

**Proposed New Harriton High School**

Lower Merion School District

***Analysis of Impact of Two Year Delay***

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Narberth Borough Council

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**Background**

For several years, the Lower Merion School District (“LMSD”) has been formulating plans to replace the current Harriton High School (176,825 square feet and 889 students) with a New Harriton High School (328,000 square feet for 1,250 students). Harriton construction was scheduled to commence in the Spring of 2007, with move-in scheduled for August of 2009. The LMSD also plans to build a replacement for Lower Merion High School (to accommodate 1,250 students) a year later.

On August 28, 2006, the Board of School Directors of LMSD (“Board”) approved a resolution calling for a not-to-exceed price for New Harriton of \$98,250,000. At that time, bid opening was expected to occur in February of 2007. The February bids came in approximately \$9.8 million over budget, and were rejected. On May 14, 2007, the Board announced that the second round of contractor bids for New Harriton had also come in over budget, and that the Board is considering raising the not-to-exceed price to \$102,933,318, an increase of \$4,683,318 or 4.7 percent.

**The Cost of Delay Argument**

Certain members of the public and the Board are basing their argument for raising the not-to-exceed limit on the position that further delay would cost the District’s taxpayers even more money. Another group advocates for delaying the construction of New Harriton to allow for either or both of: (1) a public referendum on the proposed project; or, (2) a re-design of a smaller and less expensive New Harriton.

At a meeting on May 14, 2007, it was stated that New Harriton should not be delayed because any savings that could be achieved by building a smaller school would be more than offset by construction cost increases, additional design fees and maintenance costs for the existing Harriton.

**The Argument Flaws**

The Cost of Delay argument is interesting, but flawed in the following ways:

1. **Construction Cost Inflation Overstated:** The argument relies on overstated fears of future inflation in construction costs. While it is true that construction costs did increase at a rate in excess of general inflation from 2004 through 2006, this trend has subsided and in fact reversed. Past inflation is irrelevant. The only figure that matters is the predicted cost of construction over the next few years. **McGraw Hill’s Engineering News Record (“ENR”), the authoritative construction industry source for cost data and indices, predicts that its Construction Cost Index will increase by only 2.7% in 2007.**
2. **Time Value of Money Ignored:** A basic principle of financial analysis is the “time value of money”. Simply stated, a dollar today is worth more than a dollar tomorrow. The principle accounts not only for inflation, but also for the opportunity cost of spending something immediately rather than in the future. In order to equalize these costs, spending alternatives are “discounted” based on the type of financing for a project (debt vs. equity) and how else the money for the project could be spent. In this case, we determined the Weighted Average Cost of Capital (“WACC”) assuming the project would be financed using 80% debt at the District’s borrowing cost of 4.5% per annum for general obligation bonds. The remaining 20% would come from equity, namely the

\$20.1 million that has been collected by the District as a “down payment” for the project. The “equity” that is not spent on construction immediately would otherwise be retained by the taxpayers until needed. Presumably this money would be used by taxpayers for other needs or invested. Therefore, the appropriate equity “discount rate” is the lost return on these funds since they can not be invested. Accordingly, this analysis uses 9.8 % as the cost of equity, based on the Ten Year Average Annual Return of the Vanguard Wellington Fund, a balanced portfolio of stocks and bonds. The WACC is therefore 5.56% per annum (80% times 4.5% plus 20% times 9.8%) **By discounting project costs to account for when the money will be spent, the true cost of the New Harriton project to the community can be determined and alternatives can be analyzed.**

3. Costs for Deferred Maintenance and Re-Design Overstated: The Cost of Delay argument relies heavily on the notion that the savings from building a smaller school would be more than offset by increased maintenance of the existing Harriton and professional fees incurred to design a more efficient project. While it is unfortunate that the condition of Harriton has been allowed to deteriorate in anticipation of a new school, this trend can be reversed with money, so that the students will continue to have a safe and comfortable environment. **The costs of deferred maintenance and re-design pale in comparison to the savings that are achieved by building a more efficient school.**

### The Analysis

Based on the information presented above, this analysis compares the cost to the community over the next five (5) years of the following three (3) scenarios:

- **Scenario 1 – Build Proposed New Harriton Now**

Under this scenario, the Board would increase its not-to-exceed price to \$102,933,318 and begin the construction in the Summer of 2007 as planned. This analysis ignores the possibility that Scenario 1 may have to be halted for a voter referendum under Act 34. This referendum would be required if project costs increase by an additional \$1.9 million at any time before the project is completed. The LMSD has estimated that the delay would be at least 60 days, and could cost between \$2.0 and \$5.0 million.

- **Scenario 2 – Build Proposed New Harriton Two (2) Years Later**

Under this scenario, the project would be delayed by two (2) years, presumably to allow the new Board and Administration to become familiar with the project and ensure that there are not unanticipated problems caused by the current turnover at the District. In addition, a public referendum could be held to garner community support for the project, as was recently done by the Upper Dublin School District. At the end of the two years, Scenario 2 assumes that New Harriton is constructed exactly as proposed today. This scenario allows for \$2.0 million per year in extra funds to perform deferred maintenance at the current Harriton.

- **Scenario 3 – Build Smaller New Harriton Two (2) years Later**

Under this scenario, the project would also be delayed by two (2) years. In addition to the benefits of Scenario 2 (referendum and transition of personnel), this scenario assumes that the District could re-design New Harriton to be 270,873 square feet, instead of the proposed 328,000. The new figure was determined by multiplying the number of students (1,250) by the national median square footage (216.7 SF) of the Top 10% of largest high schools under

construction in the country during 2006, as documented by the 11<sup>th</sup> Annual Construction Report of School Planning & Management. As with Scenario 2, this Scenario 3 allows for \$2.0 million per year in extra funds to perform deferred maintenance at the current Harriton. In addition, Scenario 3 allows for \$3.0 million of additional soft costs to redesign New Harriton.

### **The Conclusion**

Based on the analysis, the taxpayers of LMSD could derive enormous benefits by delaying the construction of New Harriton High School for two (2) years. **Under Scenario 2, the District could save \$1,253,065 vs. proceeding immediately. Under Scenario 3, the District could save \$11,724,052 vs. proceeding immediately.**

While the savings are significant, there are other benefits that would be derived by delaying the project, as follows:

- The District could build consensus for whatever alternative is chosen by allowing for a public referendum. This would mend the divide that this project has created, and allow LMSD to move forward with a New Harriton that is fully supported by the entire community.
- The community could be spared the financial and educational damage that would occur if the project were to stall. Commencing a \$102 million project with only a \$1.9 million contingency seems like a very risky proposition. The Board clearly acknowledges that a mere \$1.9 million overrun would halt the project for a referendum. Re-starting a project after a delay would be expensive and disruptive.
- The District could solicit additional bids for New Harriton. Only one contractor, Boro Construction, has submitted a bid for the general contractor portion of the project, representing \$55.3 million, or 68.8% of the total cost of all bids. Having only one bidder eliminates any leverage the District would otherwise have to achieve optimal pricing. Furthermore, additional bidders may have chosen to bid had they known the District would raise its not-to-exceed price. Finally, the District could identify other bidders who have more experience completing projects that are similar in size and complexity to the proposed New Harriton.

In light of the significant financial and other benefits, LMSD would be well served to delay the construction of the New Harriton High School. Instead of emphasizing the cost of delay, the District should focus on the costs (qualitative and quantitative) of raising a not-to-exceed price and proceeding with a project that contains so many red flags and has garnered such opposition from the community.

**EXHIBIT A**

Financial Analysis of Cost of Two Year Delay  
New Harriton High School

# New Harriton High School

Lower Merion School District  
Analysis of Effect of Delay

## General Assumptions:

Discount Rate/Cost of Capital (1)	5.56% Weighted Average Cost of Capital (80% debt and 20% equity)
Inflation Rate for Construction Costs (2)	2.70% McGraw Hill Construction Cost Index
Student Enrollment (3)	1,250 LMSD Enrollment Estimate
SF per Student (4)	262.4 Proposed Harriton based on 328,000 SF
SF per Student (5)	216.7 National Median - Top Largest 10 Percent, 2006

### Scenario 1

#### Build Proposed Harriton Now

Proposed Project Size 328,000 Square Feet (SF)

	Total Cost	Cost per SF
Construction Costs (Related to Building Size)	\$ 87,933,318	\$ 268.09
Soft Costs (Independent of Building Size)	\$ 15,000,000	\$ 45.73
<b>Total Project Costs</b>	<b>\$ 102,933,318</b>	<b>\$ 313.82</b>

		FY 06/30/08	FY 06/30/09	FY 06/30/10	FY 06/30/11	FY 06/30/12	Total
Total Project Costs over 3 years	3	\$ 34,311,106	\$ 34,311,106	\$ 34,311,106	\$ -	\$ -	\$ 102,933,318
Deferred Maintenance at Current Harriton		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Total Project Costs</b>		<b>\$ 34,311,106</b>	<b>\$ 34,311,106</b>	<b>\$ 34,311,106</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 102,933,318</b>
Total Project Costs (see Note 6)		\$ 102,933,318					
Net Present Value (NPV) of Total Project Costs Utilizing Discount Rate/Cost of Capital=	5.6%	\$ 92,465,762					

### Scenario 2

#### Build Proposed Harriton 2 Years Later

Proposed Project Size 328,000 Square Feet (SF)

	2007		2009	
	Total Cost	Cost per SF	Total Cost	Cost per SF
Construction Costs (Related to Building Size)	\$ 87,933,318	\$ 268.09	\$ 92,745,821	\$ 282.76
Soft Costs (Independent of Building Size)	\$ 15,000,000	\$ 45.73	\$ 15,820,935	\$ 48.23
<b>Total Project Costs</b>	<b>\$ 102,933,318</b>	<b>\$ 313.82</b>	<b>\$ 108,566,756</b>	<b>\$ 331.00</b>

Inflation Rate: 2.7%

		FY 06/30/08	FY 06/30/09	FY 06/30/10	FY 06/30/11	FY 06/30/12	Total
Total Project Costs over 3 years	3	\$ -	\$ -	\$ 36,188,919	\$ 36,188,919	\$ 36,188,919	\$ 108,566,756
Deferred Maintenance at Current Harriton		\$ 2,000,000	\$ 2,000,000	\$ -	\$ -	\$ -	\$ 4,000,000
<b>Total Project Costs</b>		<b>\$ 2,000,000</b>	<b>\$ 2,000,000</b>	<b>\$ 36,188,919</b>	<b>\$ 36,188,919</b>	<b>\$ 36,188,919</b>	<b>\$ 112,566,756</b>
Total Project Costs		\$ 112,566,756					
Net Present Value (NPV) of Total Project Costs Utilizing Discount Rate/Cost of Capital=	5.6%	\$ 91,212,697					
<b>Savings/(Add'l Cost) vs. Scenario 1</b>		<b>\$ 1,253,065</b>					

### Scenario 3

#### Build Smaller Harriton 2 Years Later

Proposed Project Size Based on Largest 10% 270,875 Square Feet (SF)

	2007		2009	
	Total Cost	Cost per SF	Total Cost	Cost per SF
Construction Costs (Related to Building Size)	\$ 72,618,712	\$ 268.09	\$ 76,593,061	\$ 282.76
Soft Costs (Independent of Building Size)	\$ 15,000,000	\$ 55.38	\$ 15,820,935	\$ 58.41
Additional Soft Costs to Redesign Project	\$ 3,000,000	\$ 11.08	\$ 3,164,187	\$ 11.68
<b>Total Project Costs</b>	<b>\$ 90,618,712</b>	<b>\$ 334.54</b>	<b>\$ 95,578,183</b>	<b>\$ 352.85</b>

Inflation Rate: 2.7%

		FY 06/30/08	FY 06/30/09	FY 06/30/10	FY 06/30/11	FY 06/30/12	Total
Total Project Costs over 3 years	3	\$ -	\$ -	\$ 31,859,394	\$ 31,859,394	\$ 31,859,394	\$ 95,578,183
Deferred Maintenance at Current Harriton		\$ 2,000,000	\$ 2,000,000	\$ -	\$ -	\$ -	\$ 4,000,000
<b>Total Project Costs</b>		<b>\$ 2,000,000</b>	<b>\$ 2,000,000</b>	<b>\$ 31,859,394</b>	<b>\$ 31,859,394</b>	<b>\$ 31,859,394</b>	<b>\$ 99,578,183</b>
Total Project Costs		\$ 99,578,183					
Net Present Value (NPV) of Total Project Costs Utilizing Discount Rate/Cost of Capital=	5.6%	\$ 80,741,710					
<b>Savings/(Add'l Cost) vs. Scenario 1</b>		<b>\$ 11,724,052</b>					

## Conclusions:

The argument that further delay will cost the community more is flawed.	
Accounting for the time value of money, building the PROPOSED PROJECT in 2 years will result in savings c	\$ 1,253,065
Delaying the project and re-designing it based on the Size of the Largest 10% of new schools in the country saves:	\$ 11,724,052

## Notes and Sources:

- (1) Discount rate is Weighted Average Cost of Capital (WACC) assuming project financed by 80% debt at 4.5% per annum and 20% equity at 9.8%, the Ten Year Average Annual Return of the Vanguard Wellington Fund Investor Shares as of April 30, 2007.
- (2) McGraw-Hill Construction, Engineering News Record (ENR) Fourth Quarter 2006 Construction Cost Index ("CCI").
- (3) From www.lmsd.org and other Lower Merion School District publications.
- (4) Proposed New Harriton project size (SF) divided by enrollment. From www.lmsd.org and other Lower Merion School District publications.
- (5) National median size (SF) per student of Largest 10% of public high schools under construction. From 11th Annual Construction Report (2006) School Planning & Management.
- (6) Scenario 1 - Build Proposed Harriton Now excludes \$2.0 to \$5.0 million of Additional Costs if Act 34 Referendum is required during the construction phase of the project.

**APPENDIX 1**

McGraw Hill Construction  
Engineering News Record (ENR)  
Fourth Quarter 2006  
Construction Cost Index



## finance & labor

### 4Q COST REPORT - FORECAST

# Inflation Shifts Gears in 2007

12/18/2006

By Tim Grogan

Construction's inflationary cycle turned the corner during 2006 and will continue heading downhill through 2007 and 2008, according to industry forecasts. ENR predicts that annual inflation measured by its cost indexes will decline as prices for most construction materials start to subside, after absorbing wave after wave of double-digit increases since 2004. But as the inflationary cycle moves into a new phase, it is shifting gears. Estimators say inflation is still sneaking into their bids as the large volume of work in the nonresidential building and civil works markets reduces competition and aggravates labor shortages.



Weaker material prices in 2007 will have the biggest impact on ENR's Building Cost Index, which is forecasted to increase just 0.7% next year. Inflation measured by this index already had been easing, slipping to 2.6% this year after increasing 5.0% in 2005 and 9.7% in 2004.

ENR's Construction Cost index, which is more heavily weighted toward labor costs, is predicted to increase 2.7% next year, after increasing 3.2% this year, 4.6% in 2005 and 7.8% in 2004.

The most critical element in forecasting ENR's indexes is labor costs, which account for 79% of the CCI and 63% of the BCI. A year ago, ENR's forecast called for a 4.4% increase in the indexes labor component. The actual increase was 3.6% for the skilled labor component of the BCI and 3.8% for the laborer component of the CCI.

ENR is forecasting that the labor component of its indexes will hold close to the increases already negotiated for next year. Multiyear collective bargaining agreements reported by the Construction Labor Research Council, Washington, D.C., call for another 4.7% increase in 2007. ENR expects the labor component of the BCI to match this increase. The CCI's labor component is forecasted to increase 5.0% next year as ENR's wages for laborers catch up to the 5.0% national average increase reported this year by CLRC.

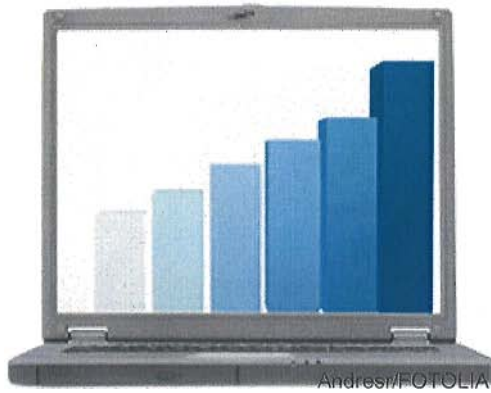
"The driver for inflation is different from what it was two years ago," says Karl Almstead, vice president for the Turner Construction Co., New York City. "The uncertainty that we saw in the materials market is being carried over into labor. The availability of skilled labor is causing productivity issues, which increases the cost of labor beyond that measured in labor settlements," he says.

#### ▶ Related Links:

- [International: Strong Markets Prop Up Costs](#)
- [Compensation: Demand Exceeds Supply](#)
- [The Complete 4Q Cost Report](#)

### Wave Subsiding





This year's double-digit price hikes for copper, steel and asphalt may have been inflation's last hurrah on the materials front. "The commodity cycle [that has been driving inflation] is coming to an end," says Michele Halickman, the construction materials analyst for the Washington, D.C.-based forecasting firm Global Insight Inc.

Some of the pricing turnarounds predicted by Global Insight are dramatic. Prices for light structural steel will fall 11.4% next year after climbing nearly 15% in 2006.

Likewise, wallboard prices will fall 8.9%, following this year's 18.8% increase. Prices for paving asphalt are expected to increase just 9.4%, after jumping 27.7% in 2006, Halickman says.

The slowdown in materials price escalation will have a major drag on ENR's cost indexes in 2007. Weaker steel, cement and lumber prices are expected to pull down the materials component of the indexes by 6.3% by next December.

The biggest reversal will be for steel prices, which account for 22% of the BCI. ENR's forecast calls for the steel component of the indexes to decline 8.7% next year, following increases of 9.6% in 2006, 12.6% in 2005 and 31.3% in 2004.

Steel imports in 2006 were almost as high as they were during the Asian financial crisis of 1998 but most of the import activity has been for sheet, says John Anton, Global Insight's steel analyst. Imports for structural failed to materialize due to strong demand in the world markets for those products, he adds. "That is why structural prices were so darn high this year," says Anton.

Structural prices ended the fourth quarter of this year at \$643 per ton, a 12.1% increase over the fourth quarter of last year. Anton believes that will change in 2007 and predicts imports will finally start to respond to high domestic prices, helping to push the average price for structural steel down 18% by the end of next year.

Lumber is the next-largest materials component of ENR's indexes, accounting for 13% of the BCI. The slowdown in housing starts already has cut into lumber prices this year and those declines are expected to continue through most of 2007, says Paul Jannke, vice president of wood products for the forecasting firm Resource Information Systems Inc., Bedford, Mass.

RISI predicts that by next December, the average price for 2x4 western spruce will decline another 8.3% to \$244 per thousand board ft, following this year's decline of 20.8%. Prices are being squeezed by a combination of falling demand and excess capacity, says Jannke. But he says mills are losing money at current prices and he expects closures will help drive up prices by the end of 2007. Jannke says RISI is tracking the same trends for OSB and plywood prices.

Portland cement is the third materials component of ENR's indexes and cement prices have been increasing at a 12.4% annual rate for the past two years, says Halickman. A surge in imports from China and a new trade deal with Mexico have eliminated the chronic cement shortages of a few years ago. This, coupled with weaker demand from the housing market, will stall further price hikes. Global Insight predicts cement prices will start to fall during the second half of next year, ending 2007 with a 1.2% gain. ENR is forecasting a 3.3% increase in its price.

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**APPENDIX 2**

11<sup>th</sup> Annual Construction Report (2006)  
School Planning & Management