



**Milestone Business Park**  
**Building #4**  
Germantown, Maryland

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Proposal

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## Thesis Proposal

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## Executive Summary

In this proposal, the reader will be able to identify the research topics and analysis studies for Milestone Building #4 in the upcoming semester. The content in this document will identify the problem or opportunity, the goal, research step and expected outcome for each analysis. A weight matrix is included at the end to this document to illustrate the distribution of each topic. A breakdown of all four analysis topics is outlined below.

### *Research Topic - LEED Guide for Trade Contractors*

A LEED guide for trade contractors will be developed to allow an easy implementation process for inexperienced industry members on preselected Materials and Resources points. An information pamphlet and LEED guidelines will be developed for them. Also, a list of experienced suppliers and manufacturers will be available to industry members, so they are able to prepare a proficient project team early on.

### *Sustainable Breadth - Increase LEED Rating*

In this breadth, the implementation of additional LEED points will be added with a goal of making Milestone Building #4 a LEED Gold rated building. Obtainable LEED points will be chosen by being able to add them into the design and construction of the building with the least amount of impact on cost and schedule.

### *Architectural Breadth – Interior Tenant Design*

This analysis will focus on serving a client as an architect by designing a tenant space. The primary goal of this analysis is to create a sustainable design that can easily fit into the current construction schedule. LEED for Commercial Interiors will be used in implementing ideas for a high performance place. A cost estimate will be completed as well.

### *Structural Breadth - Impervious Surface Parking vs. Parking Structure*

Shortcomings of impervious surface parking will be researched and eliminated by the addition of a parking structure. An architectural design and structural analysis will be executed by comparing different structural systems. One main benefit of eliminating the impervious parking lot ties into the sustainable breadth; by increasing the ability to achieve more LEED points. Also, I will research ideas on how the newly free space can be utilized.



## Introduction

Milestone Business Park is located in Germantown, Maryland, approximately 30 miles NNW of the Nation's capital. The Business Park is a 55 acre site that will be constructed in three phases, consisting of five buildings. This proposal will concentrate on phase two, which includes the third building, Building #4, and a 775 space surface parking lot.

Milestone Building #4 is a six story core and shell office building. It is under a design bid build, guaranteed maximum price contract, costing approximately \$19 million. After the construction team was chosen, a LEED change order was developed for ~\$477,000. Upon completion in October 2008, Building #4 will begin interior tenant work.

Milestone Building #4 is a LEED Core and Shell project with a total proposed score of 33 points or Silver rating. The design team utilizes all five LEED categories; Sustainable Sites (8 points), Water Efficiency (5 points), Energy and Atmosphere (3 points), Material and Resources (3 points) and Indoor Environmental Quality (10 points). The project will also receive four (4) points for Innovation in Design which includes a LEED AP, Exemplary performance, Education/Outreach and Green Housekeeping.

The owner, Kennedy Associates, began Milestone Business Park as a speculative office development with a financial return of 10-12%. The LEED design was an initiative of Kennedy Associates and Building #4 is the first in the Business Park. Located outside of the Nation's capital, it is felt many companies are expanding their service radius. This business park hopes to accommodate the expanding companies that would like another office in a region outside of Washington, DC.



## Analysis I – LEED Guide for Trade Contractors

### Research Topic

#### *Problem/Opportunity Statement*

Green Building is a hot topic in today's industry. However, the client of Milestone Building #4 had to take away LEED points early during construction because of cost, availability of materials, trades, and knowledge within the construction industry. Even though this was not a topic of discussion at the PACE Round Table, I decided to talk to a few industry members at the career fair and Round Table about this issue. After speaking with them, I found that many other companies, when implementing LEED design into a project for the first time, have experienced similar problems.

#### *Goal*

Over the next few months, the goal of the research is to provide industry members and trade contractors with adequate LEED information prior to design and bidding. In particular, the following LEED points have been found to cause the most difficulty: MR 2: Construction Waste Management, MR 4: Recycled Content and MR 5: Local/Regional Materials. These are the only points studied in this research analysis. An information pamphlet, LEED guidelines and a list of experienced industry members will be developed. This will not only inform the industry about sustainable buildings but also aid to excel in LEED design and construction.

#### *Research Steps*

1. Educate self of LEED criteria and requirements.
2. Learn LEED classification and rating system.
3. Develop information pamphlet for developers, general contractors and trade contractors.
4. Find developers, architects and contractors that have been successful in implementing LEED design. Conduct an interview to find out about any interests and hesitations, as well as any key success indicators.
5. Develop list of experienced industry members and a list of industry members that are interested in implementing LEED.
6. Ask subcontractors their opinion on sustainability and conserving material ideas.
7. Process data collected from industry members and develop a more detailed goal base on feedback.
8. Develop the guide to be used by trade contractors. Especially those who are new to LEED construction.
9. Test the guide with both experience and inexperienced industry members.
10. Make any changes based on feedback from industry members.



*Expected Outcomes*

The expected results of this research is to provide trade contractors with information about LEED construction and an easy to use guide that will help them get started on a project. Also, a list of experienced design and construction teams will be available to industry members, so they can prepare a proficient project team early on.



## **Analysis II – Increase LEED Rating Sustainable Breadth**

### *Problem/Opportunity Statement*

This technical analysis is designed to increase the LEED rating from Silver to Gold. I will focus primarily on enhancing the categories which currently have the lesser percentage of points and implement specific design features. The research needed includes the design and construction requirements for the additional points. Also, a schedule and cost comparison will be examined.

### *Goal*

The aim for this breadth is to incorporate enough LEED points to achieve Gold rating. Points will be selected by their minute impact on the schedule and cost.

### *Research Steps*

1. Educate self on LEED criteria and requirements.
2. Learn LEED classification and rating system.
3. Evaluate cost and schedule impacts on remaining LEED points.
4. Review potential benefits by increasing the LEED rating.
5. Choose points that will have the least amount schedule and cost impact.
6. Redesign building to include selected LEED points.
7. Reevaluate project cost and schedule.

### *Expected Outcomes*

By the end of this analysis, Milestone Building #4 will be a LEED Gold Core and Shell Building. An increase upfront cost and schedule is expected. However, this may or may not weigh the difference in life cycle cost.



## **Analysis III – Interior Tenant Design Architectural Breadth**

### *Problem/Opportunity Statement*

This technical analysis will design a fit out for the future tenant; WeatherBug®, which has decided to lease the entire building. This is a great opportunity to design a space according to the clients wants and needs. This breadth also has the opportunity to stick with the sustainable aspect by using LEED for Commercial Interiors.

### *Goal*

Since WeatherBug® is leasing the entire building; the goal of this analysis is to design a space that accommodates high performance green aspects. It is hard to achieve a LEED rating when design a space only, however ideas from LEED for Commercial Interiors will be utilized. A cost comparison for this design versus non-energy efficient design will also be estimated. The entire design is intended to incorporate into the construction of the building.

### *Research Steps*

1. Interview a WeatherBug® representative to gain knowledge of what areas they would like to have in the selected space.
2. Review LEED criteria and decide which ideas I feel are obtainable.
3. Design rough layout and flow of space.
4. Receive input from client.
5. Make necessary changes upon feedback.
6. Review architectural design and high performance elements, to ensure documents coincide. This will provide a more finalized list of anticipated LEED points.
7. If needed, create a set of LEED specifications.
8. Incorporate interior design schedule into overall building schedule.
9. Perform a cost estimate.

### *Expected Outcomes*

It is expected to integrate high performance green elements into the tenant design based on LEED for Commercial Interiors.





## **Analysis IV – Impervious Surface Parking vs. Parking Structure Structural Breadth**

### *Problem/Opportunity Statement*

A comparative analysis will be done between the existing and proposed impervious surface parking and a parking structure. This will be focused mainly from a sustainable view. This analysis will include the design and implementation of a parking garage and eliminate the parking lot. At least three sustainable site points can be gained from this proposal. Also, from a structural standpoint, the most efficient and effective system will be investigated and implemented. A cost and schedule analysis will be studied.

### *Goal*

The intention of this analysis is to incorporate a more sustainable site into Milestone Business Park. By taking away the impervious parking lots, three sustainable site points can be obtained. With the open space on site, a few options can be considered. A road with direct access to Father Hurley Road is feasible, instead of driving through the development. By code, there is a predetermined ratio of pervious surfaces. By eliminating the impervious surfaces, this also allows more space to expand the building, if desired.

### *Research Steps*

1. Quantify amount of parking spaces needed.
2. Design parking garage, architecturally and structurally.
3. Locate a site for the structure.
4. Review cost and schedule impacts. The cost to tear up existing parking and implementation of new structure.
5. Brainstorm ideas for new open site.
6. Review cost, schedule and revenue for site ideas.

### *Expected Outcomes*

An increase in cost and schedule for this analysis is anticipated. However, an implementation of a parking structure will allow for a more sustainable site and community. A concern I have is to justify why this proposal is beneficial, even though it will cost more and increase to the schedule.

**Weight Matrix**

During the spring 2008 semester, the above technical analysis and research will be further investigated. Below is a breakdown of my time and effort allocation.

Analysis Description	Research	Value Engineering	Constructability Review	Schedule Reduction	Total
Increase LEED Rating	15%	5%	5%		25%
Interior Tenant Design	15%	5%	5%		25%
Parking Structure		5%	5%	5%	15%
LEED Guidelines	35%				35%
Total	65%	15%	15%	5%	100%