

**LEED[®] GOLD
FEASIBILITY ASSESSMENT**

FOR THE

**CITY OF MINNEAPOLIS
HIAWATHA PUBLIC WORKS FACILITY**

**Located at
1901 E. 26th St.
in
Minneapolis, Minnesota**

Prepared By

**Property Services Division
Department of Public Works
October 2006**

Description: Hiawatha Public Works Facility:

The City of Minneapolis, Department of Public Works, Property Services Division is currently planning a new Public Works Facility located at E. 26th Street and Hiawatha Ave. S., in Minneapolis. This Project will provide for the office, shop, storage and operational needs of the City of Minneapolis, Department of Public Works, Field Services Division including the following construction and maintenance functions: Street Maintenance, Paving Construction, Engineering Lab, Sewer Maintenance, Sewer Construction, and Bridge Maintenance. In addition, the Project will also consider the potential addition of operational space for Hennepin County Public Works, the Water Department, and Traffic Department. Specifically, the project will provide consolidated, functional working space for approximately 300 employees, including approximately 20,000sf of office space, 50,000sf of shop and interior storage space, and 250,000sf of yard space.

LEED[®] Feasibility Assessment:

On July 21, 2006 the City Council and Mayor approved Resolution 2006R-381 that adopted LEED[®] standards for planning, design, construction, and commissioning of municipal facilities financed by the City and that “all new or significantly renovated municipal facilities (financed by the City of Minneapolis and utilized by the City’s Charter Departments) of 5,000 square feet or greater, should be built to a LEED Silver level of quality”. In addition, the resolution stated in part, “that staff be directed to report back.....on the feasibility of Certified LEED[®] Gold level of quality for the Hiawatha Public Works Facility”. Since that time, the Property Services Division has worked with independent consultant Rick Carter (Senior Vice President of LHB) to assess the feasibility and potential costs of LEED[®] Gold Certification for this Project (see attached LEED[®] Checklist and cost matrix).

The proposed building program for the Hiawatha Public Works Facility along with the existing site was analyzed. Based on this analysis the feasibility assessment was completed by performing a scoring exercise using the LEED[®]-NC 2.2 Registered Project Checklist. Using current industry “best practices”, Property Services building standards, and experience from recently completed projects with successful sustainable features, points were awarded for meeting design and construction criteria in each of the LEED[®] “areas of emphasis”.

The LEED[®] scoring exercise resulted in the following (out of 69 total possible points):

- 44 points achievable
- 10 points possible
- 15 points un-achievable

Of the 44 achievable points, 33 points were deemed either required points or “fairly achievable without great effort or expense”. The remaining 11 achievable points were considered difficult to achieve, involved an increase in cost, but were considered efforts potentially worth pursuing for this Project.

Ten (10) other points were identified as “possible”, but were considered to be very difficult to achieve without great effort and considerable expense. The final fifteen (15) points were unachievable due either to incompatibility with the Project or to current State Law or current building codes.

Cost of LEED® Gold Certification

Before a LEED® goal is established for this Project, the cost of LEED® Certification must be evaluated. Upon completion of the scoring exercise, each of the achievable 44 points was re-evaluated for costs considered to be above what would have been included in the original “scope of work”. These additional costs include USGBC registration fees, documentation costs, commissioning costs, and costs related to LEED® points required for certification. In addition, there are first time construction costs related to achieving those extra points needed to attain each subsequent level of LEED® quality. The attached Cost Matrix identifies those estimated costs.

Based on this analysis, the total estimated additional cost for each LEED level of quality is as follows:

- LEED® Silver (33-38 pts.).....\$58,000
- LEED® Certified Silver (33-38 pts.).....\$200,000
- LEED® Certified Gold (39-41 pts.)\$247,000
- LEED® Certified Gold (Plus) (44 pts.)\$1,685,000

Per the direction of Resolution 2006R-381, the current Project scope provides for a facility designed and constructed to a Silver level of quality at an additional cost of \$58,000. The additional costs required to achieve each subsequent LEED® Certified level are related to fees, documentation, commissioning and first time construction costs, using a strategy of point selection based on complexity and expense (low to high). The cost matrix indicates that the minimum number of points required for LEED® Gold Certification (39-41 pts.) can be achieved for a relatively small increase in cost from the LEED® Silver Certified level. A fourth category was included, LEED® Gold (Plus), that highlights three additional points that can be achieved at significant extra cost, but are in areas of great environmental impact with a high degree of public visibility (stormwater control, heat island effect, and renewable energy).

Conclusion:

Based on the assessment, LEED® GOLD Certification for the Hiawatha Public Works Facility is attainable, and given that the range for LEED® Gold Certification is 39 to 51 points, 44 achievable points is a feasible goal for this Project.

Per Resolution 2006R-381 the Hiawatha Public Works Facility shall be designed and constructed to a Silver level of quality, the costs of which can be supported by the current Project budget. However, the capital budget for the Hiawatha Public Works Facility was established prior to the inclusion of LEED® building standards. Without additional funding, or without making a significant change to the Project “scope of work”, LEED® GOLD Certification cannot be achieved under the existing budget.

ATTACHMENT:

(LEED Checklist)



LEED-NC Version 2.2 Registered Project Checklist
City of Minneapolis - Hiawatha Public Works Building
LHB Project No: 060300.10



Yes ? No (Assume: 200 vehicles; 300 users; 200 FTE)

12 2 Sustainable Sites 14 Points

Table with 3 columns (Y, Yes, No) and 14 rows of credits. Credits include: Prereq 1 Construction Activity Pollution Prevention (Required), Credit 1 Site Selection, Credit 2 Development Density & Community Connectivity, Credit 3 Brownfield Redevelopment, Credit 4.1-4.4 Alternative Transportation, Credit 5.1-5.2 Site Development, Credit 6.1-6.2 Stormwater Design, Credit 7.1-7.2 Heat Island Effect, Credit 8 Light Pollution Reduction.

Yes ? No *SSc6.1 could be \$0 with sandy soils; \$150k cover collection for use in Truckwash, etc.

4 1 Water Efficiency 5 Points

Table with 3 columns (Y, Yes, No) and 6 rows of credits. Credits include: Credit 1.1 Water Efficient Landscaping (Reduce by 50%), Credit 1.2 Water Efficient Landscaping (No Potable Use or No Irrigation), Credit 2 Innovative Wastewater Technologies, Credit 3.1 Water Use Reduction (20% Reduction), Credit 3.2 Water Use Reduction (30% Reduction).

Yes ? No **WEc2 - could be \$0 if SSc6.1 is implemented (with clay soils)

8 2 7 Energy & Atmosphere 17 Points

Table with 3 columns (Y, Yes, No) and 7 rows of credits. Credits include: Prereq 1 Fundamental Commissioning of the Building Energy Systems (Required), Prereq 2 Minimum Energy Performance (Required), Prereq 3 Fundamental Refrigerant Management (Required), Credit 1 Optimize Energy Performance, Credit 2 On-Site Renewable Energy, Credit 3 Enhanced Commissioning, Credit 4 Enhanced Refrigerant Management, Credit 5 Measurement & Verification, Credit 6 Green Power.

continued...

Yes ? No

6 1 6 Materials & Resources 13 Points

Y		
		1
		1
		1
1		
1		
		1
		1
1		
1		
1		
	1	
		1
1		

- Prereq 1 **Storage & Collection of Recyclables** Required
- Credit 1.1 **Building Reuse**, Maintain 75% of Existing Walls, Floors & Roof
- Credit 1.2 **Building Reuse**, Maintain 100% of Existing Walls, Floors & Roof
- Credit 1.3 **Building Reuse**, Maintain 50% of Interior Non-Structural Elements
- Credit 2.1 **Construction Waste Management**, Divert 50% from Disposal
- Credit 2.2 **Construction Waste Management**, Divert 75% from Disposal
- Credit 3.1 **Materials Reuse**, 5%
- Credit 3.2 **Materials Reuse**, 10%
- Credit 4.1 **Recycled Content**, 10% (post-consumer + ½ pre-consumer)
- Credit 4.2 **Recycled Content**, 20% (post-consumer + ½ pre-consumer)
- Credit 5.1 **Regional Materials**, 10% Extracted, Processed & Manufactured Regionally
- Credit 5.2 **Regional Materials**, 20% Extracted, Processed & Manufactured Regionally
- Credit 6 **Rapidly Renewable Materials**
- Credit 7 **Certified Wood**

Yes ? No

11 4 Indoor Environmental Quality 15 Points

Y		
Y		
1		
	1	
1		
1		
1		
1		
1		
1		
	1	
1		
1		
1		
1		
	1	
	1	

- Prereq 1 **Minimum IAQ Performance** Required
- Prereq 2 **Environmental Tobacco Smoke (ETS) Control** Required
- Credit 1 **Outdoor Air Delivery Monitoring**
- Credit 2 **Increased Ventilation**
- Credit 3.1 **Construction IAQ Management Plan**, During Construction
- Credit 3.2 **Construction IAQ Management Plan**, Before Occupancy
- Credit 4.1 **Low-Emitting Materials**, Adhesives & Sealants
- Credit 4.2 **Low-Emitting Materials**, Paints & Coatings
- Credit 4.3 **Low-Emitting Materials**, Carpet Systems
- Credit 4.4 **Low-Emitting Materials**, Composite Wood & Agrifiber Products
- Credit 5 **Indoor Chemical & Pollutant Source Control**
- Credit 6.1 **Controllability of Systems**, Lighting
- Credit 6.2 **Controllability of Systems**, Thermal Comfort
- Credit 7.1 **Thermal Comfort**, Design
- Credit 7.2 **Thermal Comfort**, Verification
- Credit 8.1 **Daylight & Views**, Daylight 75% of Spaces
- Credit 8.2 **Daylight & Views**, Views for 90% of Spaces

Yes ? No

3 2 Innovation & Design Process 5 Points

1		
1		
	1	
	1	
1		

- Credit 1.1 **Innovation in Design**: Provide Specific Title
- Credit 1.2 **Innovation in Design**: Provide Specific Title
- Credit 1.3 **Innovation in Design**: Provide Specific Title
- Credit 1.4 **Innovation in Design**: Provide Specific Title
- Credit 2 **LEED® Accredited Professional**

Yes ? No

44 10 15 Project Totals (pre-certification estimates) 69 Points

Certified 26-32 points Silver 33-38 points Gold 39-51 points Platinum 52-69 points

ATTACHMENT:

(COST MATRIX)

LEED GOLD FEASIBILITY ASSESSMENT - COST MATRIX

HIAWATHA PUBLIC WORKS FACILITY

	CURRENT PROJECT SCOPE (SILVER)	CERTIFIED SILVER (33-38 pts.)	CERTIFIED GOLD (39-41 PTS.)	CERTIFIED GOLD PLUS (44 pts.)
PROCESS:				
Registration	\$ -	\$ 500.00	\$ 500.00	\$ 500.00
Energy Modeling*	\$ -	\$ -	\$ -	\$ -
Commissioning**	\$ -	\$ 100,000.00	\$ 100,000.00	\$ 100,000.00
Documentation***	\$ -	\$ 38,000.00	\$ 41,000.00	\$ 44,000.00
Certification (3.5¢/GF x 70,000)	\$ -	\$ 2,450.00	\$ 2,450.00	\$ 2,450.00
SUBTOTAL =	\$ -	\$ 142,000.00	\$ 144,000.00	\$ 147,000.00
CONSTRUCTION:				
SS 6.1 Stormwater Design: Quantity Control ****	\$ -	\$ -	\$ -	\$ 150,000.00
SS 7.1 Heat Island Effect, Non-Roof	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00
SS 7.2 Heat Island Effect, Roof (Green Roof) *****	\$ -	\$ -	\$ -	\$ 1,050,000.00
EA 2 On-site Renewable Energy (PV Solar - Innovative Power Systems)	\$ -	\$ -	\$ -	\$ 235,000.00
EA 3 Enhanced Commissioning (see process)	\$ -	\$ -	\$ -	\$ -
EA 5 Measurement & Verification	\$ 15,000.00	\$ 15,000.00	\$ 15,000.00	\$ 15,000.00
EA 6 Green Power (\$5,000 x two years)	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00
M&R 2.2 Construction Waste Management, Divert 75% from Disposal	\$ 5,000.00	\$ 5,000.00	\$ 5,000.00	\$ 5,000.00
M&R .7 Certified Wood	\$ -	\$ -	\$ 15,000.00	\$ 15,000.00
IEQ 1 Outdoor Air Delivery Monitoring	\$ -	\$ -	\$ 30,000.00	\$ 30,000.00
IEQ 3.2 Construction IAQ Management Plan, Before Occupancy	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00
IEQ 6.2 Controllability of Systems, Thermal Comfort	\$ 8,000.00	\$ 8,000.00	\$ 8,000.00	\$ 8,000.00
SUBTOTAL =	\$ 58,000.00	\$ 58,000.00	\$ 103,000.00	\$ 1,538,000.00
TOTAL ADDITIONAL COST =	\$ 58,000.00	\$ 200,000.00	\$ 247,000.00	\$ 1,685,000.00

* Assumes participation in Xcel's Energy Design Assistance Program

** Based on achieving EA Prerequisite 1 and EA Credit 3

*** Assumes pursuing LEED points @ \$1,000 per point

**** Depending on soil conditions, could be significantly lower

***** LEED Point SS 7.2 can be achieved with a White Roof at \$75,000

**ATTACHMENT:
(LEED- GENERAL INFORMATION)**

LEED: Leadership in Energy and Environmental Design

The LEED (Leadership in Energy and Environmental Design) Green Building Rating System[®] is a voluntary, consensus-based national standard for developing high-performance, sustainable buildings. Developed by the U.S. Green Building Council (USGBC), the core purpose is to transform the way buildings and communities are designed, built and operated, enabling an environmentally and socially responsible, healthy, and prosperous environment that improves the quality of life.

LEED[®] was created to:

- define "green building" by establishing a common standard of measurement
- promote integrated, whole-building design practices
- recognize environmental leadership in the building industry
- stimulate green competition
- raise consumer awareness of green building benefits
- transform the building market

LEED[®] provides a complete framework for assessing building performance and meeting sustainability goals. Based on well-founded scientific standards, LEED[®] emphasizes state of the art strategies for sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality. LEED[®] recognizes achievements and promotes expertise in green building through a comprehensive system offering project certification, professional accreditation, training and practical resources.

LEED[®] standards include:

- LEED-NC: New commercial construction and major renovation projects
- LEED-EB: Existing building operations
- LEED-CI: Commercial interiors projects
- LEED-CS: Core and shell projects
- LEED-H: Homes
- LEED-ND: Neighborhood development
- LEED Application Guides: Retail (currently in pilot), Multiple Buildings/Campuses, Schools, Healthcare, Laboratories, Lodging

What is LEED-NC?

LEED[®] for New Construction and Major Renovations (LEED-NC) is a green building rating system that was designed to guide and distinguish high-performance commercial and institutional projects, with a focus on office buildings. Practitioners have also applied the system to K-12 schools, multi-unit residential buildings, manufacturing plants, laboratories and many other building types.

The LEED® Rating System:

The LEED® Green Building Rating System is a “points based rating system” that awards points for meeting design and construction criteria defined by the USGBC. A total of 69 points are available in the following areas:

1. Sustainable Sites (14pts.)
2. Water Efficiency (5pts.)
3. Energy and Atmosphere (17pts.)
4. Materials and Resources (13pts.)
5. Indoor Environmental Quality (15pts.)
6. Innovation and Design Process (5pts.)

The points are generally awarded for meeting criteria “above and beyond” a typical building code design requirement. Typically, points are either:

1. Required (example: Erosion and Sediment Control)
2. Fairly achievable without great effort or expense
3. Difficult or expensive to achieve (example: 20% Renewable Energy produced on-site)
4. Incompatible with Project (example: 100% Building Re-use)
5. Unachievable due to current State law (example: 20% locally manufactured products).

Levels of Achievement:

A minimum level of 26 points must be achieved in order to have fulfilled the intent of the USGBC for a “green” building. To earn LEED® Certification, a building project must meet certain prerequisites and performance benchmarks within each category. Projects are awarded Certified, Silver, Gold, or Platinum certification depending on the number of points they achieve, as follows:

- LEED Certification:26 – 32 points
- LEED Silver Certification:33 – 38 points
- LEED Gold Certification:39 – 51 points
- LEED Platinum Certification:.....52 – 69 points

The applicant project is required to provide verification of each point achieved through a USGBC prescribed documentation process.