



# HIGH PERFORMANCE GREEN BUILDING DESIGN CHARRETTE REPORT



**Amityville Village Hall  
Amityville, NY**

10 January 2006



**Table of Contents**

Project Summary .....2

Summary of the Charrette Process & Agenda .....3

Charrette Participants .....6

Core Values Exercise .....8

LEED® Review .....9

Site Issues and Building Design .....10

Breakout Sessions .....11

Results and Next Steps .....13

Appendix .....15

    LEED® Scorecards

## Project Summary

### Amityville Village Hall

The Village of Amityville has undertaken the design of a new Village Hall in order to expand and consolidate their village services functions into a single facility on the existing police station site. The Village hired Sandpebble Builders to deliver this project as the Owner's Representative and constructor, and Ward Associates to serve as the project's Architect.



7group was subsequently contacted to discuss the potential for creating a high performance LEED® certified project and the best methodology for beginning the green building process. 7group recommended two "charrettes" with the project team in order to provide green building and LEED education, to set project goals in terms of LEED, and to collectively produce conceptual design solutions related to green design principles. 7group was hired to provide LEED consulting services, beginning with facilitation of these charrettes.

The first of these charrettes was held on 12 December 2005 to establish the project's LEED goals. An educational session about LEED and integrated design was lead by 7group, followed by a "Core Values" exercise that identified and prioritized the Owner's team's goals and aspirations for the project. The team then engaged a comprehensive review of the project as it relates to each credit of the USGBC's LEED Green Building Rating System. This charrette concluded that LEED Silver Certification (and perhaps Gold) was possible within the project's construction budget.



The second charrette was held on 10 January 2006, when members of the Owner's team and design team gathered at the existing Village Hall to discuss and evaluate conceptual design solutions and green design strategies for the project.

This report documents the key findings and highlights from both of these charrettes.

## Summary of the Charrette Process & Agenda

Amityville Village Hall

12 December 2005 & 10 January 2006

A successful high performance building is a solution that is greater than the sum of its parts. It is a system of integrated processes and products that increases the efficiency of the building systems and helps to reduce overall costs. A building that conserves energy alone does not constitute a high performance building. In the same respect, adding or overlaying environmental systems will not truly help the building benefit from the connections and interdependencies of an integrated, or "whole systems", design approach. This is the fundamental challenge of high performance building design and LEED Certification.

High performance buildings are most effectively developed through a design process that invites the client, building designers and consultants, a consulting general contractor/cost estimator, and other appropriate stakeholders to participate from the very beginning of the project. This is done in a focused and collaborative design effort, or brainstorming session(s), known collectively as a design "charrette" process. The purpose of this composite design team and design process is to encourage the exchange of ideas and information, thereby allowing truly integrated solutions to take form. A forum and methodology is provided where every team member is encouraged to cross fertilize with all others in order to identify solutions to problems that may relate to, but are not typically addressed by any one team member's specialty. The objective is to have every member of this composite design team understand the issues that the other members need to address. Thus more thorough and integrated solutions can result.

The charrette method is very important when the Owner is not one person but consists of a number of interested people. This is a successful way to educate all the participants: architects, engineers, community stakeholders, and the client team. There are many advantages to this approach: The client's staff members are invited to participate throughout the process. Participants are educated about the issues and participate in the team's investigations in order to "buy in" to the solutions. The educational process is accelerated, decisions are verified, adversity is diminished, the nuances of organizational issues are learned, and the design process is expedited. Final resolutions are not necessarily produced in the charrette, but most of the issues are explored with all the involved parties present.

Most buildings have great potential for incorporating the most advanced green building design techniques and systems. Part of the team's job is to find an acceptable balance between the economic, cultural, ecological components of sustainability that will meet the Client's objectives and yet allow for future adaptation of new technologies and interactions with the community.

7group's approach targets common sense applications of thoughtful and integrated solutions. Market transformation in this area will occur only if environmentally responsible buildings can be built at conventional construction cost. The integrated design process is the key to producing high performance green buildings within budget.

## **Charrette Objectives: LEED Goal-Setting Workshop - 12 December 2005**

1. Gain an understanding of the process required to realize high performance LEED goals.
2. Establish preliminary LEED performance goals.
3. Familiarize participants with the importance of this approach.
4. Establish next steps.

### **Charrette Agenda: Monday, 12 December 2005**

9:00am – 5:00pm

#### Welcome

- Introduction of participants
- Overview of the day

#### Integrated Design: The Key to Producing High Performance LEED Buildings within Budget

- What it is
- Examples of its effects
- How to do it
- Changes to the standard design process - LEED Overview

#### Project Overview: AE Design Team

- Opportunities and constraints, infrastructure issues, program concerns
- Overview of current design

#### BREAK

#### High Performance Green Buildings: Credit-by-Credit Review of LEED

- Using the LEED rating system as a framework for discussion, we will review the many items that can compromise a high performance LEED building. Special emphasis will focus on the process and methodologies needed to achieve certain LEED credits. Specific project examples will demonstrate many of the concepts, techniques and technologies.

#### Sustainable Site Credits

#### Water Efficiency Credits

LUNCH: 12:30 – 1:15 pm

#### Energy & Atmosphere Credits

#### Materials & Resources Credits

#### Indoor Environmental Credits

#### Innovation & Design Credits

#### Next Steps

## **Charrette Objectives: LEED Design Charrette – 10 January 2006**

1. Review preliminary LEED performance goals and verify potential achievement.
2. Develop design concepts and strategies.
3. Establish next steps.

### **Charrette Agenda: Tuesday, 10 January 2006**

9:00am – 5:00pm

#### Welcome

- Introduction of participants
- Overview of the day
- Review Core Values

#### Project Overview: AE Design Team

- Review of opportunities and constraints, infrastructure issues, program concerns
- Overview of current design

#### Building and Site Design

- Explore and critique conceptual design solutions:
  - Primary site components (storm water, utilities, circulation, parking, etc.)
  - Functional relationships, orientation, and massing
  - Daylighting design

#### BREAK

#### Breakout Sessions

- Focused small groups to explore performance parameters and specific design solutions:
  1. Site/Water
  2. Energy (EQ 1, 2, 3, 5, 6, 7, 8)
  3. Materials (EQ 3, 4, 5, 6, 8)
- Report results from the small group sessions.

#### Integration of Performance Parameters

- Review and integrate various performance metrics and design ideas from the breakout groups, targeting holistic solutions. Consider budget, environmental efficacy, achievability, core values and project mission.
- Verify specific performance goals for the project.

#### Next Steps

- Application of integrated, whole-system design process
- Schedule & Milestones

## Charrette Participants

Amityville Village Hall LEED Goal-Setting Workshop - 12 December 2005

| Name                 | Title             | Company               | Phone        | E-Mail                              |
|----------------------|-------------------|-----------------------|--------------|-------------------------------------|
| Vinny DeCollibus     | VP                | Ward Associates       | 631-563-4800 | vdec@earthlink.net                  |
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| Anthony Varrichio    | Village Engineer  | Cashin Associates     | 631-348-7600 | avarrichio@ca-pc.com                |
| Ed Johnson           | Trustee           | Village of Amityville | 631-264-6000 | eddiejohnsonjr@hotmail.com          |
| Joseph Slack         | Trustee           | Village of Amityville | 631-691-6816 |                                     |
| Rich Ubert           | Trustee           | Village of Amityville | 631-264-6000 |                                     |
| Carol Langano        | Dep Clerk         | Village of Amityville | 631-264-6000 | dclerk@amityville.com               |
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| Maria Garaffo        | Mayor's Asst      | Village of Amityville | 631-264-6000 | mgaraffo@amityville.com             |
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| Joyce Munkert        | Tax Clerk         | Village of Amityville | 631-264-6000 |                                     |
| Gloria Rowand        | Dept Treas/Regist | Village of Amityville | 631-264-6000 |                                     |
| Bruce S. Hopper      | Foreman/DPW       | Village of Amityville | 631-789-2200 |                                     |
| John Lauria          | Bldg Inspector    | Village of Amityville | 631-691-1909 | jlauria@amityville.com              |
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| Brian Scott          | Sergeant          | Amityville PD         | 631-264-0400 |                                     |
| Woodrow Cromarty     | Chief of Police   | Amityville PD         | 631-264-0400 | chiefwoodycromarty@amityvillepd.com |
| Glenn Slack          | Police Officer    | Amityville PD         | 631-264-0400 |                                     |
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| Janice Monaco        | APM               | Sandpebble Builders   | 631-287-6000 | janicem@sandpebblebuilders.com      |
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| Brian Toevs          | Partner           | 7Group                | 717-774-8963 | toevs@sevengroup.com                |

## Charrette Participants

Amityville Village Hall

LEED Design Charrette - 10 January 2006

| Name              | Title              | Company               | Phone                           | E-Mail                              |
|-------------------|--------------------|-----------------------|---------------------------------|-------------------------------------|
| Pansy Cheng       | Architect          | Ward Associates       | 631-563-4800                    | panycheng@earthlink.net             |
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| Bruce S. Hopper   | Gen Forman DPW     | Village of Amityville | 789-2200                        |                                     |
| Ed Johnson        | Trustee            | Village of Amityville | 631-598-1700                    | eddiejohnsonjr@hotmail.com          |
| Joe Slack         | Trustee            | Village of Amityville | 631-691-6816                    |                                     |
| Rich Ubert        | Trustee            | Village of Amityville | 917-337-9840                    | richard.ubert@otis.com              |
| John J. Lauria    | Building Inspector | Village of Amityville | 631-691-1909                    |                                     |
| Peter Casserly    | Dep. Mayor         | Village of Amityville | 631-831-7063                    | casspm@aol.com                      |
| Marie Garraffo    | Mayor's Secretary  | Village of Amityville | 631-642-2801                    |                                     |
| Diane Sheridan    | Admin/Clerk        | Village of Amityville | 631-264-6000                    | dsheridan@amityville.com            |
| Carol Lagano      | Dep. Clerk         | Village of Amityville | 631-264-6000                    | dclerk@amityville.com               |
| Don Dobby         | LT. PD             | Amityville PD         | 631-264-0407<br>C: 516-351-1265 |                                     |
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| Jerry Gralton     | SGT. PD            | Amityville PD         | 631-264-0400                    |                                     |
| Woodrow Cromarty  | Chief of Police    | Amityville PD         | 631-264-0400                    | chiefwoodycromarty@amityvillepd.com |
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## Core Values Exercise

Amityville Village Hall

LEED Goal-Setting Workshop - 12 December 2005

A brain-storming session was initiated to list the core values of the group. The values listed were identified as the most important design considerations for the project team. Once the list was generated each project team member was allowed to vote for their ten most important values. The results of the exercise are listed in the table below.

| <u>Design Elements/Issues</u>                   | <u># of votes</u> |
|---|-------------------|
| 1. Functionality / Efficiency                   | 37                |
| 2. Security / Safety                            | 27                |
| 3. Thermal Comfort                              | 23                |
| 4. Budget                                       | 23                |
| 5. Accommodating the Public                     | 19                |
| 6. Energy Efficiency                            | 15                |
| 7. Aesthetics                                   | 15                |
| 8. Occupant Health                              | 13                |
| 9. Indoor Air Quality                           | 12                |
| 10. Durability                                  | 11                |
| 11. Daylighting                                 | 9                 |
| 12. Resolve Parking                             | 8                 |
| 13. Ease of Maintenance                         | 7                 |
| 14. Reduced Operating Costs                     | 7                 |
| 15. Communications Systems                      | 7                 |
| 16. Model of Sustainability / Public Education  | 6                 |
| 17. Water Conservation (Efficiency)             | 3                 |
| 18. Resource Efficiency / Sustainable Materials | 3                 |
| 19. Building Performance Verification           | 3                 |
| 20. Information Technology                      | 3                 |
| 21. Controllability of Systems                  | 2                 |
| 22. Flexibility / Expandability                 | 2                 |
| 23. Optimize Shared Space Opportunities         | 2                 |
| 24. Acoustics                                   | 1                 |
| 25. Revenue Generation                          | 1                 |

## LEED Review

Amityville Village Hall

At the LEED Goal-Setting Workshop, the project team conducted a comprehensive review of the project as it relates to each credit of the LEED Green Building Rating System. Each credit was discussed and assigned a preliminary status according to the following criteria:

- Yes . . . . . these credits will be implemented on this project
- Maybe . . . these credits will require further investigation
- No . . . . . these credits are not feasible for this project.

Accordingly, the determination of each credit’s status was recorded on a summary preliminary LEED scorecard for the project, which is included in the Appendix, along with a complete scorecard that indicates comments and assigned tasks.

In addition, each credit was evaluated relative to any cost implications associated with pursuing it and assessed a status as one of the following:

- Low . . . . . \$0 - \$5,000
- Medium . . . \$5,000 to \$20,000
- High . . . . . over \$20,000

The assigned cost implication for each credit was recorded on the LEED scorecard. These values are summarized below, along with a list of the quantity of credits by feasibility and cost implications.

**LEED® Targeted Credits by Cost Implications**

|             | Yes | Maybe | Totals |
|-------------|-----|-------|--------|
| No Cost     | 30  | 5     | 35     |
| Low Cost    | 6   | 3     | 9      |
| Medium Cost | 0   | 10    | 10     |
| High Cost   | 2   | 2     | 4      |
| Totals      | 38  | 20    | 58     |

The results of this LEED review indicated a total of 38 “Yes” points targeted as feasible with 20 additional points listed as “Maybe”. As a result, the project team determined that LEED Gold level certification should be targeted, since this requires achievement of 39 points.

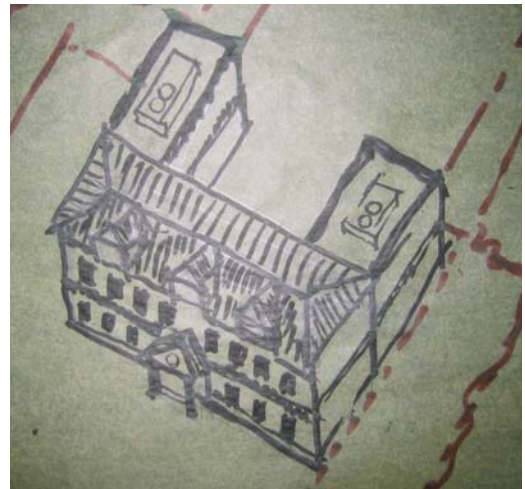
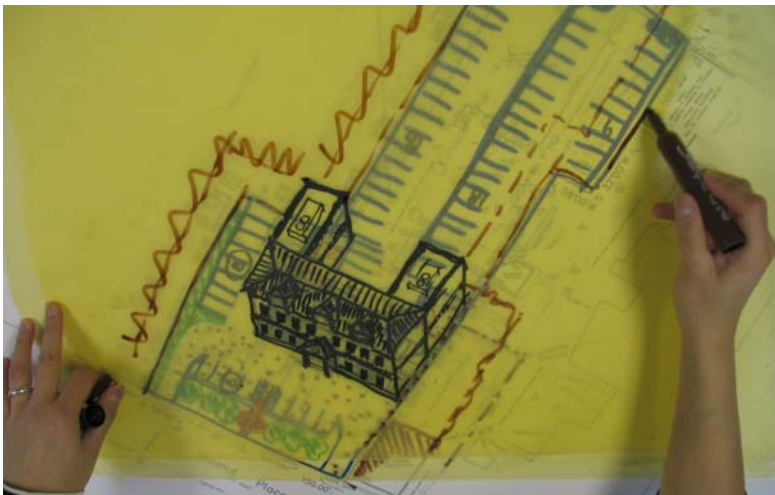


## Breakout Sessions

Amityville Village Hall

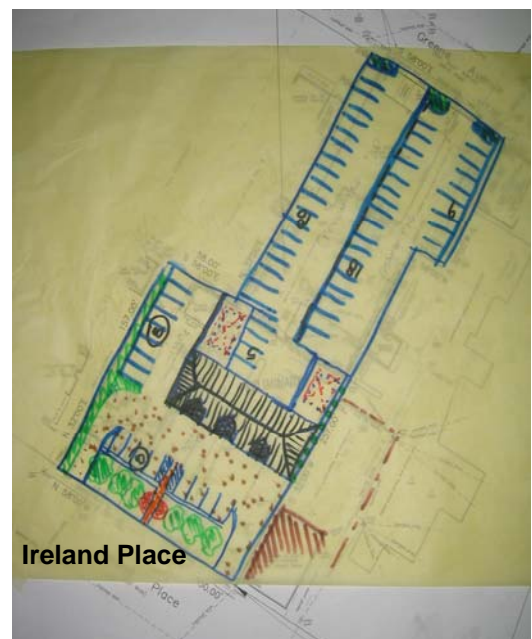
The team broke into two separate breakout sessions to begin investigating design solutions. Both teams found that site constraints were challenging with regard to accommodating the required building footprint and parking. Early design discussions focused on massing, solar orientation, vehicular access, public parking, secure police parking, employee parking, the location of green space, and building height. Regarding orientation, a building oriented with longer facades facing north and south, along with properly shaded windows, will typically use 10% to 30% less energy than a building oriented east-west. In addition, daylighting goals will be significantly easier and less costly to attain.

The first group produced the sketches below.



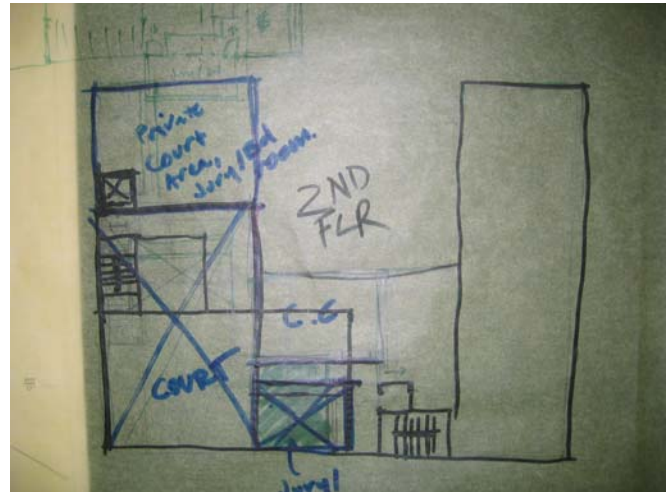
This scheme conceived a 2-story structure with pitched/hipped roofs and dormers in a U-shaped configuration with a formal front entrance façade facing Ireland Place. This configuration creates a public entrance from Ireland Place with green space located in front of the building, along with parking for the public visiting the building. Employee and police vehicular access and entrance occurs from Greene Avenue.

The conceptual floor plans below indicate a separate entrance for court functions to the west. Police functions are housed on the first floor, while Courts and Village Hall functions are located on the second floor, potentially with green roofs over the one-story “legs of the U” to the north.



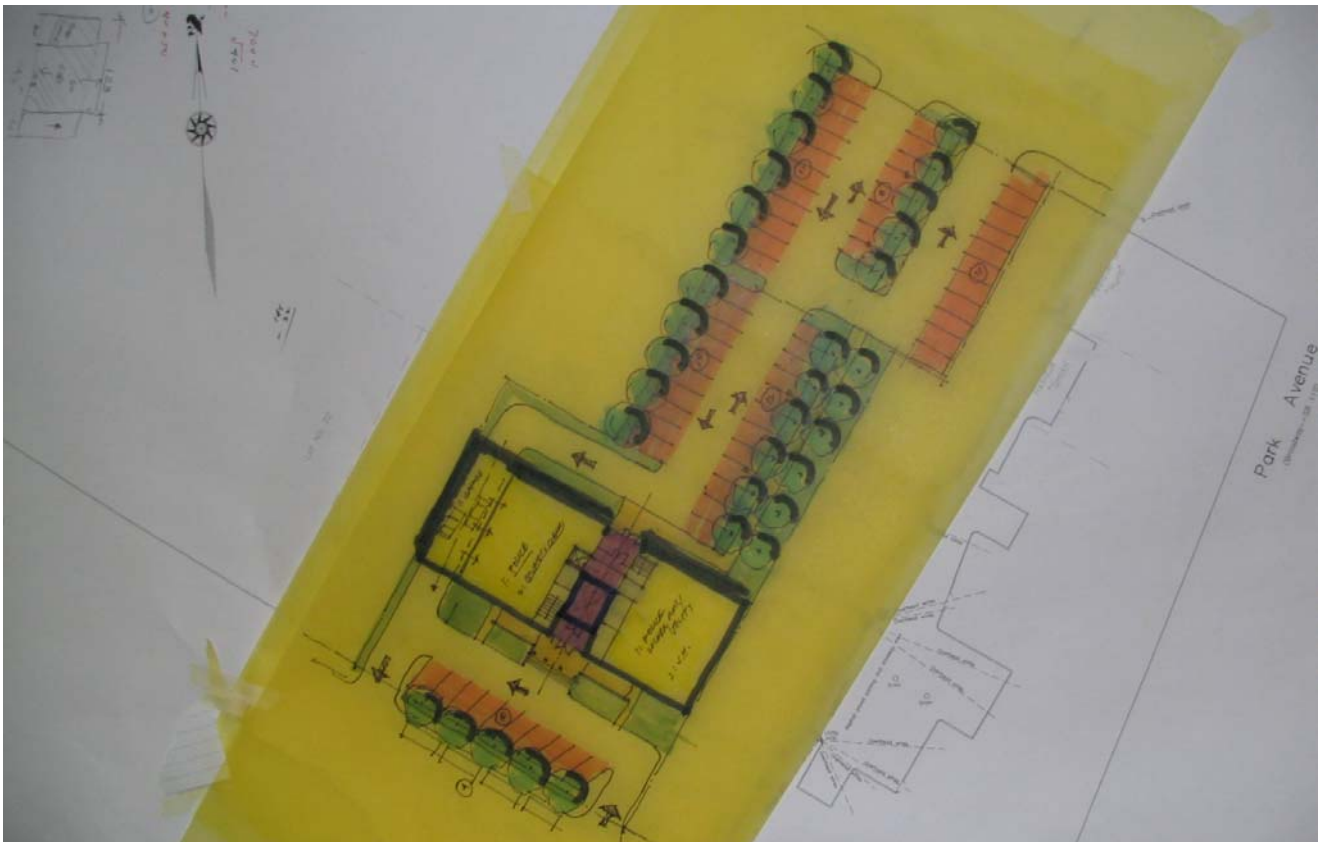


First Floor Plan sketch



Second Floor Plan sketch

The second break-out group produced the sketch below.



This scheme indicates three clearly delineated parking areas: one for the public in front of the building along Ireland Place, the second secure lot for police cars, and the third accessed from Greene Avenue for employees. This scheme also incorporates a vehicular sallyport to the west that also allows direct police vehicular access to Ireland Place for quick response.

This building is configured to maximize south and north exposure for daylighting and proper solar orientation with an approximate 54' depth. A central two-story lobby allows controlled access from both the north and south for both public visitors and employees. Similar to the first scheme, this building also is conceived as a two-story structure with gabled roofs that houses Police functions on the first floor with Courts and Village Hall functions located on the second floor. The program works almost perfectly to allow this grouping of functions within an economical 2-story footprint.

## Results and Next Steps

The larger group then reconvened to review the conceptual schemes developed by the two breakout groups. After presentation and discussion, the group reached consensus on the following conclusions:

### Components and ideas that should be kept and developed:

1. Police exit to Ireland street vehicular sallyport
2. Symmetry
3. Maximize solar orientation
4. Clear separation of parking and entry for public vs. staff
5. Public access and parking from Ireland
6. Daylighting provisions
7. Likely a two-story building given site and program elements(2 dissenters)
8. Displacement ventilation –underfloor supply air plenum
9. Investigate use of Ground Source Heat Pumps
10. Landscaping / bioswales for stormwater infiltration & treatment
11. Green space in front of building
12. Two-story lobby
13. Breakroom / copy room must be contiguous with primary functions
14. Remediate existing contaminated soils
15. New construction complete prior to demolishing existing police building
16. Must maintain emergency generator for police during construction

### Things to avoid:

1. Mixing public with “back of house” functions
2. Curb cuts too close together along Greene and Ireland with two-way access
3. Inability to expand in the future

It also should be noted that parking provisions emerged as a primary issue and a significant constraint. Although local zoning code would require 74 parking spaces, it was agreed that the following parking capacity should be provided:

|               |  |
|---------------|--|
| Staff         | 36 spaces accessed primarily from Greene Avenue  |
| Police cars   | 12 in secure separate lot (fencing not required) |
| Visitors      | 15 spaces accessed primarily from Ireland Place  |
| <u>Growth</u> | <u>5 spaces</u>                                  |
| Total needed  | 70 spaces  |

In conclusion, the charrettes resulted in the education of the design and owner team, as well as the creation of a preliminary LEED scorecard, a list of actions and responsibilities, recommendations for site placement, and a conceptual floor plan configuration.

During the design charrette, however, the team experienced significant difficulties pertaining to solving the site constraints during the breakout sessions. As a result, this task took much longer than anticipated, and adequate time did not remain to establish clear performance parameters for water, energy, and materials issues. Accordingly, a subsequent design team coordination meeting was scheduled to address these issues, as indicated below.

Next Steps:

1. Design Team Coordination Meeting scheduled for 2/01/06
2. Proceed with Schematic Design (SD) phase – complete Preliminary SD by 2/22/06
3. Analyze structural systems, energy modeling, daylighting analysis, rainwater harvesting
4. Investigate roofing materials, finish materials, etc.
5. Complete Final Schematic Design phase by 3/15/06



# Appendix