concession Building	1,350
51.	Mt. View Cemetery Office/Shop	1,400
52.	Whitehead Softball Fields Shelter/Restrooms	1,465
53.	Street Department West Quonset Shed	1,470
54.	Executive Golf Course Maintenance Shop	1,600
55.	Executive Golf Course Clubhouse	1,800
56.	LaCroix Golf Course Clubhouse	1,910
57.	Memorial Park Band Shell	1,910
58.	Water Reclamation Lift Stations	1,928
59.	Parks Maintenance Division Office	2,000
60.	Storybook Island Gift/Concession/Restroom Building	2,310
61.	Light Vehicle Maintenance Shop	2,360
62.	Airport Sand Storage Building	2,400
63.	Meadowbrook Golf Course Maintenance Shop	2,400
64.	Steele Avenue Evidence Storage	2,400
65.	Steele Avenue Water Dept./Water Reclamation Cold Storage	2,400
66.	Landfill West Shop	2,600
67.	Street Department West Garage/Storage	2,700
68.	Landfill East Shop	2,716
69.	Sioux Park Pavillion	2,850
70.	Street Department Sander Building	3,200
71.	Landfill Scale Building & South Shop	3,240
72.	Storybook Island Theatre and Canopy	3,310
73.	Storybook Island Shop/Storage Garages	3,385
74.	North Side Fire Station #7	4,040
75.	Southwest Fire Station #5	4,129
76.	Parkview Softball Complex Building	4,289
77.	Halley Park Building	4,590
78.	Star of the West Softball Complex Buildings	4,828
79.	South Side Fire Station #4	4,992
80.	Aircraft & Rescue Fire Fighting Station	5,040
81.	Street Department South Dome #1	5,070
82.	Street Department Northwest Dome #2	5,070
83.	Meadowbrook Golf Course Maint. Office/Carpenter Shop	5,325
84.	Meadowbrook Cart Storage Shed #1	6,900
85.	Meadowbrook Cart Storage Shed #2	6,900
86.	West Side Fire Station #3	7,003
87.	Airport Shop/Cold Storage Building	7,200
88.	Airport TSA Building	7,400
89.	St. Joseph Street Evidence Storage (50% of building)	7,500
90.	Street Department Canvas Dome #3	8,000

91.	Youth & Family Services Head Start Building	8,550
92.	Fire Station #6	8,928
93.	Milo Barber Transportation Center	9,185
94.	Traffic Operations Building	9,250
95.	Minneluzahan Sr. Citizen Center	9,300
96.	Water Dept./Water Reclamation Garage	9,440
97.	Meadowbrook Golf Course Clubhouse	9,750
98.	Airport Federal Aviation Administration Building	10,100
99.	Parkview Pool & Bathhouse	10,631
100.	Street Department Office/Shop	10,894
101.	Airport SRE Maintenance Facility	13,000
102.	Horace Mann Park Pool & Bathhouse	14,445
103.	Water Dept. Pump Houses	15,097
104.	Jackson Springs Agnes Parr Site Buildings	15,280
105.	Water Reclamation Plant	18,872
106.	Airport Interagency Dispatch Center/Old Terminal	19,083
107.	Jimmy Hilton Pool, Bathhouse, & Concessions	19,140
108.	Main Fire Station #1	24,255
109.	Parks Maintenance Division Shops, Storage & Greenhouse	28,770
110.	City/School Administration Center (60% of building)	38,100
111.	Police Evidence, Transportation and Traffic Building	38,560
112.	Roosevelt Park Ice Arena	39,700
113.	Dahl Fine Arts Center & Annex	39,926
114.	Roosevelt Park Swim Center	45,575
115.	Public Library	47,680
116.	Journey Museum	48,300
117.	Public Safety Building	60,690
118.	Airport Terminal	80,000
119.	Water Treatment Plant	82,412
120.	Material Recovery Facility & Co-Compost Building	153,880
121.	<u>Rushmore Plaza Civic Center</u>	<u>500,085</u>
	Total Ft²	1,570,618

CITY OF RAPID CITY'S 2010 UTILITY COSTS

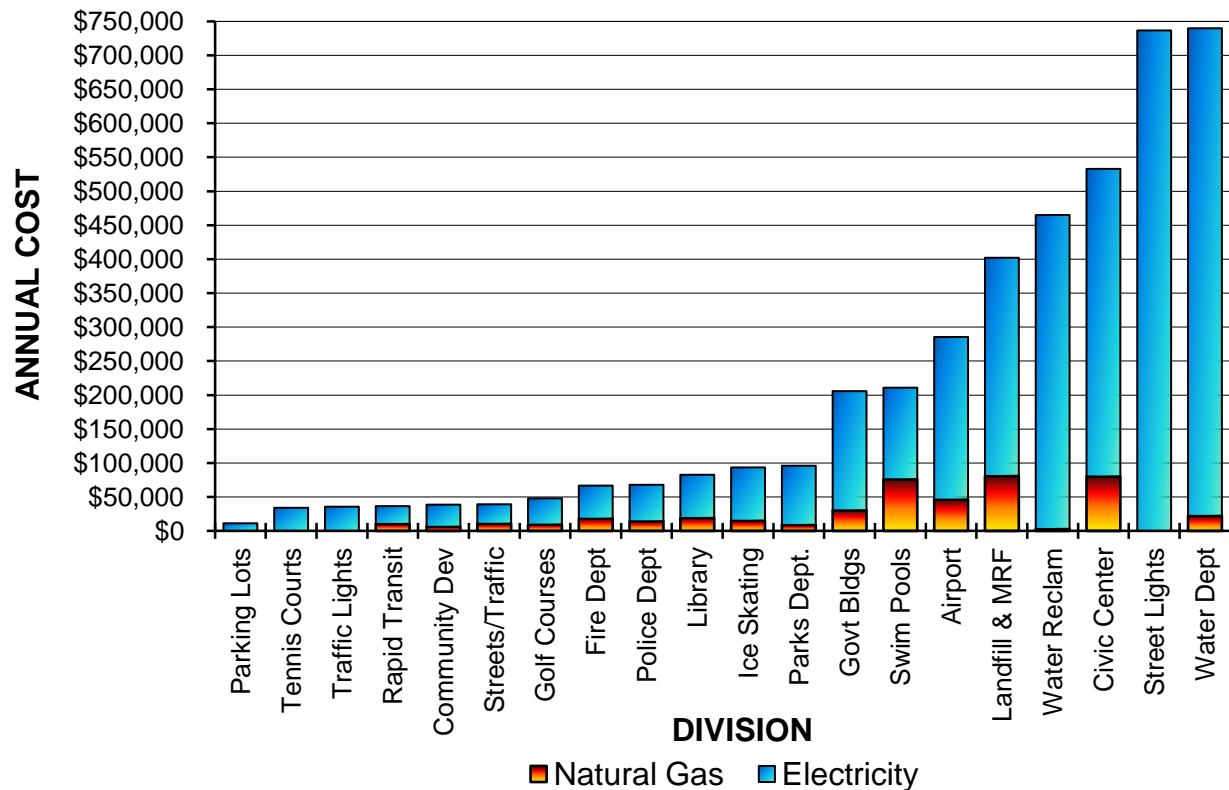
City of Rapid City 2010 Total Utility Costs

Electricity	\$ 3,777,979
Natural Gas	\$ 450,989
Heating Fuel Oil	\$ 2,950
Grand Total	\$ 4,231,918

City of Rapid City Division's 2010 Total Utility Costs

The graph and accompanying table on the following page shows the 2010 Utility Costs by Division. The electricity and natural gas costs are shown individually in the graph bars.

City Department's 2010 Utility Costs



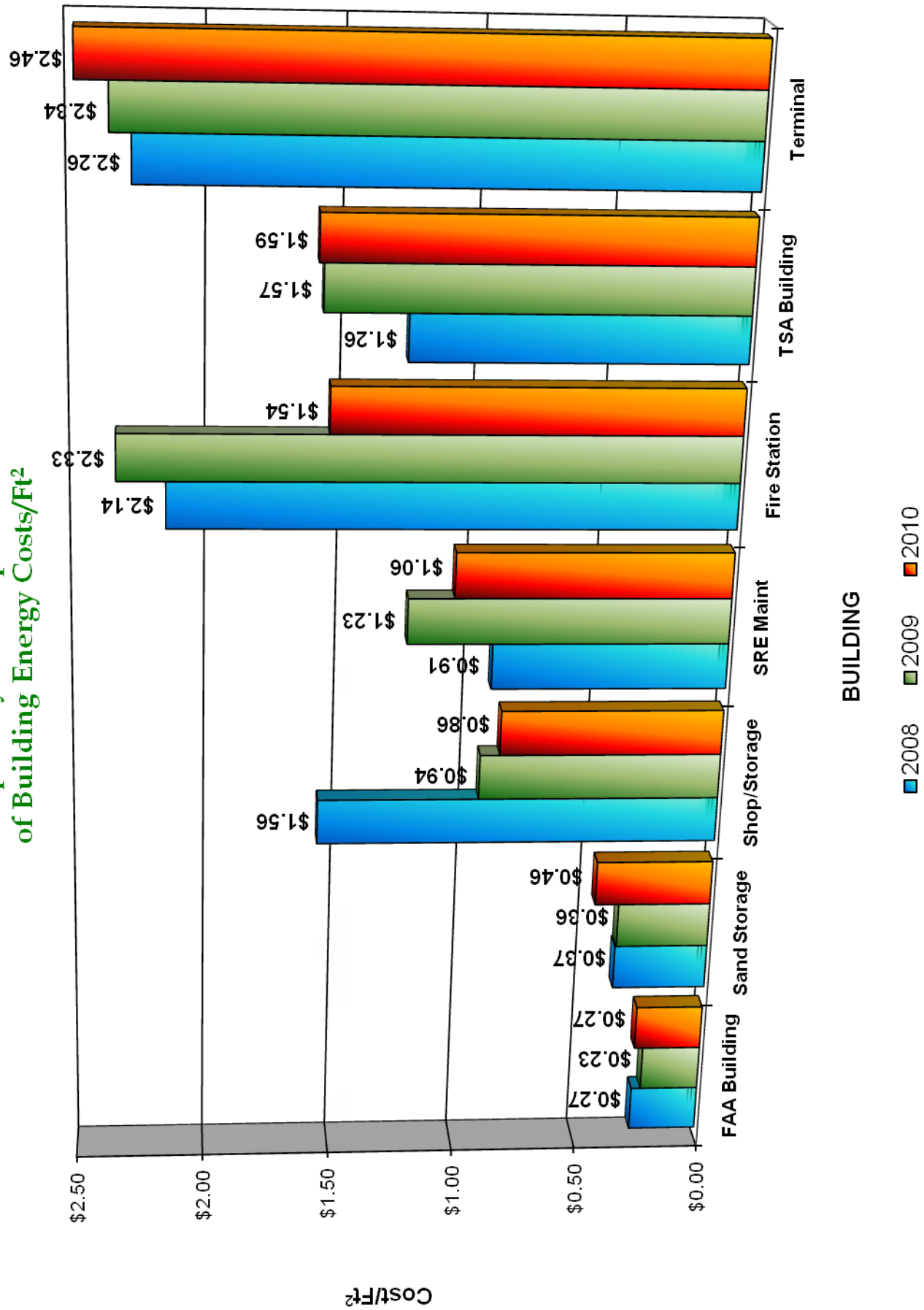
Department Rank	Department Name	Electricity Cost	Natural Gas Cost	Total Cost
1	Parking Lots	\$11,311.76	-----	\$11,311.76
2	Tennis Courts	\$34,117.23	-----	\$34,117.23
3	Traffic Lights	\$35,726.24	-----	\$35,726.24
4	Rapid Transit	\$26,218.19	\$10,347.98	\$36,566.17
5	Community Dev	\$32,526.80	\$6,191.04	\$38,717.84
6	Streets/Traffic	\$28,699.42	\$10,580.92	\$39,280.34
7	Golf Courses	\$38,604.18	\$9,415.02	\$48,019.20
8	Fire Dept	\$48,678.08	\$18,080.02	\$66,758.10
9	Police Dept	\$53,689.76	\$14,241.19	\$67,930.95
10	Library	\$63,543.49	\$19,138.07	\$82,681.56
11	Ice Skating	\$78,416.75	\$15,116.88	\$93,533.63
12	Parks Dept.	\$87,146.06	\$8,886.61	\$96,032.67
13	Govt Bldgs	\$175,367.98	\$30,411.78	\$205,779.76
14	Swim Pools	\$134,749.48	\$76,103.44	\$210,852.92
15	Airport	\$239,310.69	\$46,129.52	\$285,440.21
16	Landfill & MRF	\$321,064.98	\$80,992.15	\$402,057.13
17	Water Reclam	\$461,980.13	\$2,947.62	\$464,927.75
18	Civic Center	\$452,621.83	\$80,213.30	\$532,835.13
19	Street Lights	\$736,604.44	-----	\$736,604.44
20	Water Dept	\$717,601.58	\$22,193.91	\$739,795.49
GRAND TOTAL		\$3,777,979.07	\$450,989.45	\$4,228,968.52

CITY BUILDING'S 2010 COST/FT²

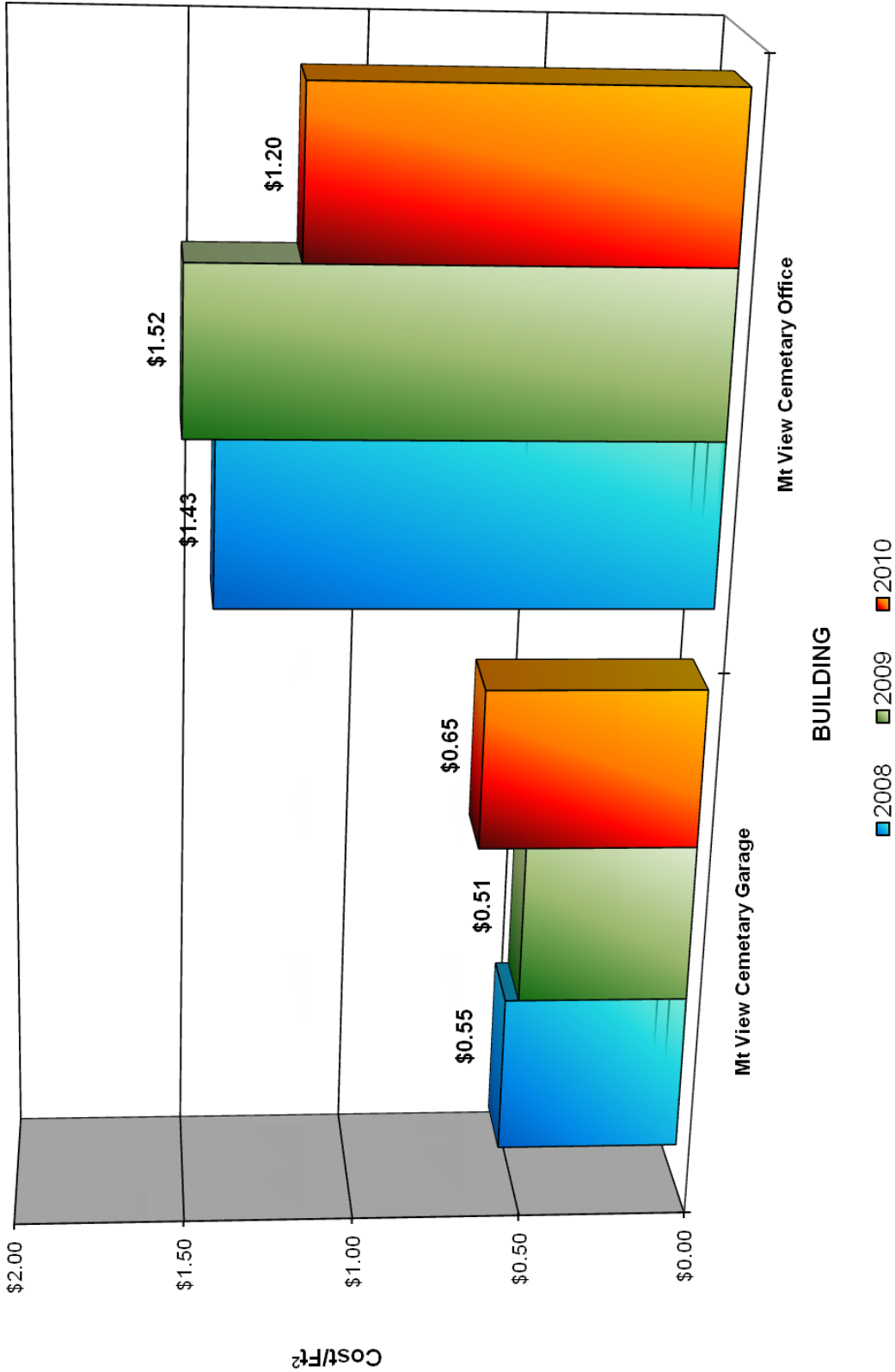
The following graphs show the annual cost for ONE square foot of the listed City buildings. The buildings are listed by Dept. These provide a comparison of the utility costs for different types and uses of buildings. A 3-year history is shown for each building.

Some facilities (swimming pools, operating plants, buildings with high outside lighting loads) are not shown because comparing them on a cost/ft² basis isn't a valid comparison to buildings with normal occupancy.

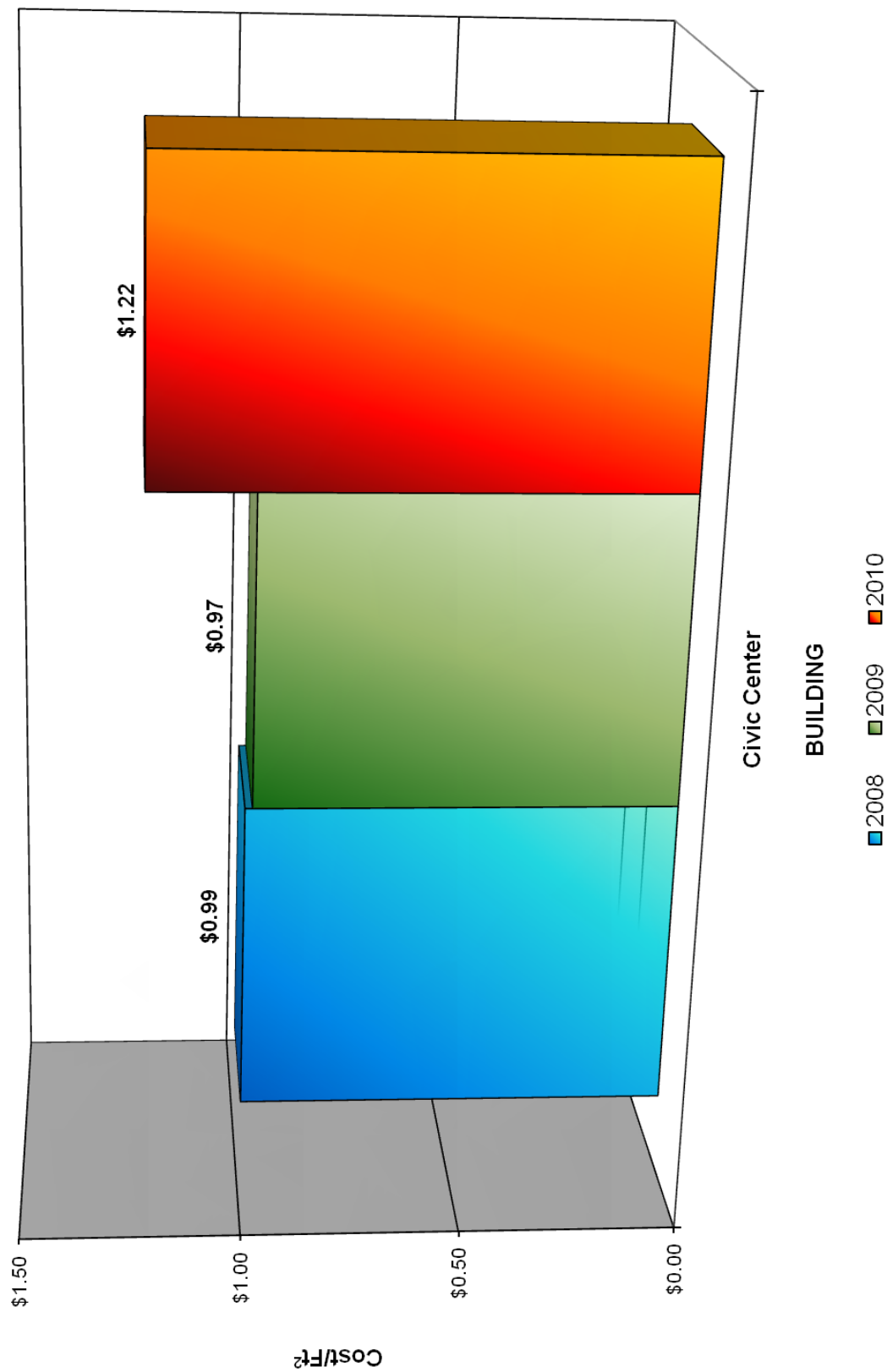
Airport 3-year Comparison of Building Energy Costs/Ft²



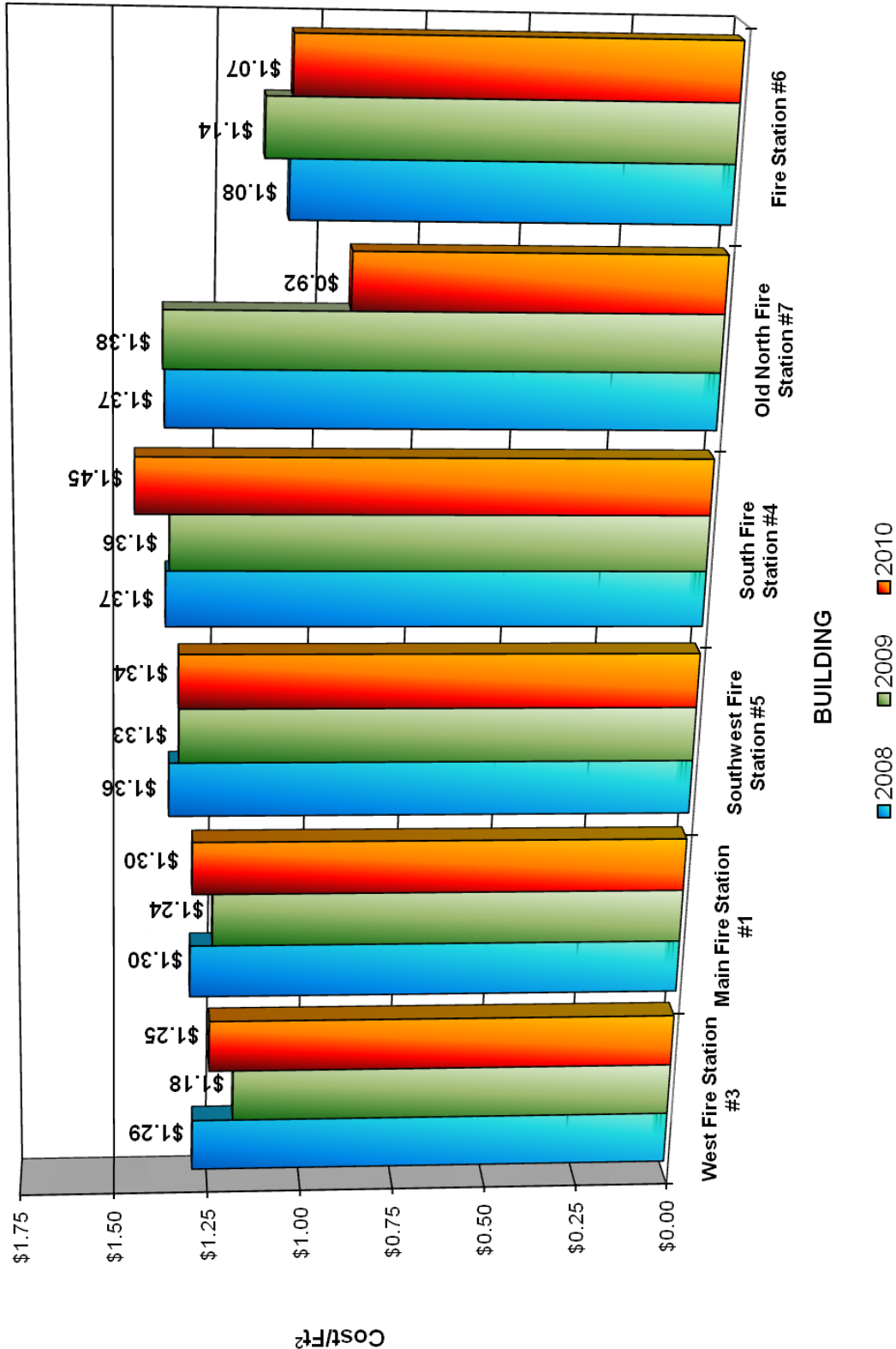
Mt. View Cemetary 3-year Comparison
of Building Energy Costs/Ft²



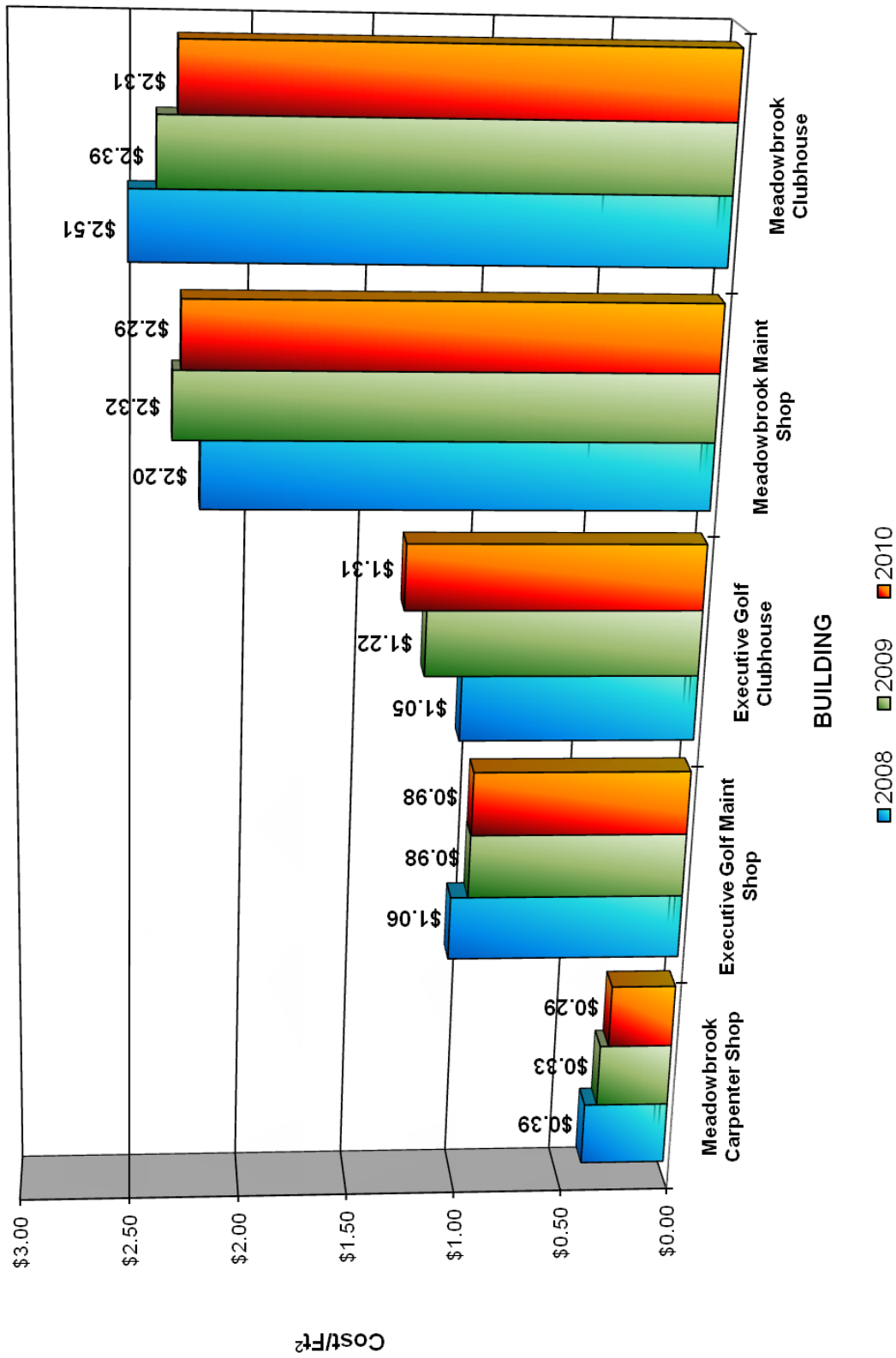
Civic Center 3-year Comparison
of Building Energy Costs/Ft²



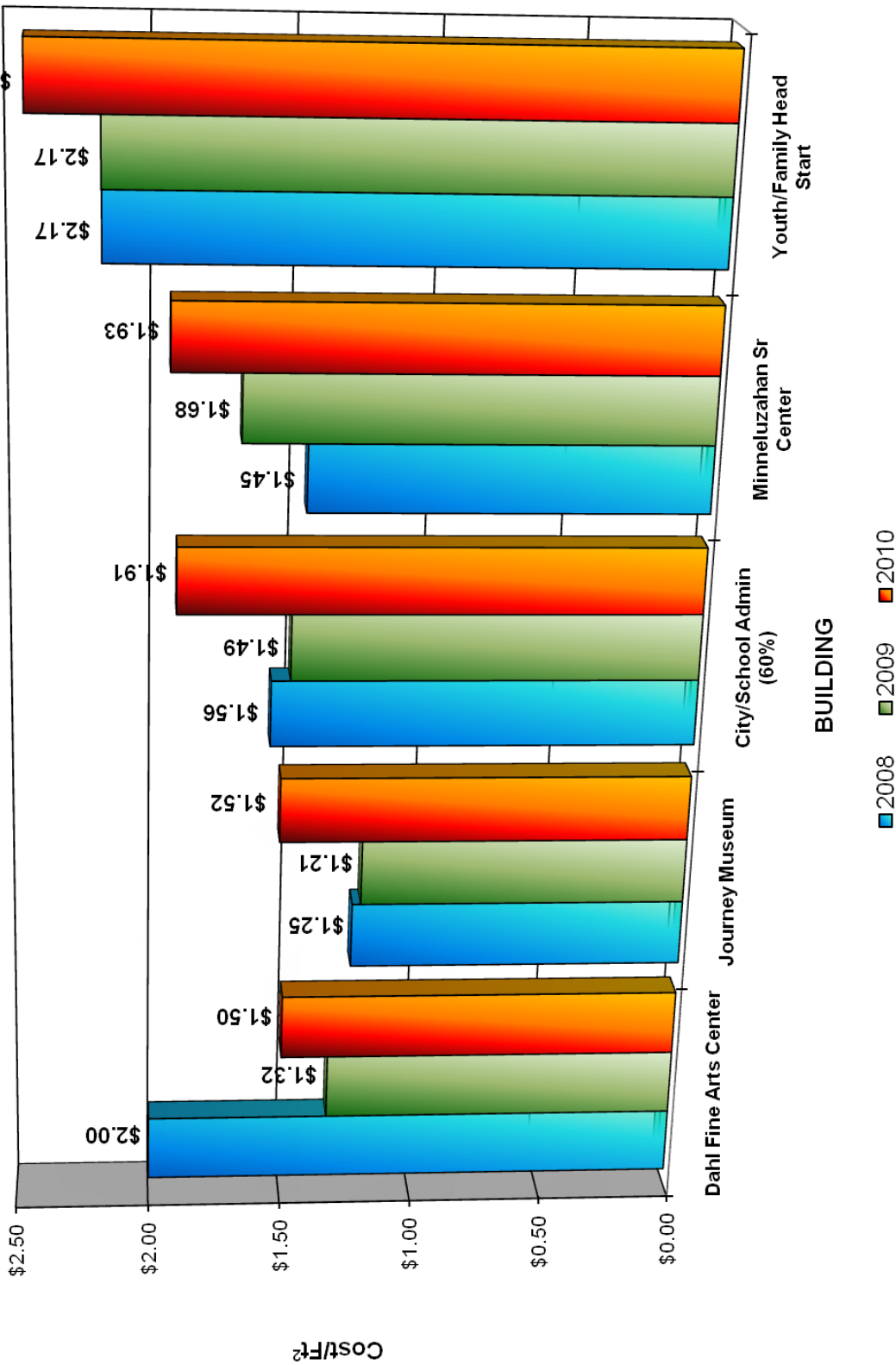
Fire Dept. 3-year Comparison
of Building Energy Costs/Ft²



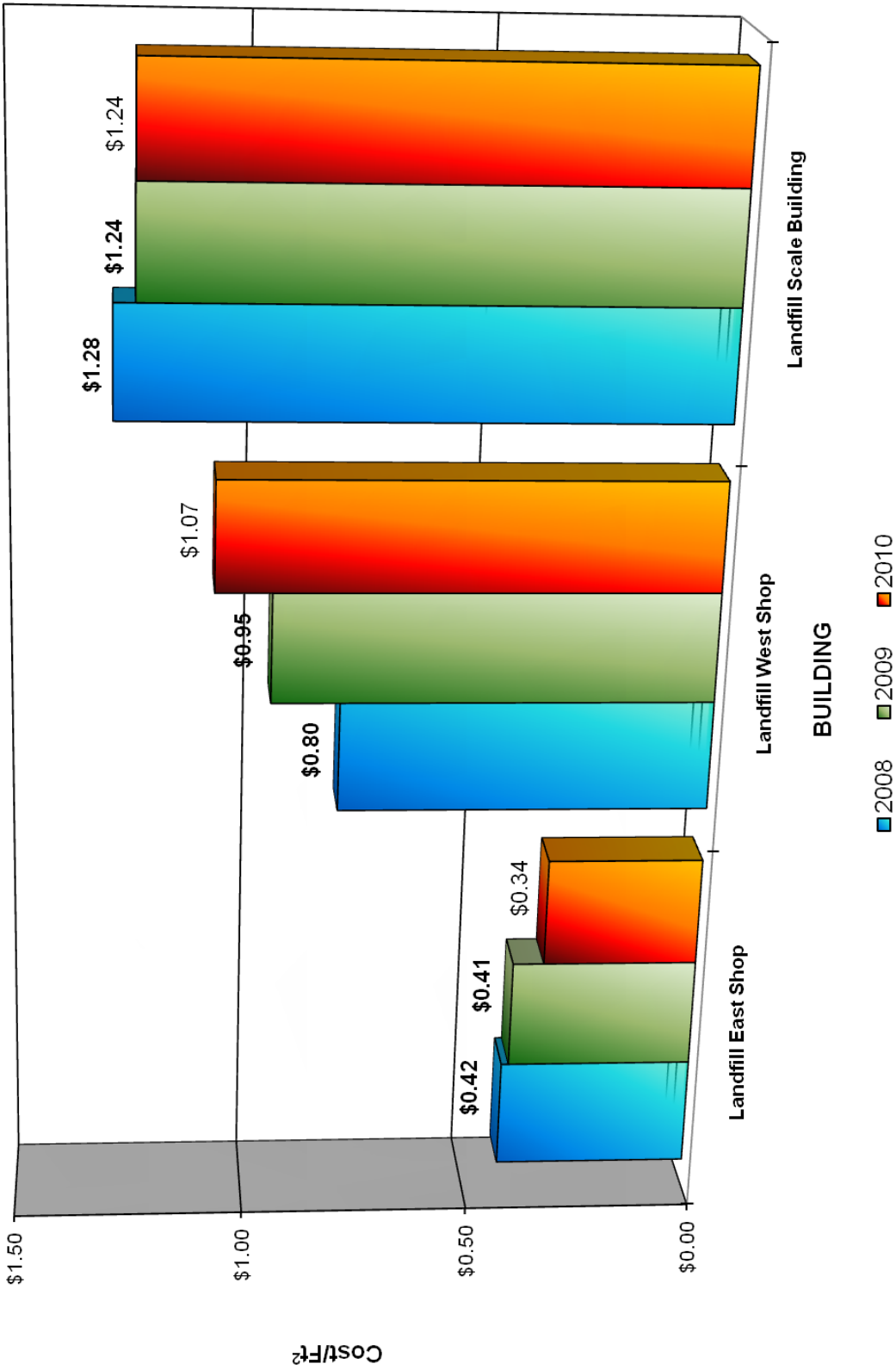
Golf Course 3-year Comparison
of Building Energy Costs/Ft²



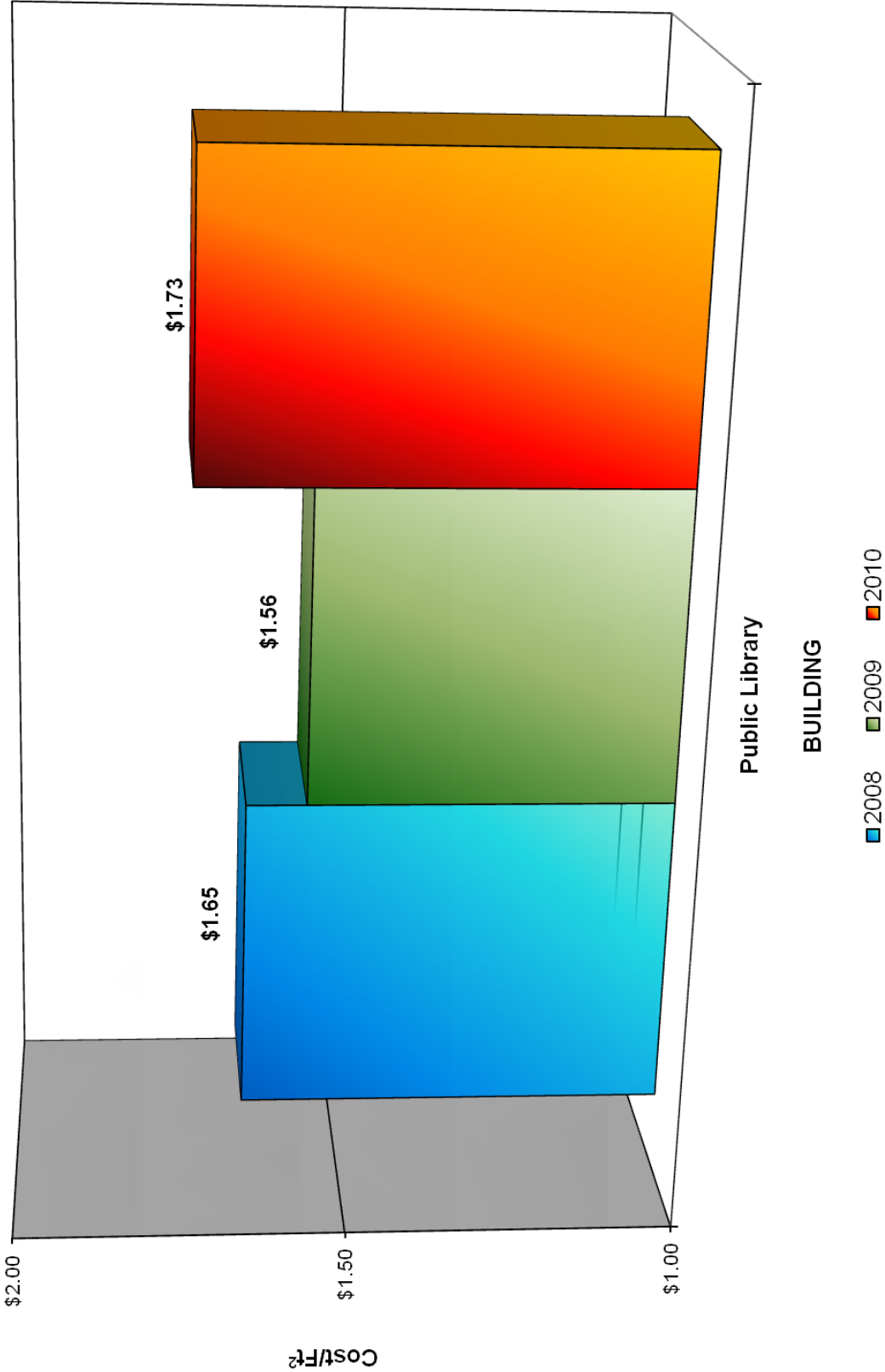
Govt. Buildings 3-year Comparison
of Building Energy Costs/Ft²



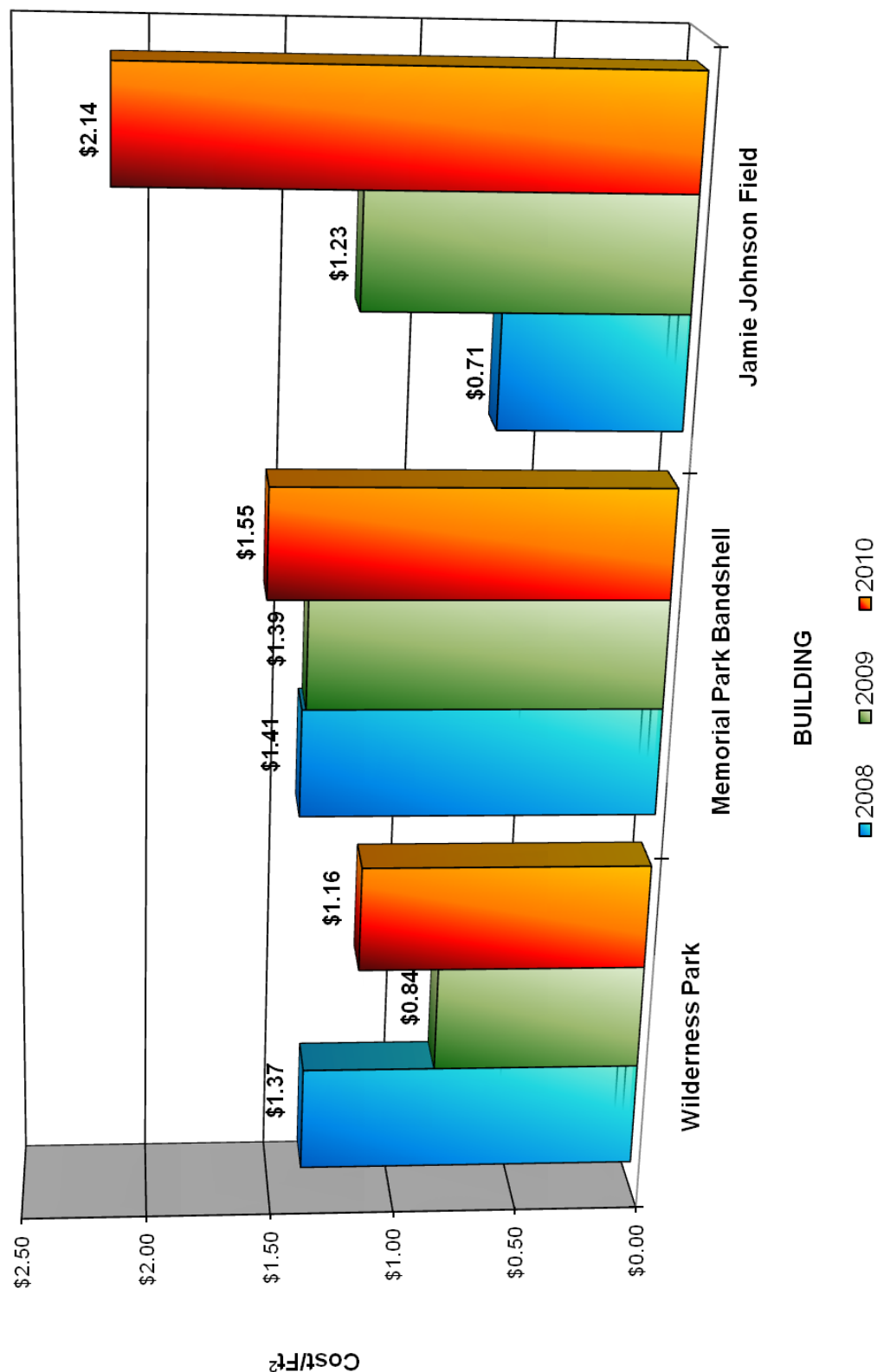
Landfill 3-year Comparison
of Building Energy Costs/Ft²



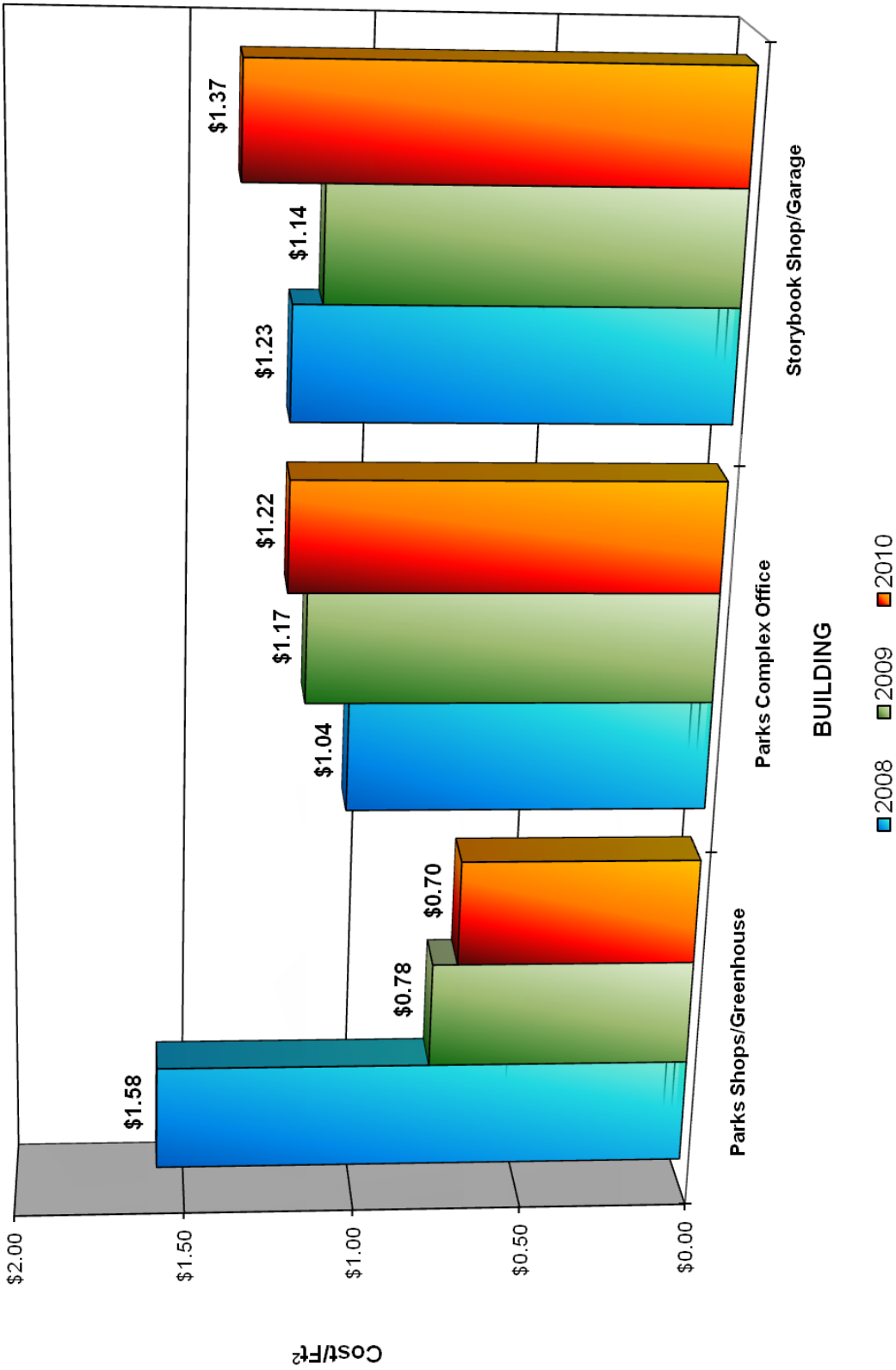
Public Library 3-year Comparison
of Building Energy Costs/Ft²



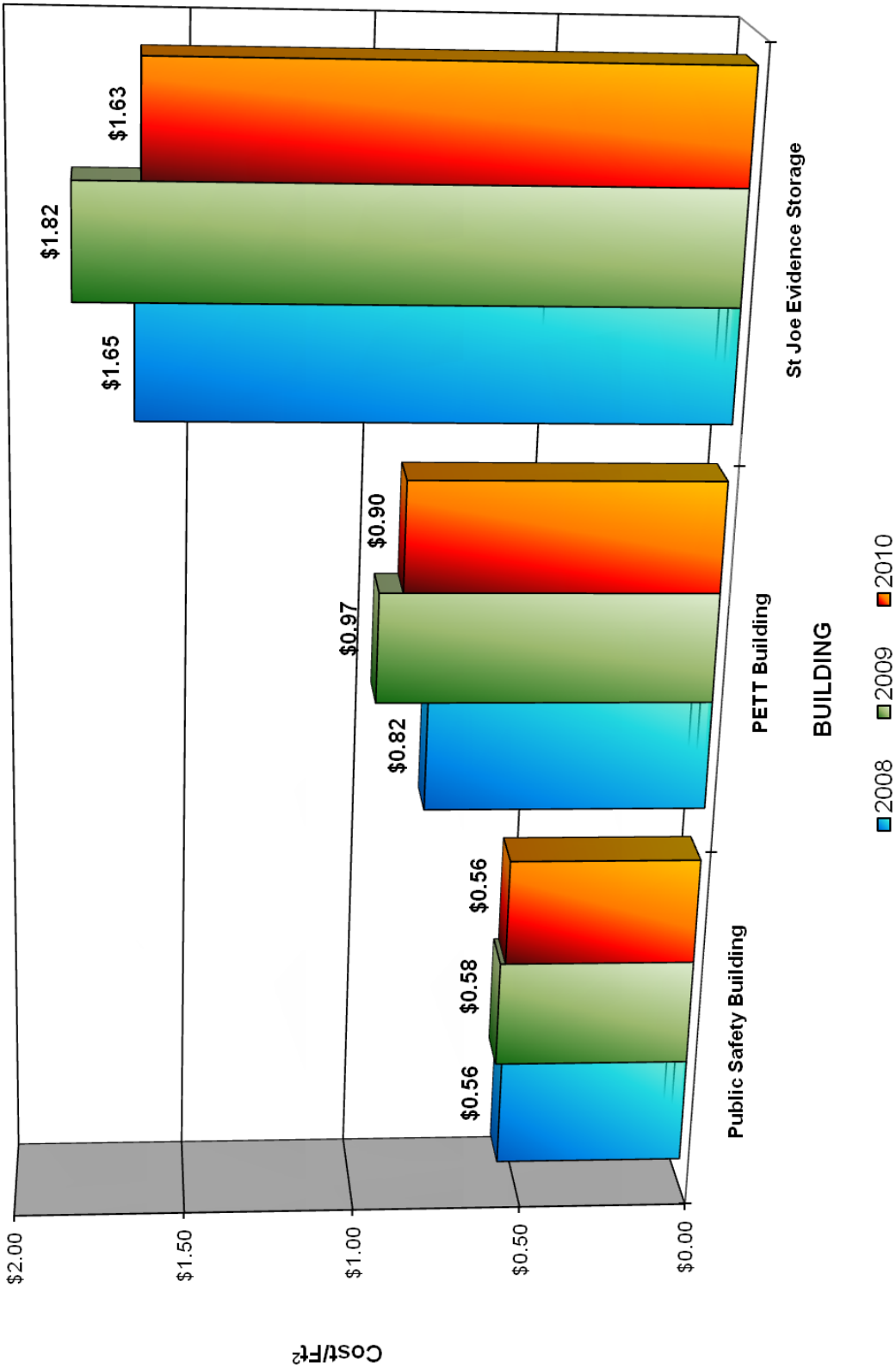
Parks Shelter/Restrooms 3-year Comparison
of Building Energy Costs/Ft²



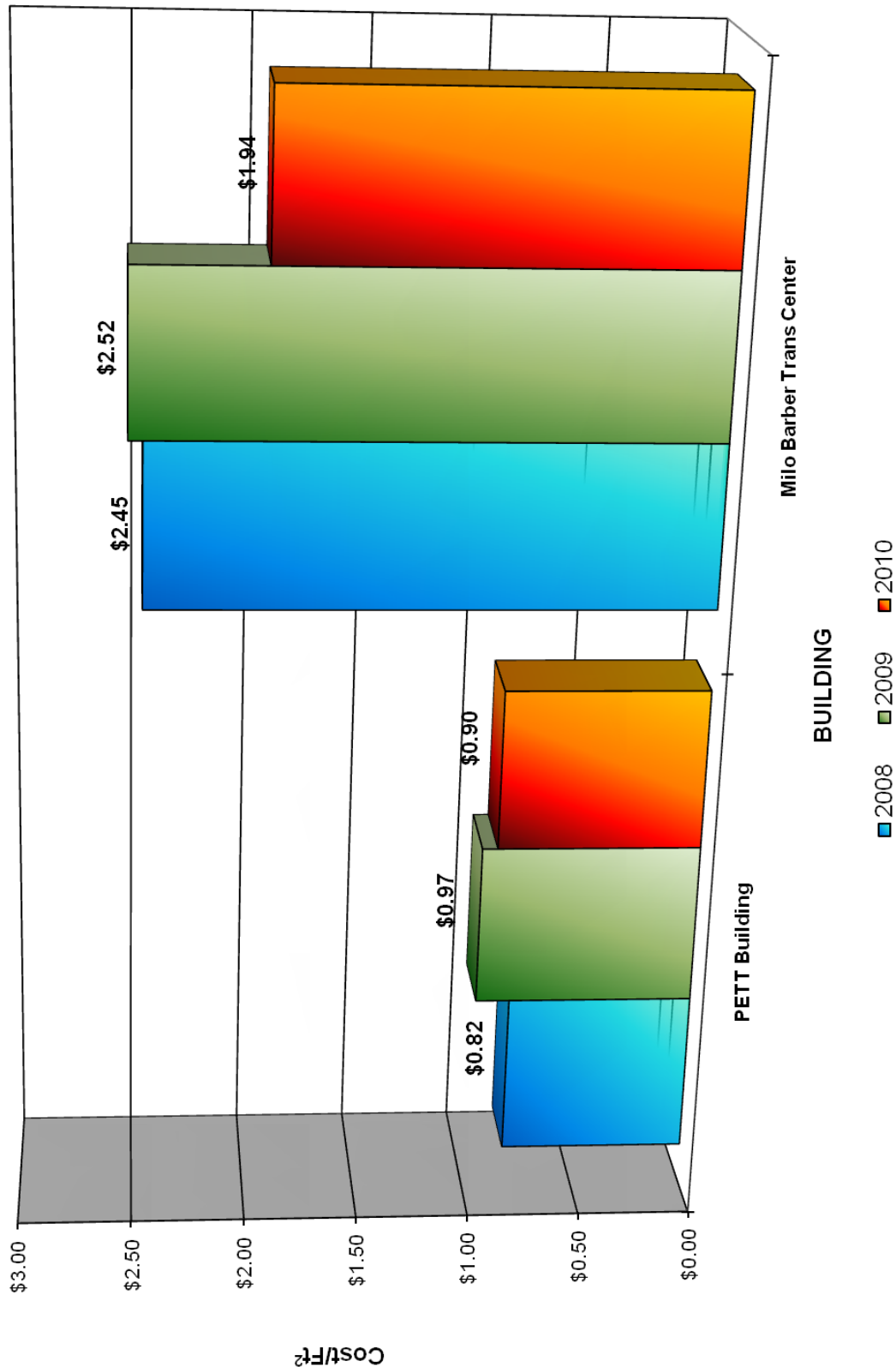
Parks Complex 3-year Comparison
of Building Energy Costs/Ft²



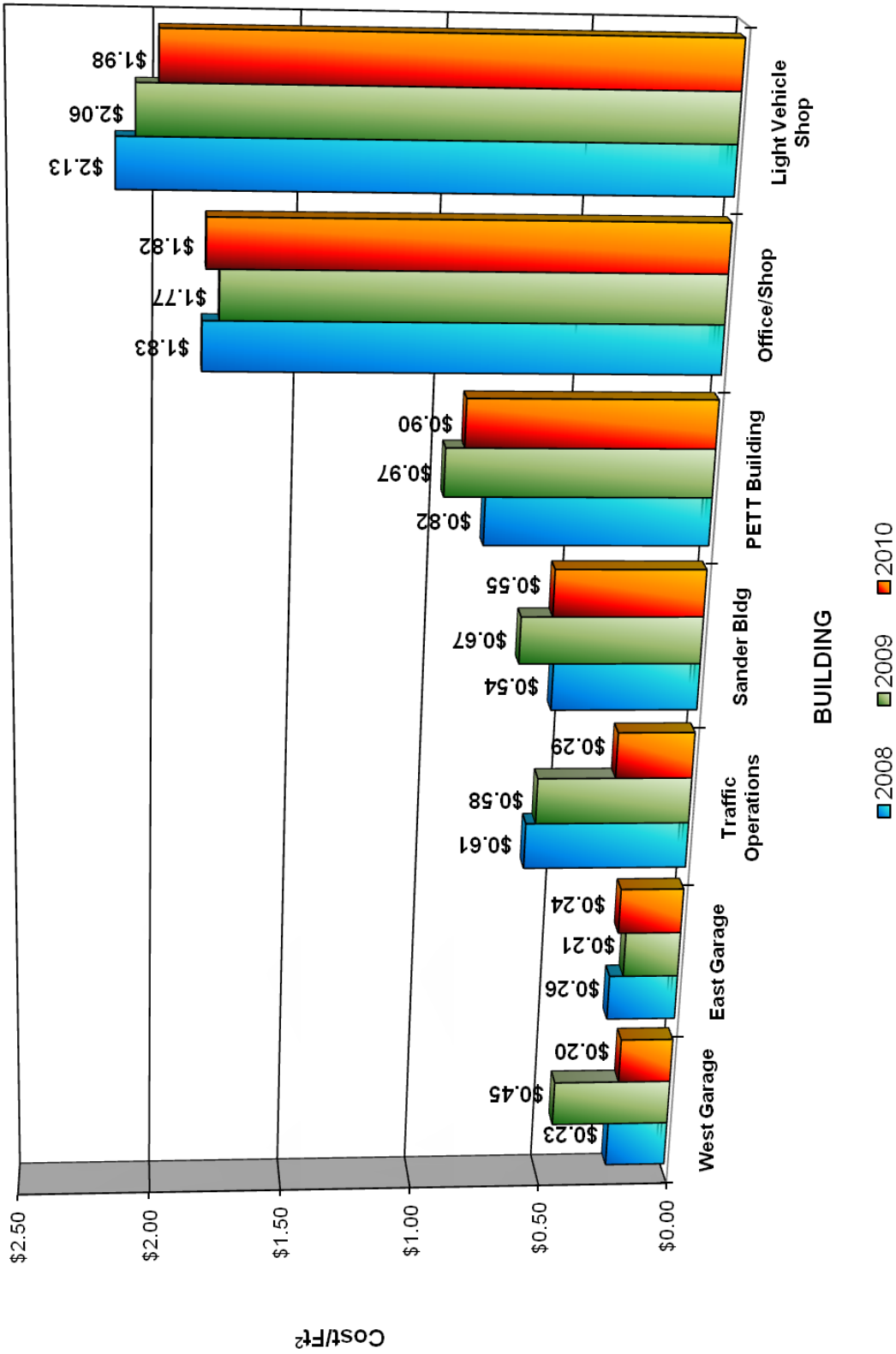
Police Dept. 3-year Comparison
of Building Energy Costs/Ft²



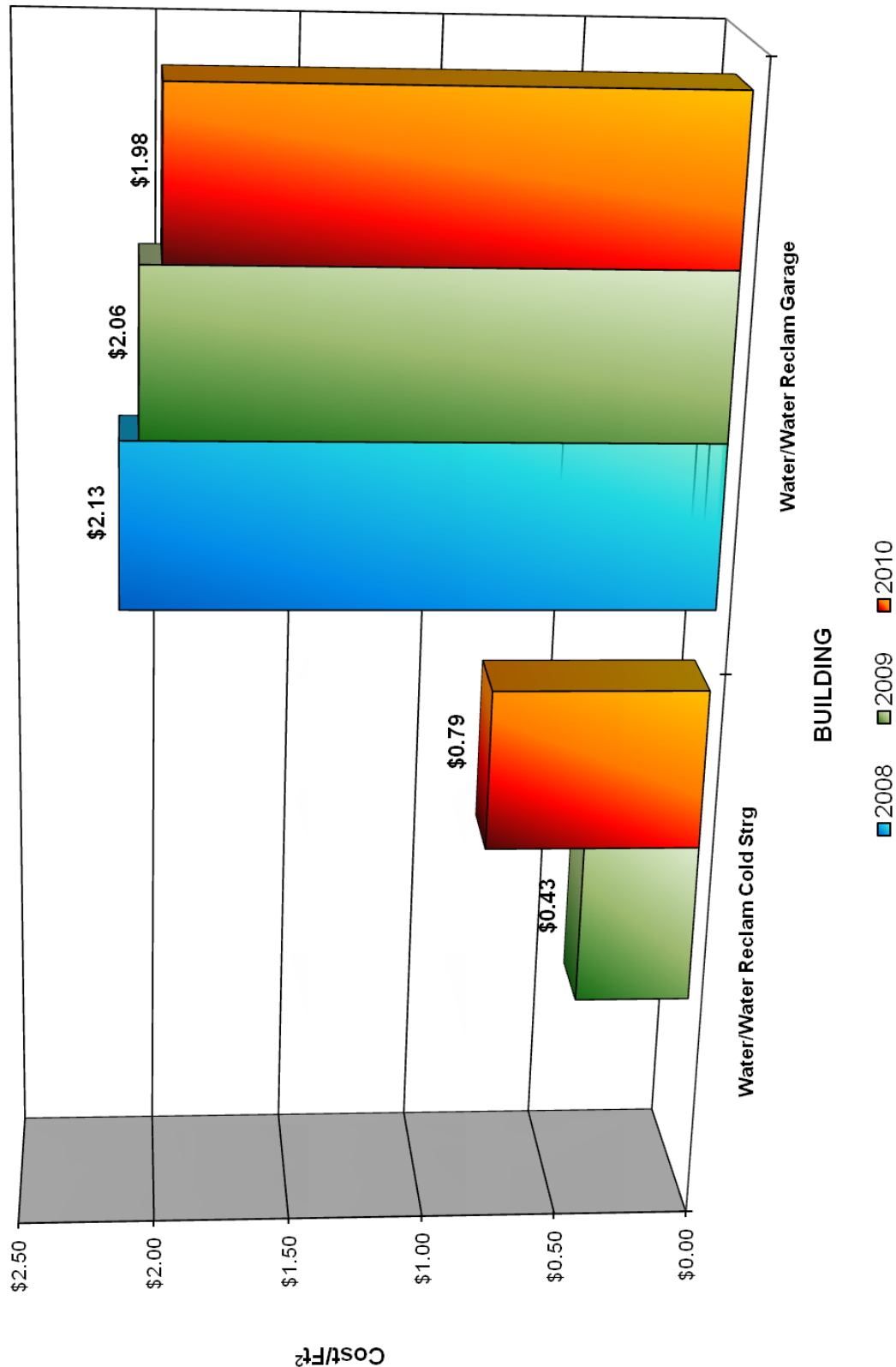
Rapid Transit 3-year Comparison
of Building Energy Costs/Ft²



Street Dept. 3-year Comparison
of Building Energy Costs/Ft²



Water & Water Reclamation 3-year Comparison
of Building Energy Costs/Ft²

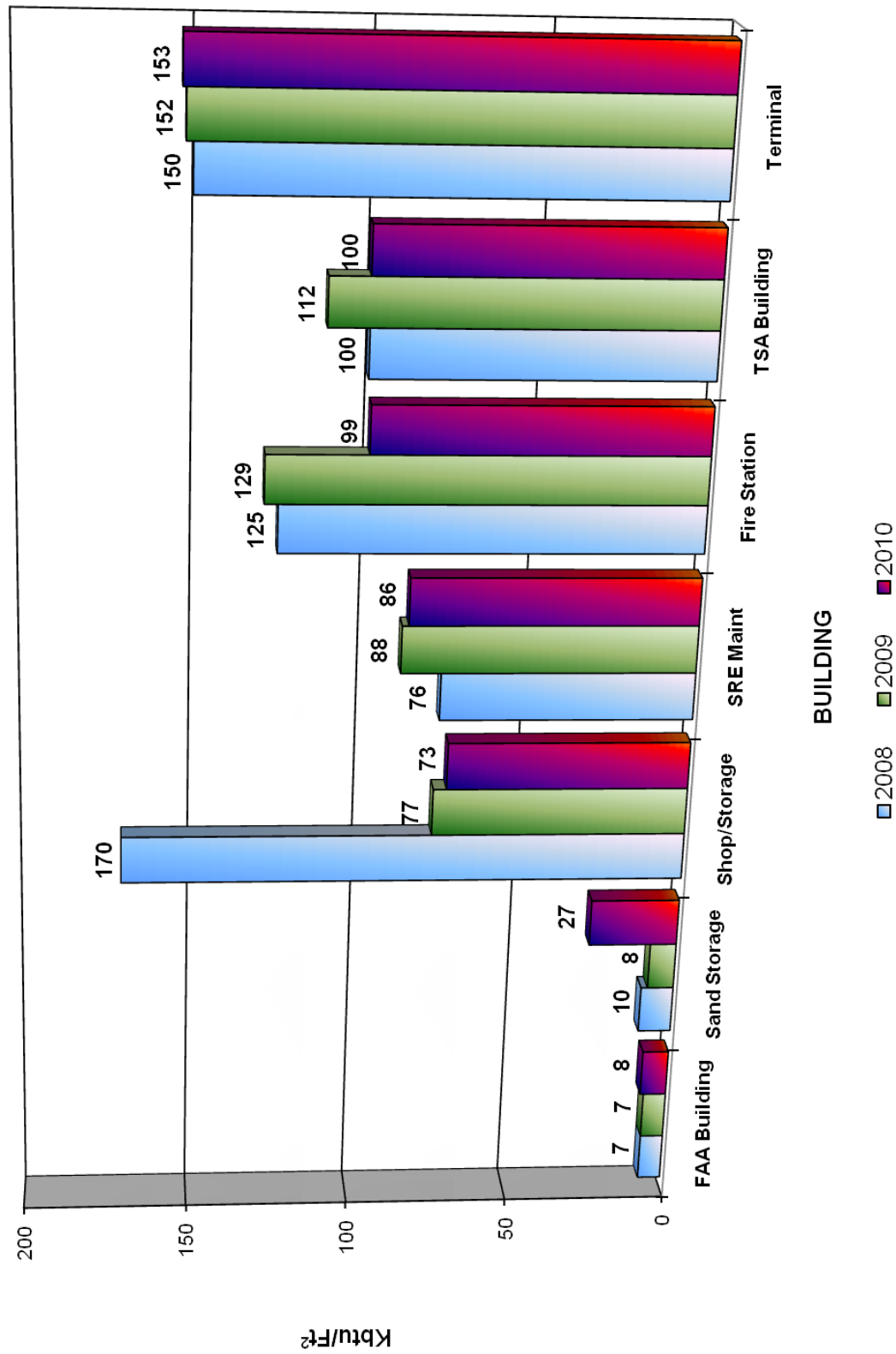


CITY OF RAPID CITY BUILDING'S 2010 KBTU/FT²

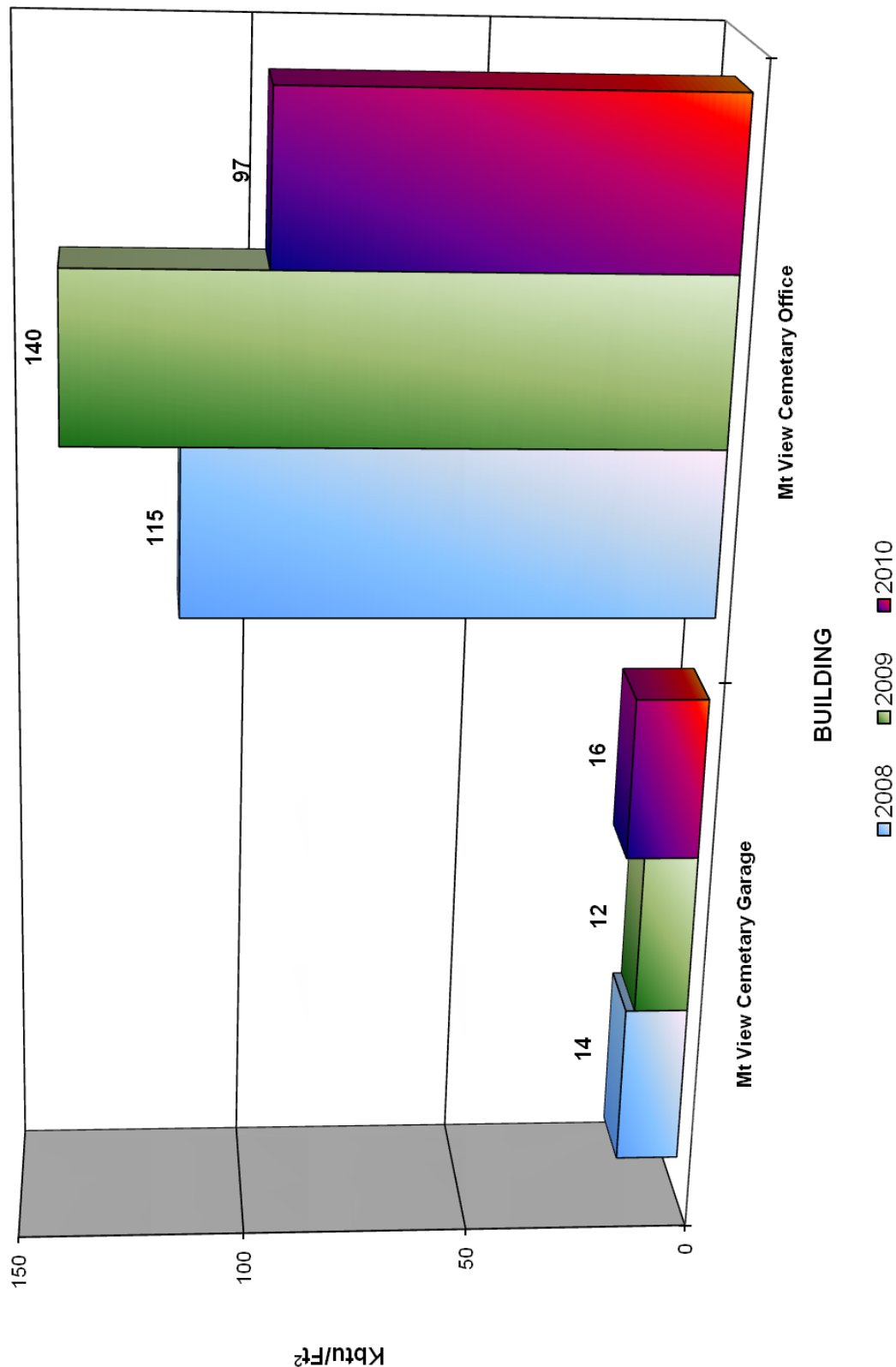
The following graphs show the amount of Kbtus (1000 btus) of energy used for ONE square foot of the listed City buildings. Shown is the combined Kbtu use of electricity, natural gas, and heating fuel oil. The buildings are listed by Dept. This provides a comparison of the energy used by different types of buildings. A 3-year history is shown for each building.

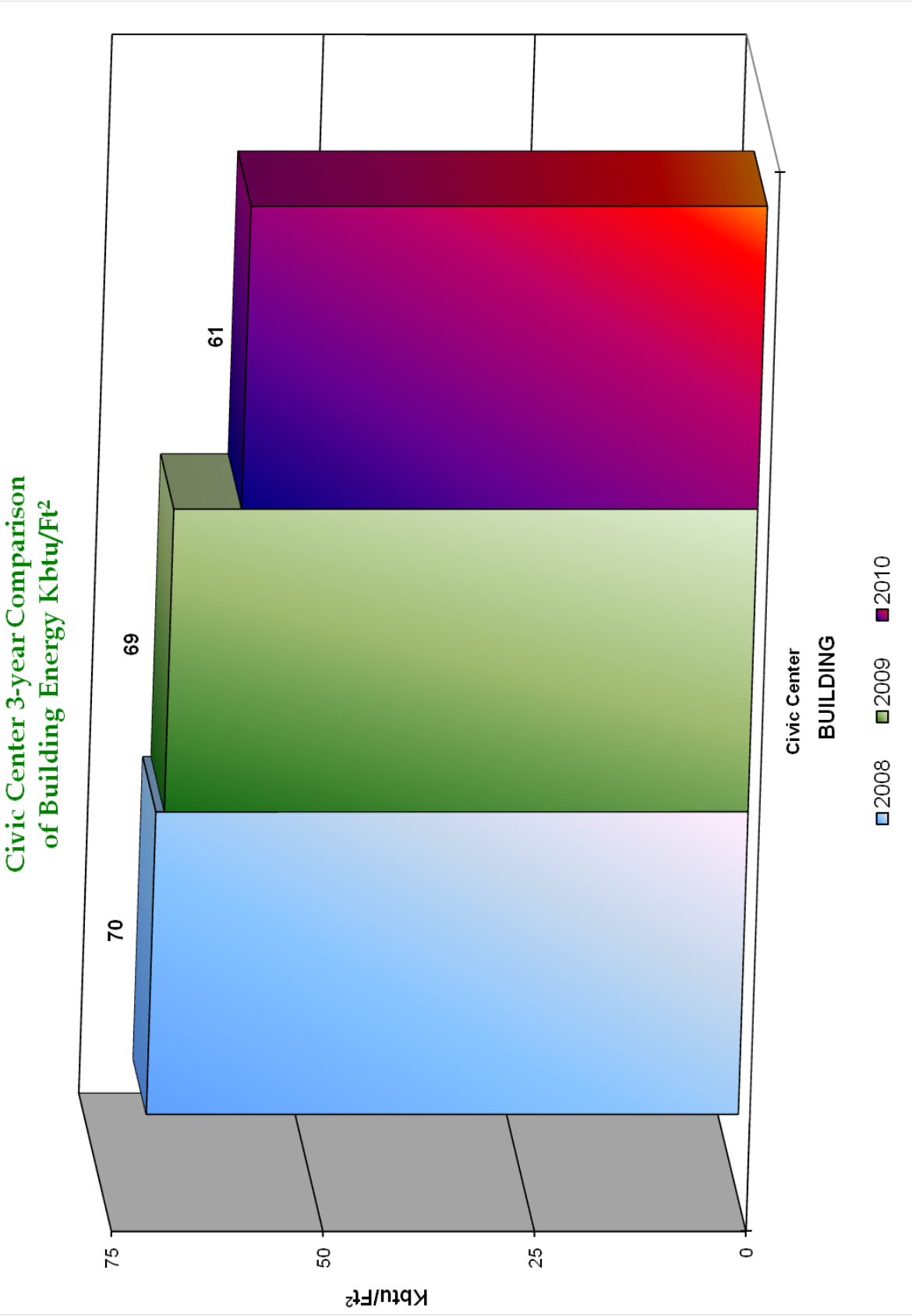
Some facilities (swimming pools, operating plants, buildings with high outside lighting loads) are not shown because comparing them on a Kbtu use/ft² basis isn't a valid comparison to buildings with normal occupancy.

Airport 3-year Comparison
of Building Energy Kbtu/Ft²

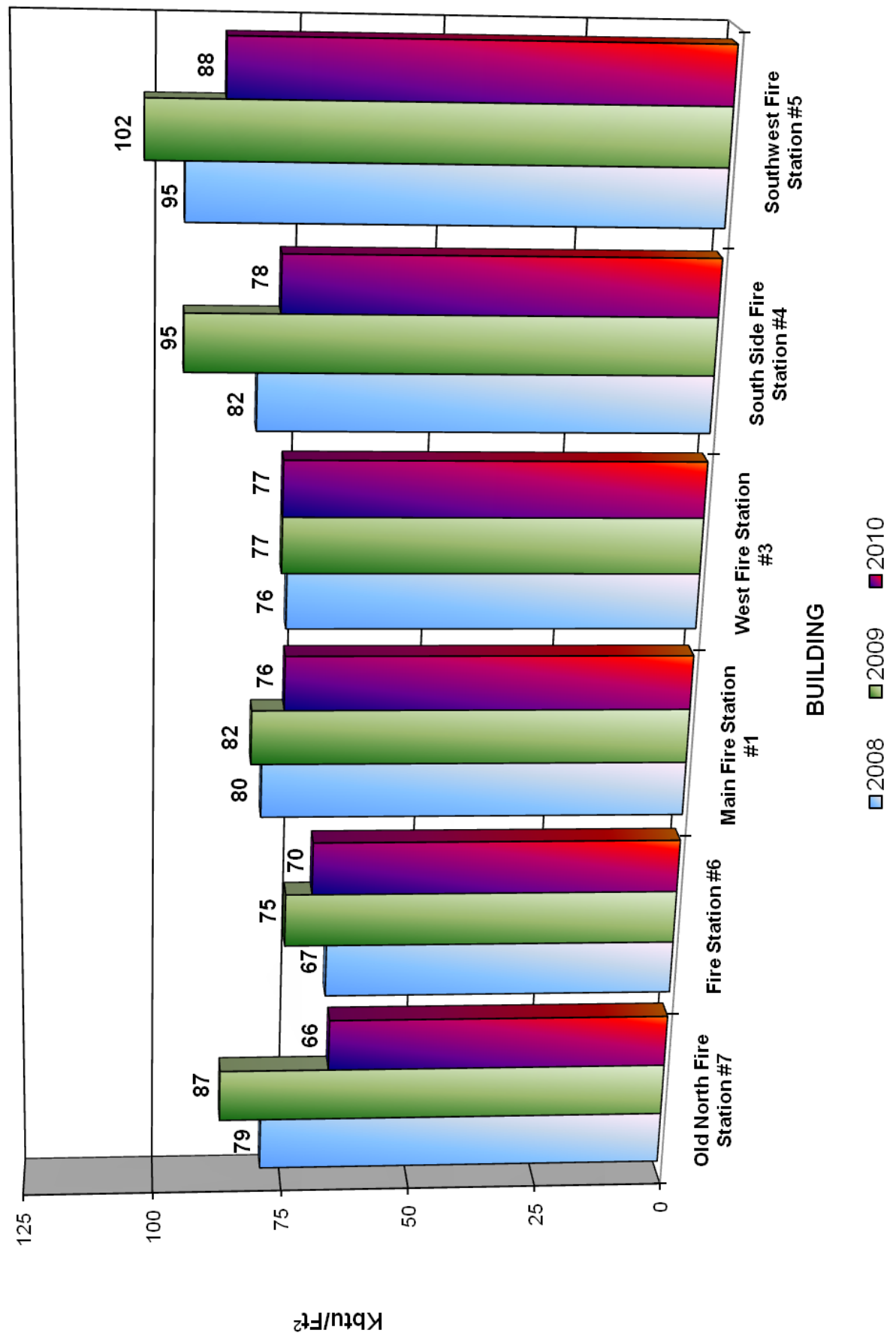


Mt. View Cemetary 3-year Comparison
of Building Energy Kbtu/Ft²

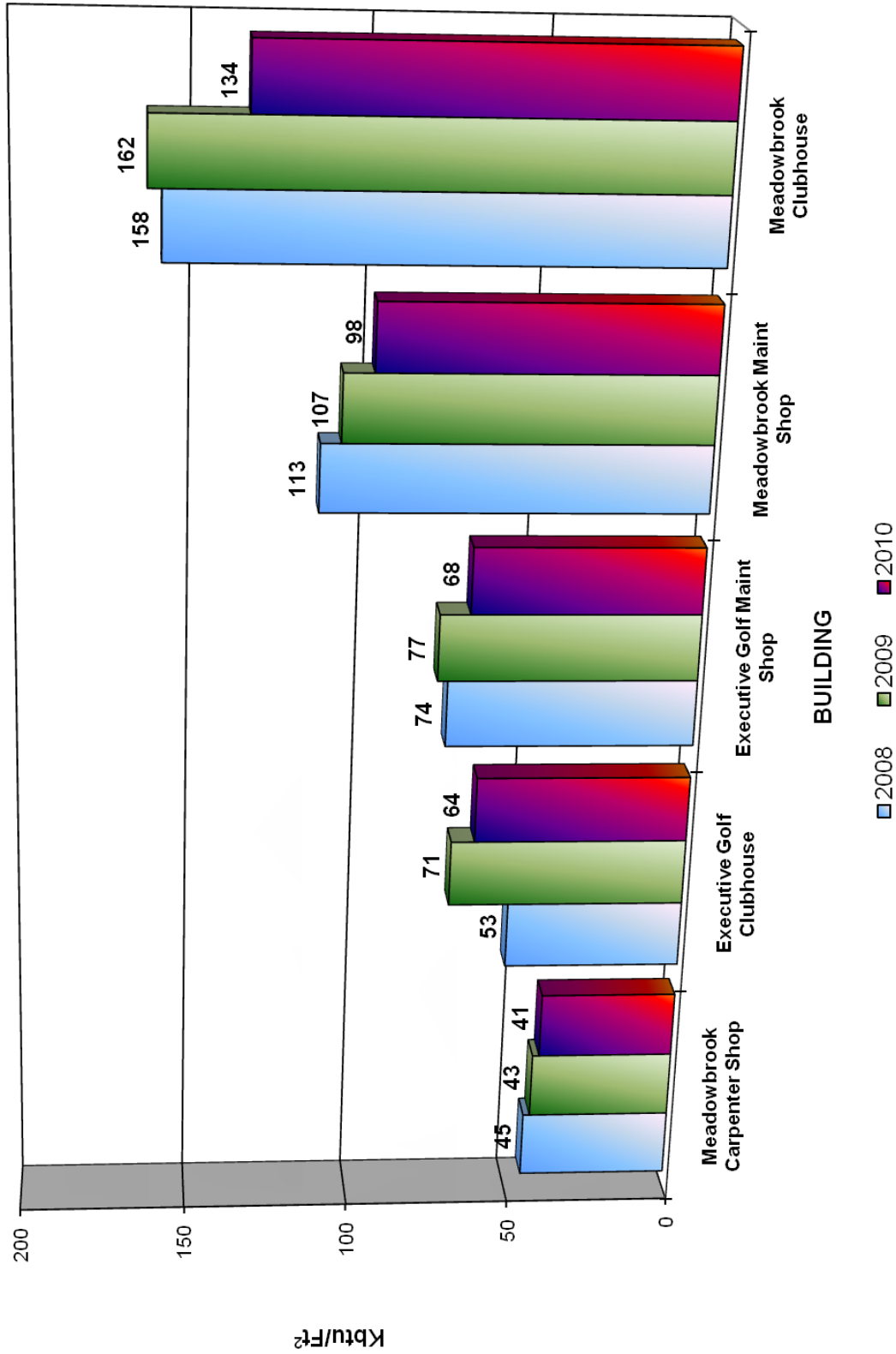




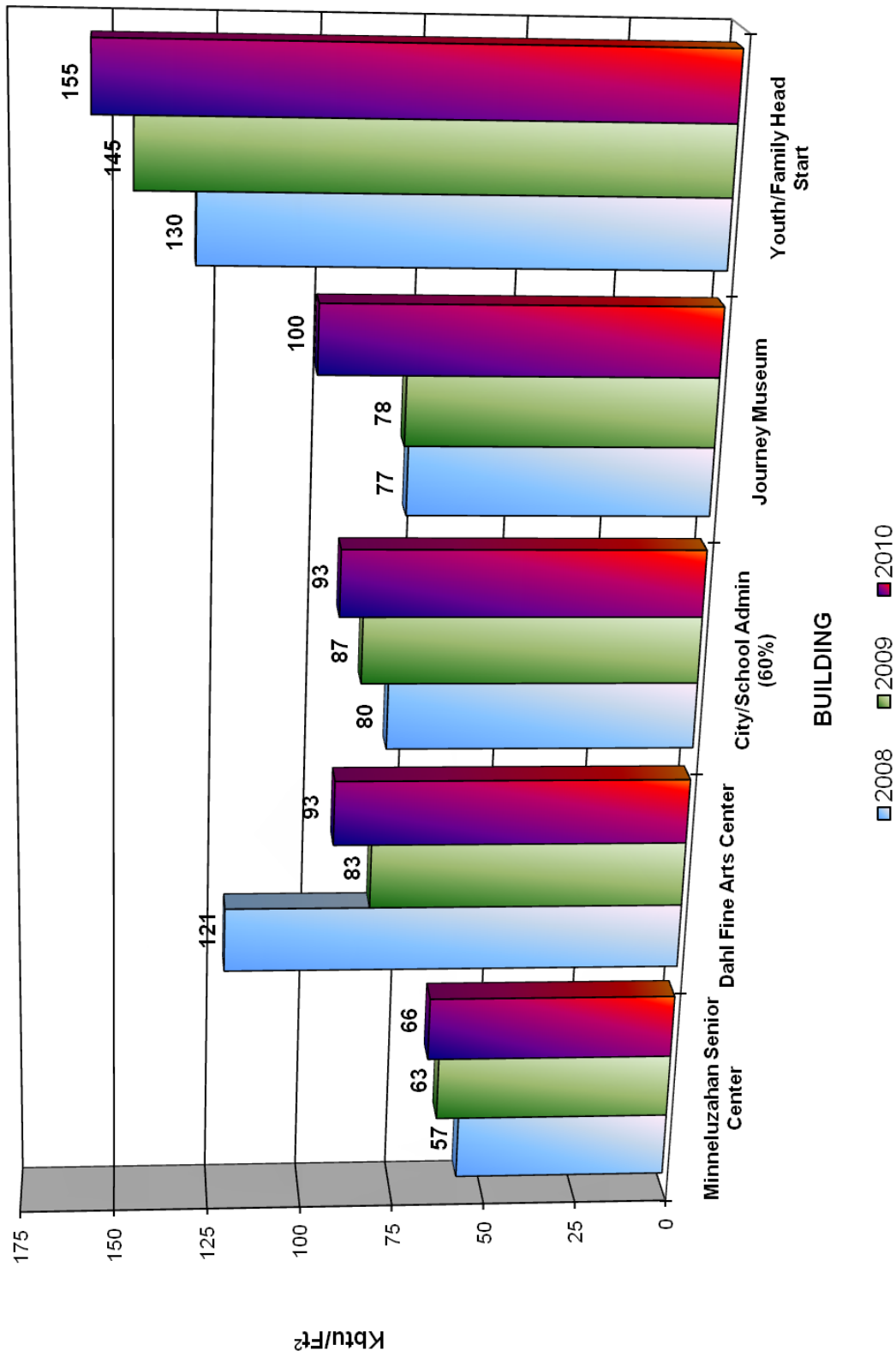
Fire Dept. 3-year Comparison
of Building Energy Kbtu/Ft²



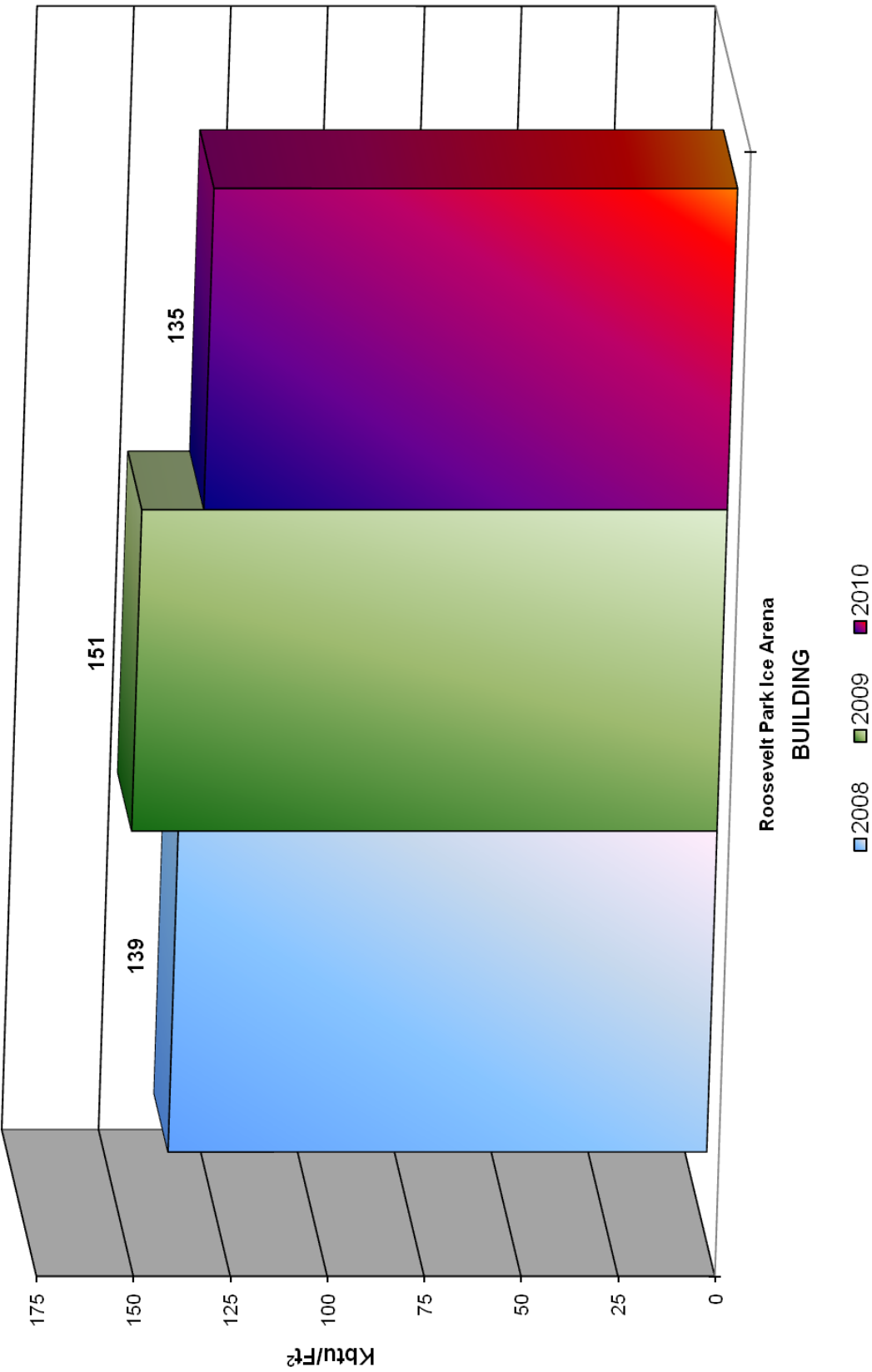
Golf Course 3-year Comparison
of Building Energy Kbtu/Ft²



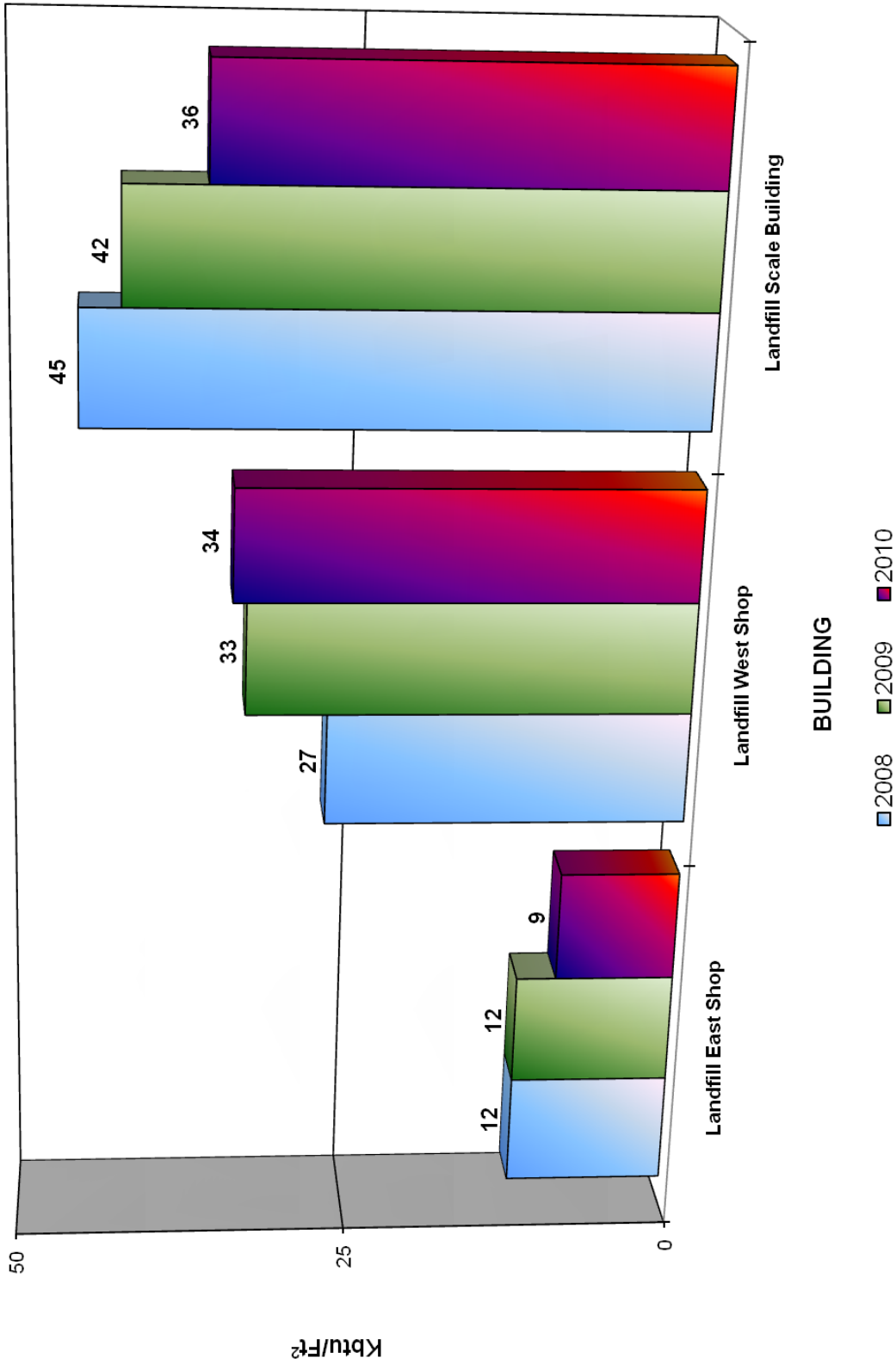
Govt. Buildingse 3-year Comparison
of Building Energy Kbtu/Ft²

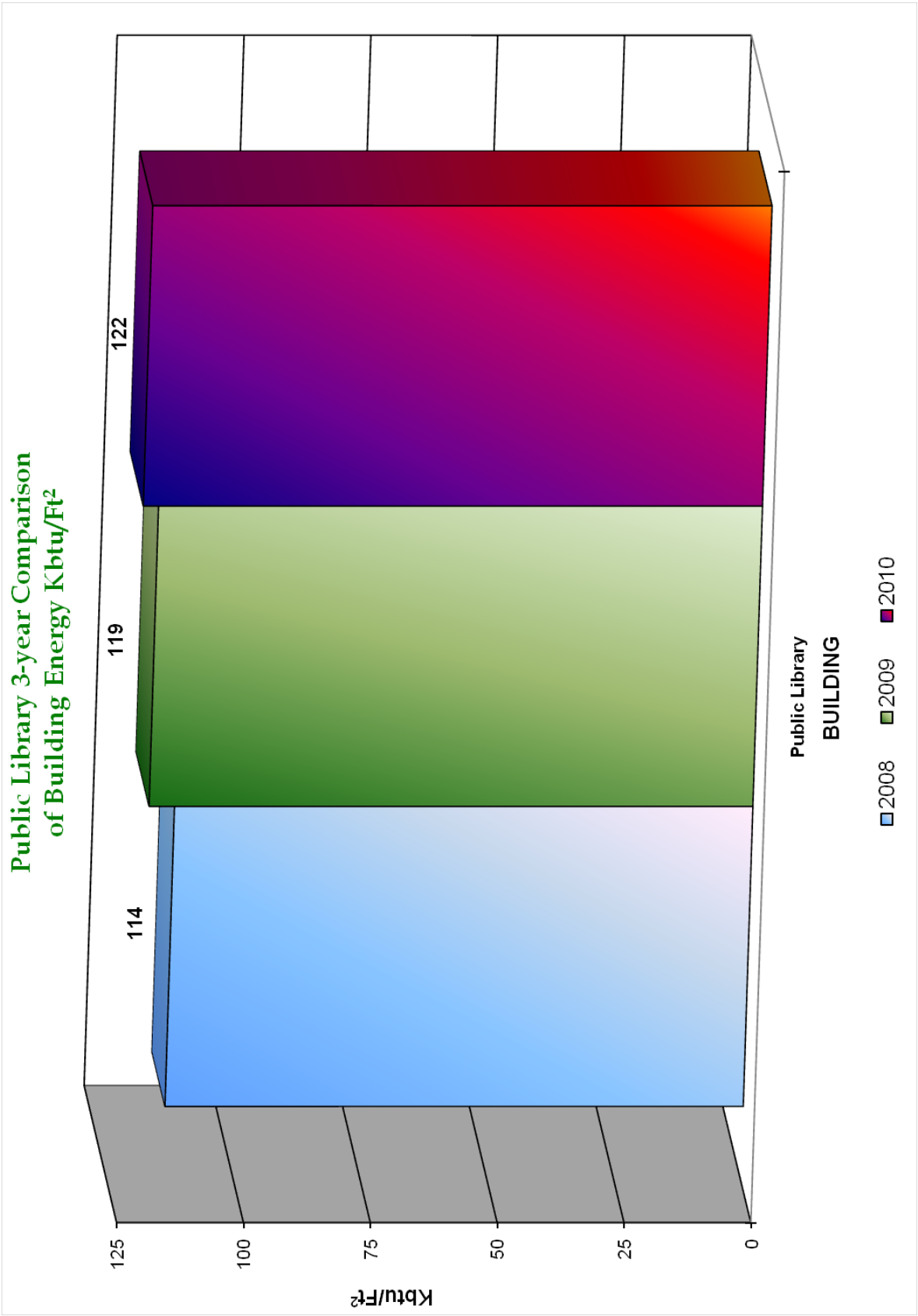


Roosevelt Ice Arena 3-year Comparison
of Building Energy Kbtu/Ft²

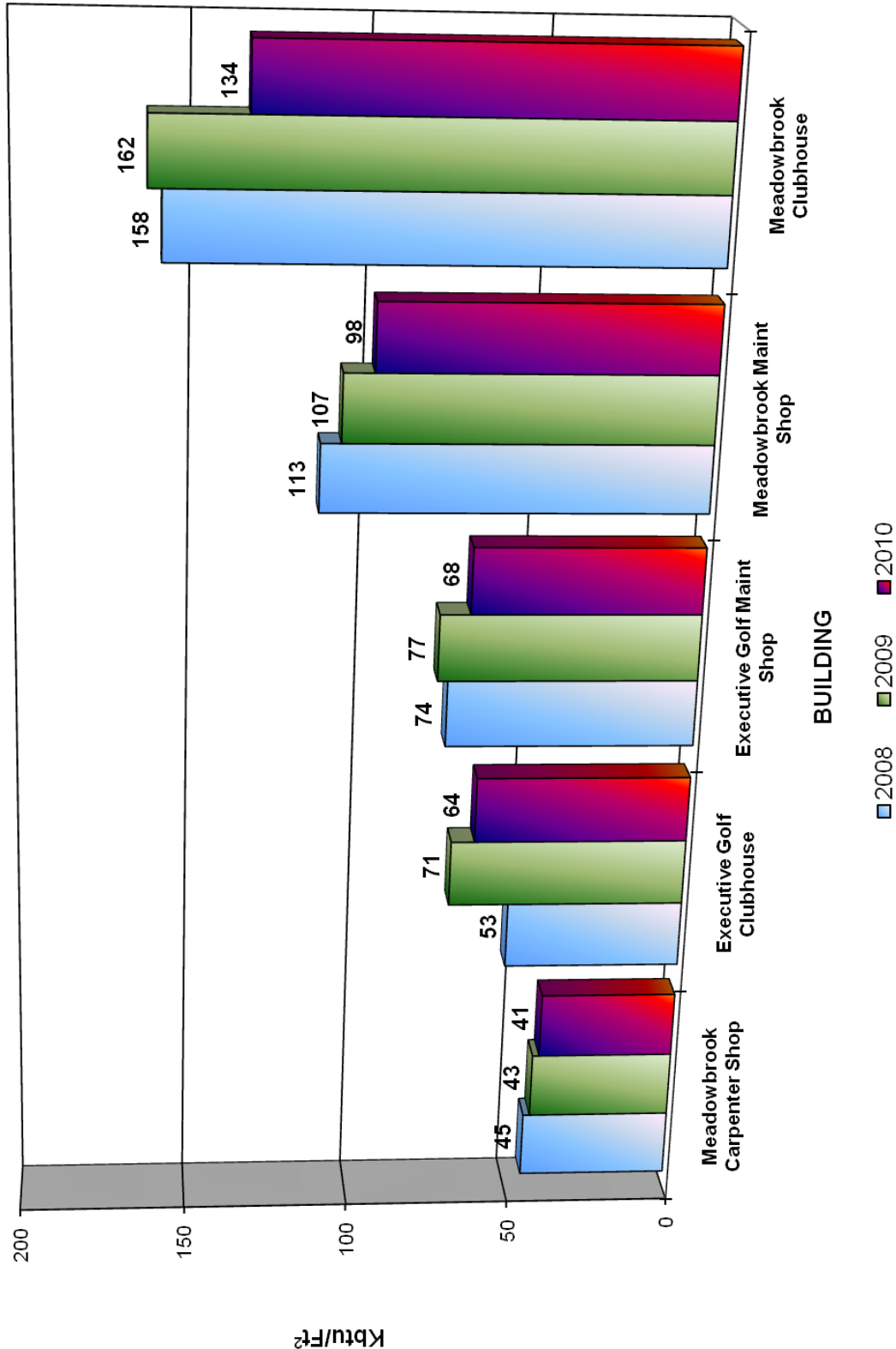


Landfill 3-year Comparison
of Building Energy Kbtu/Ft²

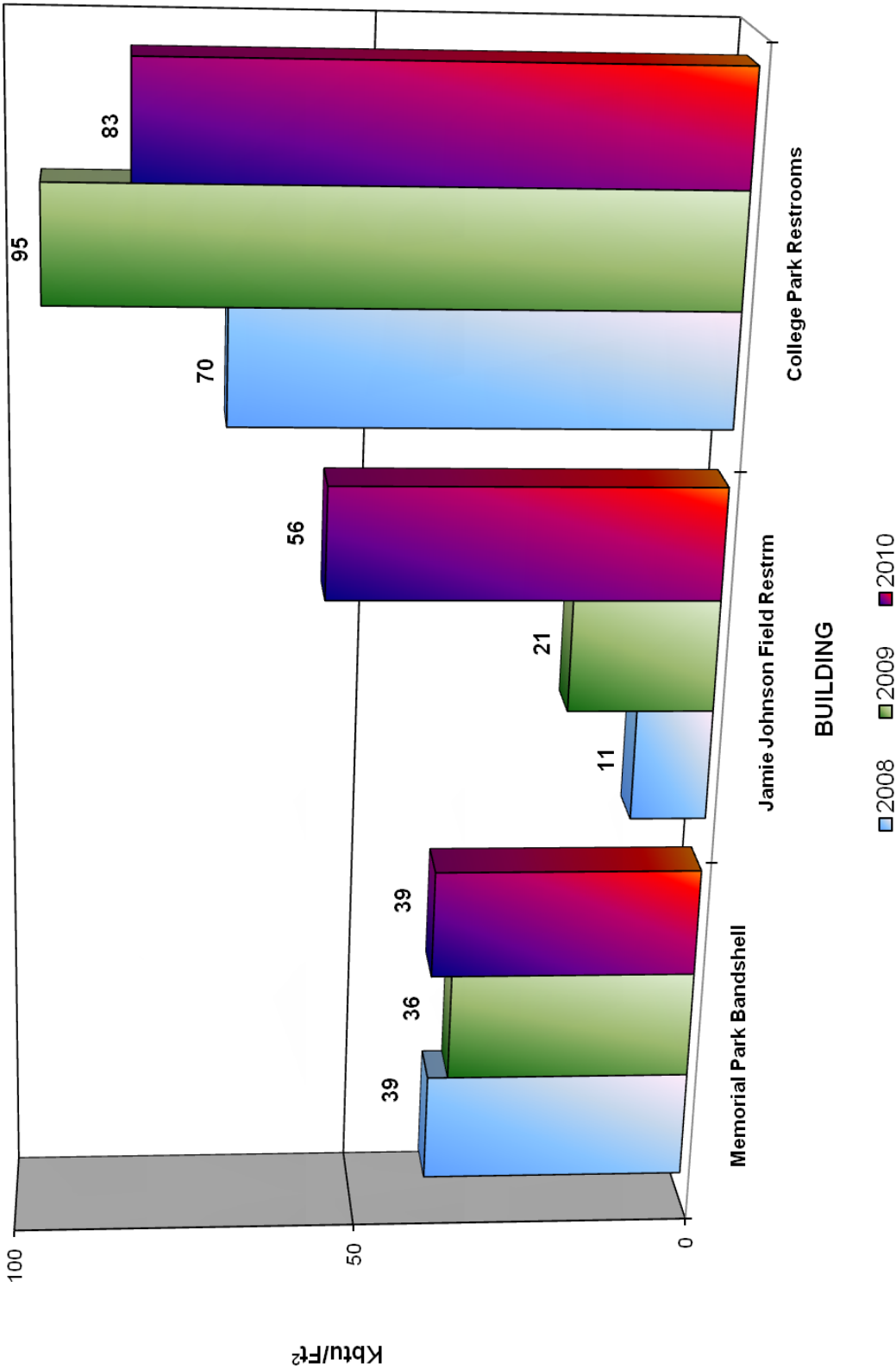




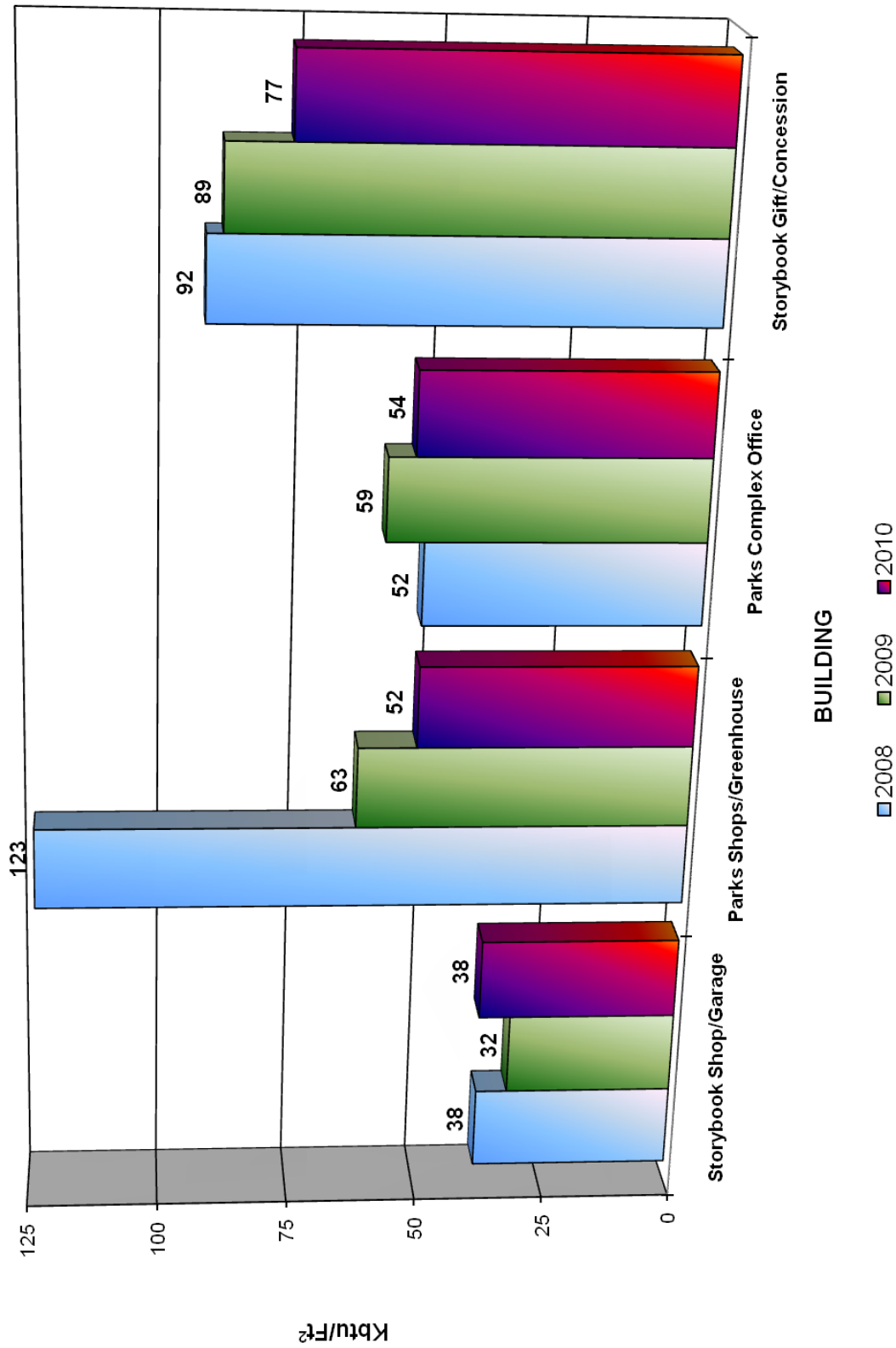
Parks Shelter/Restrooms 3-year Comparison
of Building Energy Kbtu/Ft²



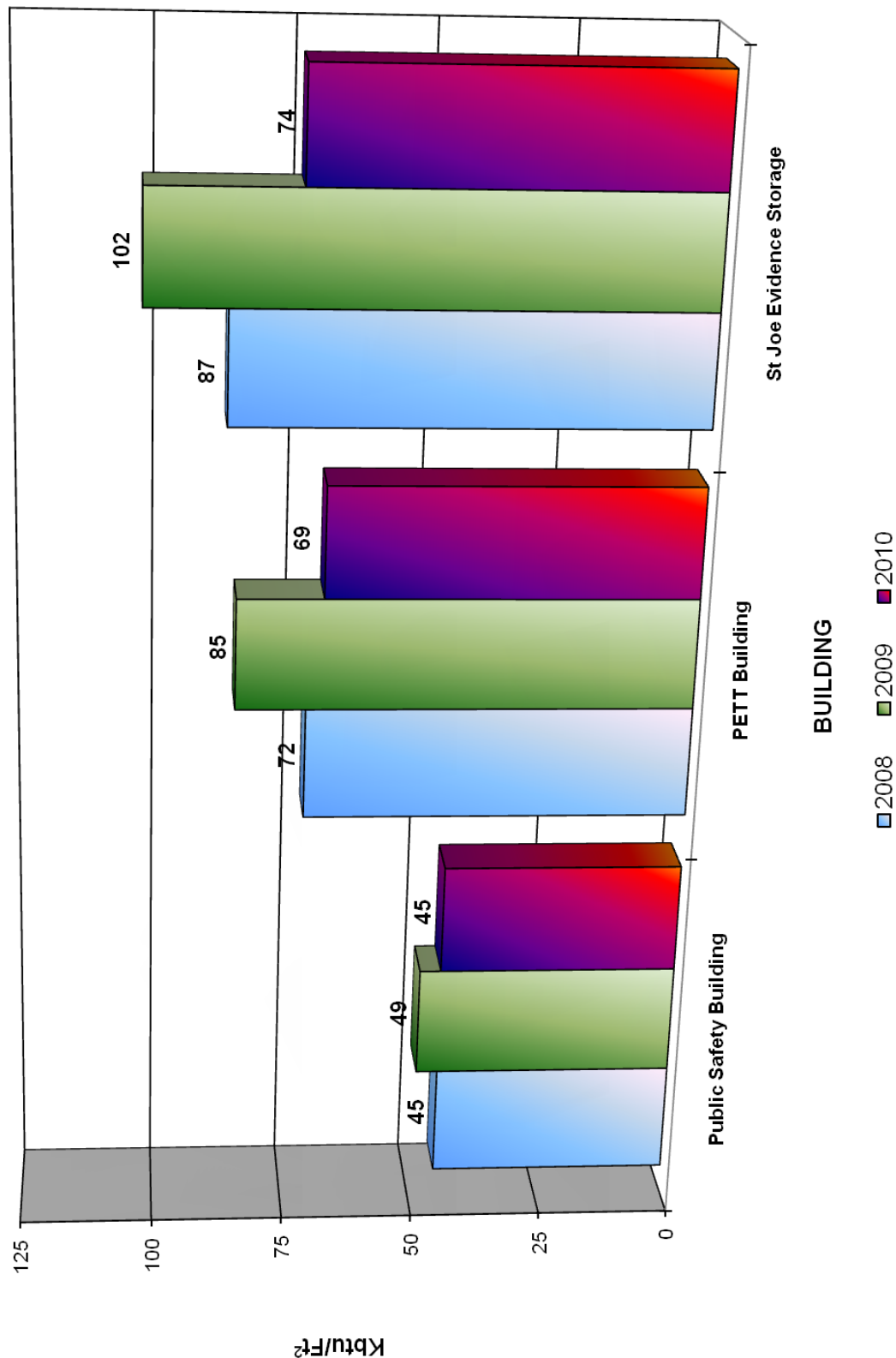
Park Shelter/Restrooms 3-year Comparison
of Building Energy Kbtu/Ft²



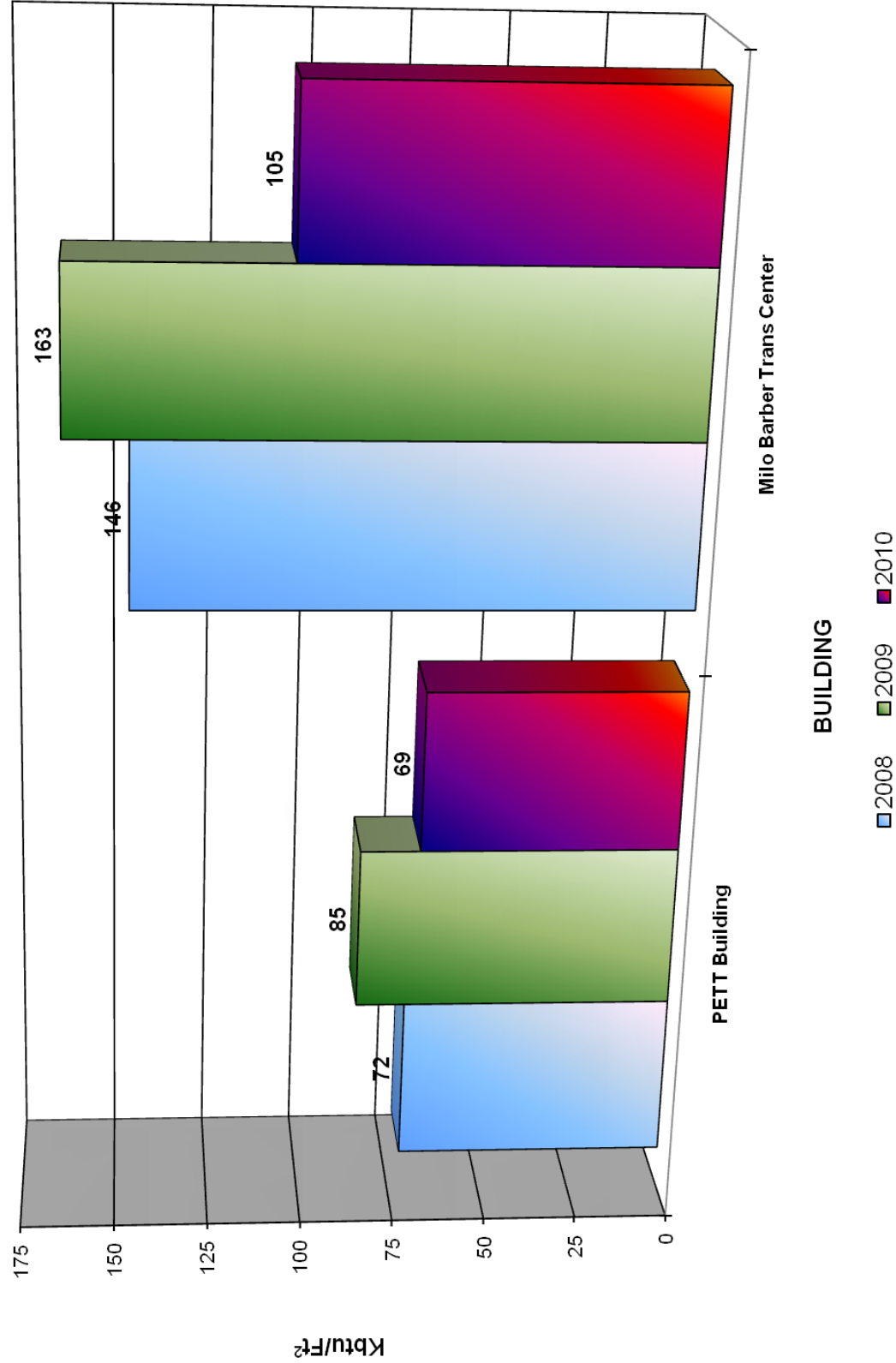
Parks Complex 3-year Comparison
of Building Energy Kbtu/Ft²



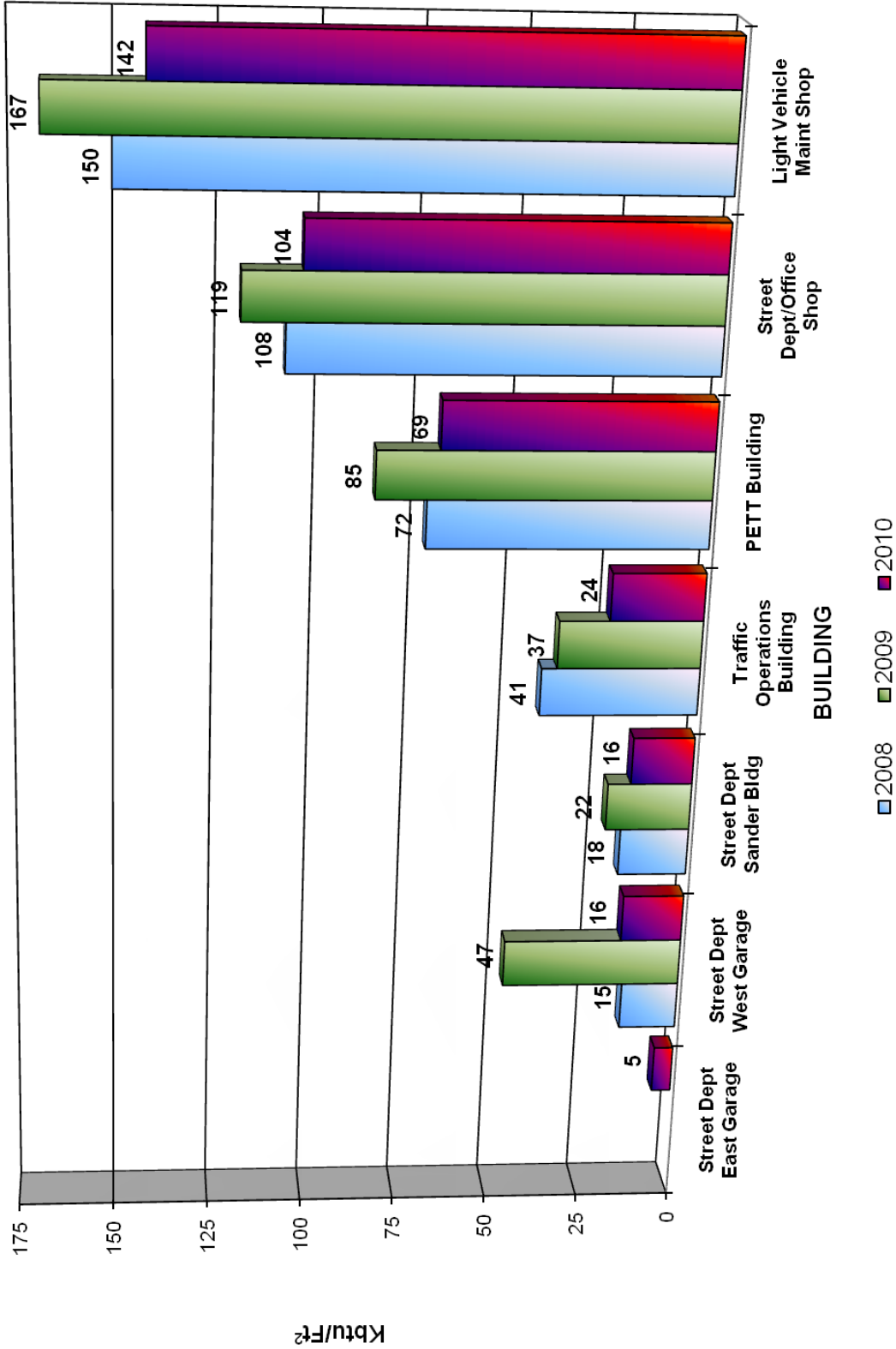
Police Dept. 3-year Comparison
of Building Energy Kbtu/Ft²



Rapid Transit 3-year Comparison
of Building Energy Kbtu/Ft²



Street Dept. 3-year Comparison
of Building Energy Kbtu/Ft²



Water & Water Reclamation Depts. 3-year Comparison
of Building Energy Kbtu/Ft²

