

Recommended New Construction and Opinion of Probable Cost

Recommendations for New Construction

General

Construction costs for a new building on a new site are based on the space requirements of the Space Program, Part 1 of this study. Although there is no conceptual design developed on which to base costs, the square footage requirements can be projected into a realistic picture of costs based on historical experience with schools. Similarly, land area requirements for a high school are about 25-30 acres and site work costs are derived from similar projects.

Opinion of Probable Cost

Following this narrative is a Conceptual Budget for new construction based on winter 2012 costs, including an estimating/escalation contingency. In order to get a picture of total project costs, typical administrative costs and overall project fees and services are included as well.

Additional line items are listed at the end of the Conceptual Budget as add alternates – for four additional classroom spaces and a 25-meter swimming pool. These could be included as separate questions in a referendum.

Architect/Engineer fees are based on the Maine DOE standard for new school construction of the cost of construction estimated.

Additional Factors

There are both advantages and disadvantages to constructing a new high school on a new site, apart from cost. Building a new facility on the existing site and then demolishing the existing structure could result in loss of already scarce playing fields for a time and loss of a mostly sound structure for other use and is not considered a viable option. Following is a list of some of the pros and cons for new construction:

Advantages

- New construction would not disrupt operations at the high school.
- A new site that included adequate playing fields would be an improvement for the school and would free up existing fields for more town usage.
- A new school building would be designed for current codes, educational programs and for greater energy efficiency.
- A school in the vicinity of the community college could increase connection with higher education.
- If the new site is located west of railroad tracks there could potentially be access to natural gas.

Disadvantages

- A remote site would have less connection with the other schools in the district.

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- If the new site is not in relatively close proximity to the current site, transportation costs would be increased and there would be fewer students within walking distance.
- There may be an increase in the upfront cost of bringing natural gas to the existing site.
- Additional time would be needed to acquire a site.
- Site acquisition costs may or may not exceed the resale of existing property.

Site Selection and Site Evaluation

Site Selection & Site Evaluation

Establishing a new High School for the Town of Wells would require a detailed exploration for appropriate parcels of land to accommodate the large facilities that are needed for a complete high school complex. We estimate approximately 30 acres would be needed to construct the high school building, parking lots, bus and parent drop-off loops, and numerous sports fields. It is important to judge possible sites against an established list of criteria to quickly understand whether an interesting parcel is actually usable for the intended development. The list would be tailored to meet the specific community needs, and would most likely include some major criteria such as: parcel size, parcel shape, soil types, ledge, wetlands, proximity to good roads, traffic patterns, proximity to other schools or municipal buildings, and proximity to public utilities and services.

Over many years, Harriman has developed and typically uses a three-step process for site selection:

- a. Step 1 – Identification of Potential Sites
- b. Step 2 – Site Ranking
- c. Step 3 – Site Analysis and Comparison

Step 1: There may be several potential sites identified that school and municipal officials feel would be suitable for the intended use. Harriman typically performs a separate map-search for additional potential land areas(not necessarily within a single property boundary), and follows up with initial visual drive-by verification. This added search often brings to light parcels that are worth considering, that the school personnel did not initially consider. Step 1 results in a Summary Table, which outlines the major positive and negative aspects of each of the identified sites.

Step 2: After discussing the results of the Step 1 preliminary evaluation with the school personnel, in a meeting with most of the stakeholders, several potential sites can be eliminated from the list due to general characteristics, such as remote location, poor quality streets, poor utility access, etc. Then, Step 2 evaluates the remaining sites, usually less than 10, for further comparison. These sites are examined in the field by walking the parcels and reviewing against a custom-tailored list of criteria. Also, available mapping and utility information is reviewed. The results of the analysis of each parcel are scored on a matrix of the evaluation criteria, typically 15 to 20 criteria. The Excel spreadsheet matrix calculates the comparative scores of each site and tallies the total, showing which sites rank higher than others. A Site Selection Map and a Site Selection Matrix are produced, which together are used to meet with the school personnel and stakeholders to determine which site, or sites, should be studied further.

Site Selection and Site Evaluation

Step 3: Once the apparent best site or two has been selected, Harriman plans further investigations to verify that they are viable sites, and which one should be selected for development. Working with the school's particular needs, several detailed studies by specialty consultants are done to confirm the validity of the site. A geotechnical engineering firm is often engaged to provide soil borings and a preliminary soil/geotechnical evaluation. A wetland specialist is hired to delineate the on-site wetland boundaries, check for the presence of potential vernal pools, and evaluate the wetland types and associated permitting. A traffic engineer would likely be retained to provide traffic consulting and prepare a Town/MDOT Traffic Permit pre-scoping assessment. Harriman prepares several site concept sketches to study the optimum layout of the needed building and site features on the selected parcel. The results of this step are site condition reports, a narrative of comparison of sites to the criteria and to each other, and conceptual alternative site drawings. Based on this completed evaluation, the School Department would negotiate to purchase the site.

Educational Program Analysis

New Construction

General

Introduction

The educational program has been thoroughly analyzed in Part I, Tab B-1. The function of the educational program remains the same whether in a new building or in a renovation/expansion of the existing one. New construction provides the opportunity to plan a building around the educational program. The building would not be inhibited by some of the inherent design deficiencies of the current high school building.

Organization

In the design of the new facility, the space program will be closely followed to adequately size all spaces. Adjacencies will be taken into consideration from the start to achieve a smoothly functioning building. Flexibility is an important feature for long-term technology planning and would be implemented into the design.

“Core spaces” of the building – cafeteria, gymnasium, auditorium – would be sized to allow for long-term enrollment projections and the number of classrooms would be based on the number required by the program. A plan for future phasing would work an opportunity for expansion into the building design.

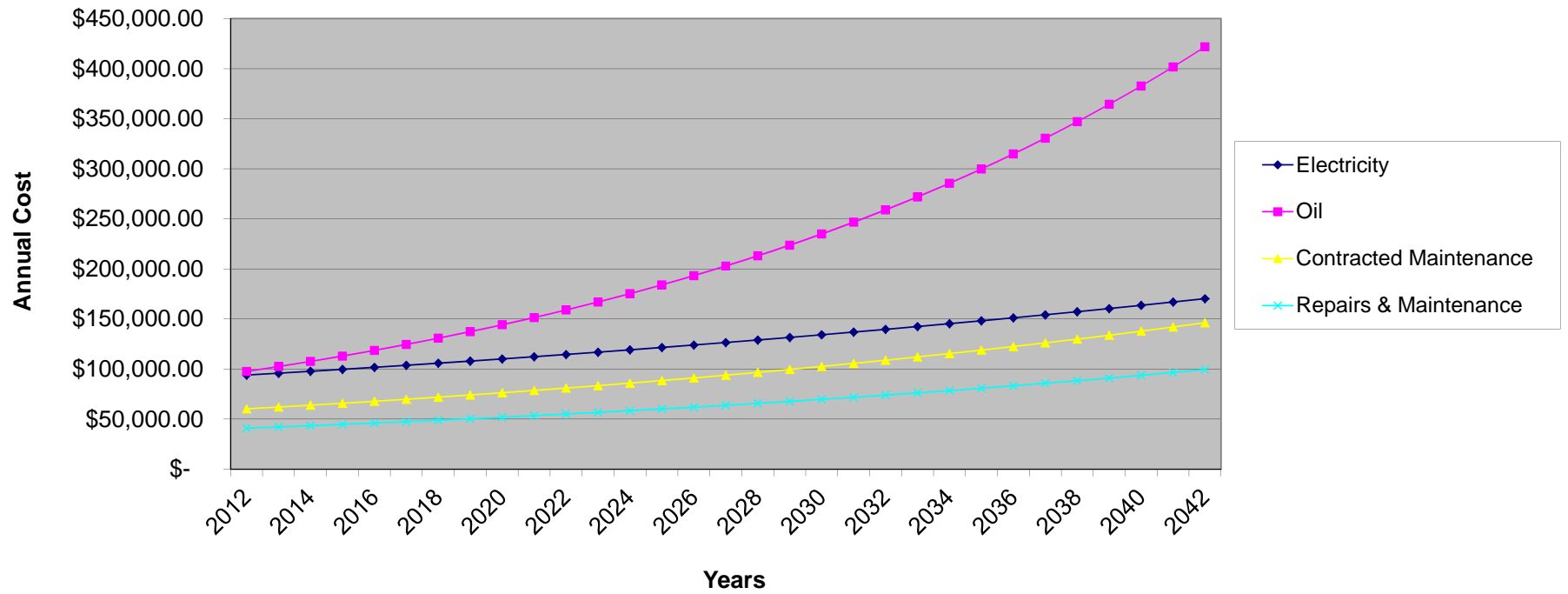
Essentially, the opportunity to design a new school building would allow the opportunity for a new high school to be driven by the educational program rather than be somewhat limited by an existing building.

30 year New Con. 120,500 sq ft Wells High School, Project # 11690

Assumptions	2% per year	5% per year - Escalation	3% per year - Escalation	3% per year Escalation
	Electricity	Oil	Contracted Maintenance	Repairs & Maintenance
2012	\$ 93,990.00	\$ 97,605.00	\$ 60,250.00	\$ 40,970.00
2013	\$ 95,869.80	\$ 102,485.25	\$ 62,057.50	\$ 42,199.10
2014	\$ 97,787.20	\$ 107,609.51	\$ 63,919.23	\$ 43,465.07
2015	\$ 99,742.94	\$ 112,989.99	\$ 65,836.80	\$ 44,769.03
2016	\$ 101,737.80	\$ 118,639.49	\$ 67,811.91	\$ 46,112.10
2017	\$ 103,772.55	\$ 124,571.46	\$ 69,846.26	\$ 47,495.46
2018	\$ 105,848.01	\$ 130,800.04	\$ 71,941.65	\$ 48,920.32
2019	\$ 107,964.97	\$ 137,340.04	\$ 74,099.90	\$ 50,387.93
2020	\$ 110,124.27	\$ 144,207.04	\$ 76,322.90	\$ 51,899.57
2021	\$ 112,326.75	\$ 151,417.39	\$ 78,612.58	\$ 53,456.56
2022	\$ 114,573.29	\$ 158,988.26	\$ 80,970.96	\$ 55,060.25
2023	\$ 116,864.75	\$ 166,937.67	\$ 83,400.09	\$ 56,712.06
2024	\$ 119,202.05	\$ 175,284.56	\$ 85,902.09	\$ 58,413.42
2025	\$ 121,586.09	\$ 184,048.78	\$ 88,479.16	\$ 60,165.83
2026	\$ 124,017.81	\$ 193,251.22	\$ 91,133.53	\$ 61,970.80
2027	\$ 126,498.17	\$ 202,913.78	\$ 93,867.54	\$ 63,829.93
2028	\$ 129,028.13	\$ 213,059.47	\$ 96,683.56	\$ 65,744.82
2029	\$ 131,608.69	\$ 223,712.45	\$ 99,584.07	\$ 67,717.17
2030	\$ 134,240.86	\$ 234,898.07	\$ 102,571.59	\$ 69,748.68
2031	\$ 136,925.68	\$ 246,642.97	\$ 105,648.74	\$ 71,841.14
2032	\$ 139,664.20	\$ 258,975.12	\$ 108,818.20	\$ 73,996.38
2033	\$ 142,457.48	\$ 271,923.88	\$ 112,082.75	\$ 76,216.27
2034	\$ 145,306.63	\$ 285,520.07	\$ 115,445.23	\$ 78,502.76
2035	\$ 148,212.76	\$ 299,796.08	\$ 118,908.59	\$ 80,857.84
2036	\$ 151,177.02	\$ 314,785.88	\$ 122,475.84	\$ 83,283.57
2037	\$ 154,200.56	\$ 330,525.17	\$ 126,150.12	\$ 85,782.08
2038	\$ 157,284.57	\$ 347,051.43	\$ 129,934.62	\$ 88,355.54
2039	\$ 160,430.26	\$ 364,404.00	\$ 133,832.66	\$ 91,006.21
2040	\$ 163,638.87	\$ 382,624.20	\$ 137,847.64	\$ 93,736.40
2041	\$ 166,911.64	\$ 401,755.41	\$ 141,983.07	\$ 96,548.49
2042	\$ 170,249.88	\$ 421,843.19	\$ 146,242.56	\$ 99,444.94
Cumulative	\$ 1,836,459.53	\$ 3,925,847.42	\$ 1,499,370.04	\$ 1,019,571.63
Total O&M Costs				\$ 8,281,248.62

	Dollars per sq foot			
	Electricity	Oil	Contracted Maintenance	Repairs & Maintenance
2012	\$ 0.78	\$ 0.81	\$ 0.50	\$ 0.34
2013	\$ 0.80	\$ 0.85	\$ 0.52	\$ 0.35
2014	\$ 0.81	\$ 0.89	\$ 0.53	\$ 0.36
2015	\$ 0.83	\$ 0.94	\$ 0.55	\$ 0.37
2016	\$ 0.84	\$ 0.98	\$ 0.56	\$ 0.38
2017	\$ 0.86	\$ 1.03	\$ 0.58	\$ 0.39
2018	\$ 0.88	\$ 1.09	\$ 0.60	\$ 0.41
2019	\$ 0.90	\$ 1.14	\$ 0.61	\$ 0.42
2020	\$ 0.91	\$ 1.20	\$ 0.63	\$ 0.43
2021	\$ 0.93	\$ 1.26	\$ 0.65	\$ 0.44
2022	\$ 0.95	\$ 1.32	\$ 0.67	\$ 0.46
2023	\$ 0.97	\$ 1.39	\$ 0.69	\$ 0.47
2024	\$ 0.99	\$ 1.45	\$ 0.71	\$ 0.48
2025	\$ 1.01	\$ 1.53	\$ 0.73	\$ 0.50
2026	\$ 1.03	\$ 1.60	\$ 0.76	\$ 0.51
2027	\$ 1.05	\$ 1.68	\$ 0.78	\$ 0.53
2028	\$ 1.07	\$ 1.77	\$ 0.80	\$ 0.55
2029	\$ 1.09	\$ 1.86	\$ 0.83	\$ 0.56
2030	\$ 1.11	\$ 1.95	\$ 0.85	\$ 0.58
2031	\$ 1.14	\$ 2.05	\$ 0.88	\$ 0.60
2032	\$ 1.16	\$ 2.15	\$ 0.90	\$ 0.61
2033	\$ 1.18	\$ 2.26	\$ 0.93	\$ 0.63
2034	\$ 1.21	\$ 2.37	\$ 0.96	\$ 0.65
2035	\$ 1.23	\$ 2.49	\$ 0.99	\$ 0.67
2036	\$ 1.25	\$ 2.61	\$ 1.02	\$ 0.69
2037	\$ 1.28	\$ 2.74	\$ 1.05	\$ 0.71
2038	\$ 1.31	\$ 2.88	\$ 1.08	\$ 0.73
2039	\$ 1.33	\$ 3.02	\$ 1.11	\$ 0.76
2040	\$ 1.36	\$ 3.18	\$ 1.14	\$ 0.78
2041	\$ 1.39	\$ 3.33	\$ 1.18	\$ 0.80
2042	\$ 1.41	\$ 3.50	\$ 1.30	\$ 0.89

Annual O&M Costs - 30 Year New Construction



Assumptions	5% per year - Escalation	5% per year - Escalation	
Annual Fuel Dollar Comparison - #2 oil vs Natural Gas			
	Oil	Natural Gas	Annual difference
2012	\$ 97,605.00	\$ 68,685.00	\$ 28,920.00
2013	\$ 102,485.25	\$ 72,119.25	\$ 30,366.00
2014	\$ 107,609.51	\$ 75,725.21	\$ 31,884.30
2015	\$ 112,989.99	\$ 79,511.47	\$ 33,478.52
2016	\$ 118,639.49	\$ 83,487.05	\$ 35,152.44
2017	\$ 124,571.46	\$ 87,661.40	\$ 36,910.06
2018	\$ 130,800.04	\$ 92,044.47	\$ 38,755.57
2019	\$ 137,340.04	\$ 96,646.69	\$ 40,693.34
2020	\$ 144,207.04	\$ 101,479.03	\$ 42,728.01
2021	\$ 151,417.39	\$ 106,552.98	\$ 44,864.41
2022	\$ 158,988.26	\$ 111,880.63	\$ 47,107.63
2023	\$ 166,937.67	\$ 117,474.66	\$ 49,463.01
2024	\$ 175,284.56	\$ 123,348.39	\$ 51,936.16
2025	\$ 184,048.78	\$ 129,515.81	\$ 54,532.97
2026	\$ 193,251.22	\$ 135,991.60	\$ 57,259.62
2027	\$ 202,913.78	\$ 142,791.18	\$ 60,122.60
2028	\$ 213,059.47	\$ 149,930.74	\$ 63,128.73
2029	\$ 223,712.45	\$ 157,427.28	\$ 66,285.17
2030	\$ 234,898.07	\$ 165,298.64	\$ 69,599.43
2031	\$ 246,642.97	\$ 173,563.57	\$ 73,079.40
2032	\$ 258,975.12	\$ 182,241.75	\$ 76,733.37
2033	\$ 271,923.88	\$ 191,353.84	\$ 80,570.04
2034	\$ 285,520.07	\$ 200,921.53	\$ 84,598.54
2035	\$ 299,796.08	\$ 210,967.61	\$ 88,828.47
2036	\$ 314,785.88	\$ 221,515.99	\$ 93,269.89
2037	\$ 330,525.17	\$ 232,591.79	\$ 97,933.38
2038	\$ 347,051.43	\$ 244,221.38	\$ 102,830.05
2039	\$ 364,404.00	\$ 256,432.45	\$ 107,971.56
2040	\$ 382,624.20	\$ 269,254.07	\$ 113,370.13
2041	\$ 401,755.41	\$ 282,716.77	\$ 119,038.64
2042	\$ 421,843.19	\$ 296,852.61	\$ 124,990.57
Cumulative	\$ 6,906,606.90	\$ 4,860,204.85	\$ 2,046,402.04

	Dollars per sq foot		
	Oil	Natural Gas	Annual Difference
2012	\$ 0.81	\$ 0.57	\$ 0.24
2013	\$ 0.85	\$ 0.60	\$ 0.25
2014	\$ 0.89	\$ 0.63	\$ 0.26
2015	\$ 0.94	\$ 0.66	\$ 0.28
2016	\$ 0.98	\$ 0.69	\$ 0.29
2017	\$ 1.03	\$ 0.73	\$ 0.31
2018	\$ 1.09	\$ 0.76	\$ 0.32
2019	\$ 1.14	\$ 0.80	\$ 0.34
2020	\$ 1.20	\$ 0.84	\$ 0.35
2021	\$ 1.26	\$ 0.88	\$ 0.37
2022	\$ 1.32	\$ 0.93	\$ 0.39
2023	\$ 1.39	\$ 0.97	\$ 0.41
2024	\$ 1.45	\$ 1.02	\$ 0.43
2025	\$ 1.53	\$ 1.07	\$ 0.45
2026	\$ 1.60	\$ 1.13	\$ 0.48
2027	\$ 1.68	\$ 1.18	\$ 0.50
2028	\$ 1.77	\$ 1.24	\$ 0.52
2029	\$ 1.86	\$ 1.31	\$ 0.55
2030	\$ 1.95	\$ 1.37	\$ 0.58
2031	\$ 2.05	\$ 1.44	\$ 0.61
2032	\$ 2.15	\$ 1.51	\$ 0.64
2033	\$ 2.26	\$ 1.59	\$ 0.67
2034	\$ 2.37	\$ 1.67	\$ 0.70
2035	\$ 2.49	\$ 1.75	\$ 0.74
2036	\$ 2.61	\$ 1.84	\$ 0.77
2037	\$ 2.74	\$ 1.93	\$ 0.81
2038	\$ 2.88	\$ 2.03	\$ 0.85
2039	\$ 3.02	\$ 2.13	\$ 0.90
2040	\$ 3.18	\$ 2.23	\$ 0.94
2041	\$ 3.33	\$ 2.35	\$ 0.99
2042	\$ 3.50	\$ 2.46	\$ 1.04

Annual Fuel Cost Comparison - Oil vs Nat. Gas - 30 Year New Construction

