

2002

# Environmental Audit of the Rose Hill Campus

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## Recommended Citation

Marshall, Nicole; Nissi, Maria; Flaherty, Brian; Ostrand, Carl Van; and McClelland, Ian, "Environmental Audit of the Rose Hill Campus" (2002). *Student Theses 2001-2013*. 78.  
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William Rodrigue's 1846 drawing of Fordham's original "green campus" that included the Bronx River and surrounding forest now preserved in NYC Botanical Garden. Courtesy of Fordham University Archives.

## **Environmental Education and Campus Greening:**



### **Environmental Audit Case Study of Greening Fordham University And Preserving Its Historic "Green Campus(es)"**

*Cura personalis, cura environmentalis*  
*Fordham Cares About the Environment*

Jesuit and Students at the College "Swimming Hole"  
On the Bronx River, 19<sup>th</sup> Century. Courtesy of Fordham Archvies.

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***by John van Buren***

*Environmental Studies Program, Director  
Philosophy Department, Associate Professor  
Greening Fordham Group, Co-Convener*

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***Co-Researched and Co-Authored  
by Environmental Studies Students in the Class of 2002***

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Felipe Pradas

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***Assisted by FTFCC Subcommittee on Environmental & Social Justice  
Environmental Protection and Awareness Club  
Greening Fordham Group  
Bronx River Alliance***

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***Audit Questionnaire Data Provided by  
Office of the Vice President for Administration, Brian J. Byrne  
Office of the Assistant Vice President for Facilities, Peter J. Bundock  
Department and Program Chairs  
Students in Residence***

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***With***

***An Environmental History Tour of the Original Rose Hill Campus,  
With Reference to William Rodrigue's 1846 Campus Drawing,***

***by Allan S. Gilbert (Sociology & Anthropology Department)  
and Roger Wines (History Department)***

Excerpted from Allan S. Gilbert and Roger Wines, "From Earliest to Latest Fordham: Background History and Ongoing Archaeology" in Thomas C. Hennessy, S.J. (ed.), *Fordham: The Early Years* (Fordham University Press, 1998).

***&***

***A Photo Essay of 19<sup>th</sup> Century Rose Hill Campus***

*Assisted by Patrice Kane (Fordham Archives)*

**&**

***A Sustainability Study of the New Science Facilities Plan:  
Findings and Recommendations***

***by Colin M. Cathcart, AIA***

***Architecture, Fordham University  
Kiss + Cathcart, Architects***

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***Funded by the Offices of the Dean of Fordham College at Rose Hill  
& Vice President for Academic Affairs***

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***Presented July 2002  
to the Fordham Administration, Faculty & Student Community***

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**Not Published in Paper Form**

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*Faced with the widespread destruction of the environment, people everywhere are coming to understand that we cannot continue to use the goods of the earth as we have in the past. A new ecological awareness is beginning to emerge.*

~ John Paul II, "The Ecological Crisis: A Common Responsibility," 1990  
[www.ewtn.com/library/PAPALDOC/JP900101.HTM](http://www.ewtn.com/library/PAPALDOC/JP900101.HTM)

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*Here are some aspects of a community's or a work's existence that could be looked into: physical facilities, waste, land, transportation, water, indoor environment, wildlife, recycling, energy, work practices, food, community relations. There are both personal and communal opportunities to avoid unnecessary environmental pollution, to exercise moderation in the use of limited resources such as energy and water. . . . Any particular choice may be small . . . but it has value as a sign of ethical sensitivity to the rights of others, especially the poor and the future generations, and of spiritual respect for God our Creator. . . . **Techniques are available for doing an ecological inventory or an audit of environmental impact.** . . . In our communities and works (universities, secondary schools, parishes, retreat houses, social centers . . . ), we are beginning to learn to make institutional decisions which take ecological factors into account in a serious way.*

~ Report Commissioned by Jesuit Superior General, Peter-Hans Kolvenbach

“We Live in a Broken World--Reflections on Ecology”  
*Promotio Justitiae* 70, 1999, Sect. 4, “Community Lifestyle & Institutional Decisions”  
<http://www.iqs.url.es/iqs/isjachem/broken.htm>

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*Finally and concretely, how can we contribute each in his or her own way to face the ecological crisis? This contribution will, generally speaking, take the form of conscientizing every person about his or her responsibility for the ecological crisis. . . . Community and personal choices are opportunities to show respect and restraint and moderation in the use of limited resources. . . . I think it appropriate that I should end with a prayer: I pray that in this academic institution we learn to harmonize the philosophical tradition, the benefits of modern science and technology, and the African wisdom about the human person, its society and home. . . . So that future African generations may also enjoy the water of the lakes, the greenery of the forests and the clean air that is brightened by the rays of Brother Sun.*

~ Jesuit Superior General, Peter-Hans Kolvenbach  
 “Our Responsibility for God's Creation”  
 Address at Opening of Arrupe College, Jesuit School of Philosophy and Humanities, Zimbabwe, August 22, 1998  
[http://www.jesuits.ca/justicecr/EcoProj\\_Jc/KolvenbachLetter/KolvenbachLetter\\_Eco.html](http://www.jesuits.ca/justicecr/EcoProj_Jc/KolvenbachLetter/KolvenbachLetter_Eco.html)

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*We are a group of persons, inspired by our experience of God in Creation, Ignatian spirituality and Ignatian community. We are committed to fostering the well-being and health of the Earth community. . . .*

~ Jesuit Ecology Project  
[http://www.jesuits.ca/justicecr/EcoProj\\_Jc/EcoProj.htm](http://www.jesuits.ca/justicecr/EcoProj_Jc/EcoProj.htm)

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# Contents

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## Acknowledgments

### I. Introduction

- A. What Is Environmental Education and Environmental Auditing?
- B. Relation of Fordham University to Bronx River Alliance
- C. Methodology
- D. Internet References

### II. Executive Summary of Findings & Recommendations on Raising General Environmental Consciousness on Campus

- A. Comment on Findings
- B. Immediate Recommendations for Academic Year 2002-03

### III. Environmental Literacy, Culture, and Community Relations

- A. Backgrounder on Environmental Education and Campus Greening

#### B. Findings

1. Environmental History Tour of the Original 1846 Rose Hill Campus
2. Photo Essay of Original 19<sup>th</sup> Century Rose Hill Campus
3. General Questionnaire
  - (a) Campus Environmental History, Relation to the Bronx River and Bronx River Alliance
  - (b) Financial
  - (c) Curriculum
  - (d) Research
  - (e) Mission and Administration
  - (f) Public Relations
  - (g) Campus Life
4. Student Questionnaire
5. Department Questionnaire

#### C. Recommendations

### **IV. Solid Waste Management: Reduce, Reuse, Recycle**

#### A. Backgrounder

#### B. Findings

1. Student Questionnaire
2. Department Questionnaire
3. Facilities Questionnaire

#### C. Findings on Specific Buildings and Recommendations

1. Alumni Court North and South
2. Dealy Hall
3. Finlay Hall
4. Hughes Hall
5. John Mulcahy Hall
6. Larkin Hall
7. Millennium Hall
8. Queens Court
9. Walsh Hall

### **V. Energy Conservation**

#### A. Backgrounder

#### B. Findings

1. Energy Sources/Air Emissions of Campus Supplier (Con Edison) and Green Power Companies in NY State's Deregulated Market
2. Facilities Questionnaire
3. Sustainability Study of the New Science Facilities Plan: Findings & Recommendations

#### C. Findings on Specific Buildings and Recommendations

1. Alumni Court North and South
2. Dealy Hall
3. Finlay Hall
4. Hughes Hall
5. John Mulcahy Hall
6. Larkin Hall
7. Millennium Hall
8. Queens Court
9. Walsh Hall

### **VI. Water Conservation and Sustainable Landscaping**

#### A. Backgrounder

#### B. Findings

1. Facilities Questionnaire

- 2. General Campus Tour Observations
- 3. Findings on Specific Buildings
  - (a) Walsh Library
  - (b) John Mulcahy Hall
- C. Recommendations

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## Acknowledgments

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On behalf of the seniors who conducted this audit, I would like to thank Jeffrey von Arx, Dean of Fordham College at Rose Hill, for his support in the form of a research grant through the office of the Vice President of Academic Affairs to complete the audit.

We would also like to thank Brian Byrne, Vice President for Administration, and Peter Bundock, Assistant Vice President for Facilities, for their labors in answering the lengthy facilities questionnaires we submitted to them at short notice, as well as for providing advice and facilitating the audit project.

Important support and advice were provided by the Faculty Task Force on Campus Culture's Subcommittee on Environmental and Social Justice chaired by Judith Green (Philosophy) with Jim Lewis (Biological Sciences), and by other participants in the Greening Fordham Group: Environmental Protection and Awareness Club, Graduate Student Association, Community Service, Office of the Dean of Residential Life, Office of the Dean of Student Affairs, and Campus Ministry.

Abby Feinstein, Education Coordinator of the Bronx River Alliance, was very helpful for our attempt to link the past and present Rose Hill campus to the Bronx River, and to connect the present audit and campus greening initiative to the collaborative work of the Bronx River Alliance which includes among its participants local institutions of higher learning.

We are also grateful to Colin Cathcart (Architecture Department) for providing us with a study of the new science facilities plan; Allan Gilbert and Roger Wines (Anthropology) for allowing us to include their research on the early environmental history of the campus; David Burney (Biological Sciences) for assistance in studying campus water use and grounds maintenance; Patrice Kane (Archives) for providing 19<sup>th</sup> century campus photographs; residence students and department/program chairs who filled out the questionnaires we sent to them; Michael Stalzer, President, Environmental Protection and Awareness Club and Brian Henning (Graduate Students Association) for assisting with the resident student questionnaire; and graduate student Konstantino Korovessis for the materials he supplied on energy conservation.

As the director of the project, I would like to express to the senior students involved my deep appreciation for their commitment, enthusiasm, and hard work.

John van Buren  
Director, Environmental Studies



## I. Introduction

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150 years later, Fordham students still do work around the “Fordham Farm” and splash in the campus “swimming holes” on the Bronx River, assisting various local community garden projects and the Bronx River Alliance which works to restore the now environmentally-degraded Bronx River that fell prey to suburban sprawl as early as the end of the 19<sup>th</sup> century. Photographs courtesy of Community Service Office.



The audit of Rose Hill campus, whose findings and recommendations are also relevant for Fordham’s other campuses, was conducted by Environmental Studies Minors, Individualized Majors in Environmental Studies, and other seniors in Spring 2002 in Professor John van Buren’s courses ESRU 4800-Environmental Project, ESRU 4900-Environmental Internship, and the crosslisted course PHRV 3109-Environmental Ethics. The audit was designed and supervised by Professor van Buren, Director, Environmental Studies, and other members of the program executive committee, especially Professors



David Burney (Biological Sciences) and Colin Cathcart (Architecture/Visual Arts). The audit was edited by Professor van Buren in Summer 2002 with a research grant from the Dean of Fordham College at Rose Hill.

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## A. What Is Environmental Education and Environmental Auditing?

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It is a common yet true observation that before an issue can be successfully addressed, its nature and extent must first be made clear. The purpose of an environmental audit is to do just that: make clear the environmental implications of current environmental consciousness and practices in order to formulate policies that effectively meet mounting ecological challenges.

The broadest aim of our audit was: to be an essential step in moving Fordham towards excellence in environmental consciousness and responsibility among students, faculty, staff, and administrators. Today, there is widespread movement on the part of major businesses such as General Motors, McDonald's and Coca Cola to have environmental audits done on them, develop an environmental PR profile, and promote themselves as "socially and environmentally responsible." **But as a Jesuit University, Fordham has a duty not only to make sure its own practices are up to environmental law standards, but also to instill in its students, who are future leaders, a holistic environmental consciousness and ethic that involves stewardship of God's creation and environmental justice for all members of the human family.** Such an ethic would require practices to be assessed in light of their larger effect on our planet and our communities, especially the poor and disadvantaged who suffer first from environmental degradation, and future generations who have no voice. **It is precisely this consciousness, responsibility and ethic that are recommended in the published Jesuit ecology documents, "We Live In a Broken World—Reflections on Ecology," *Promotio Justitiae* 70 (1999) and "Our Responsibility for God's Creation," the first of which was commissioned by the Jesuit Superior General, Hans-Peter Kolvenbach, and the second authored by him.**

In the last three years at Fordham there has already been a movement toward this general goal, and we see our audit as serving this movement and playing an essential part in bringing it to fruition. In 2000 the *Final Report of the Faculty Task Force on Campus Culture* included environmental justice and ecological stewardship within its "Vision for Fordham's Community Life," recommending that opportunities and activities in this area be promoted to improve campus culture. This led to the formation of the *FTFCC Environmental and Social Justice Subcommittee* in 2001. The *Environmental Studies Program Proposal*, which was worked on in 2000-2001 and approved by three colleges in Spring 2001, envisioned the program as playing an essential role in "Greening Fordham." Spring 2002 saw the formation of the informal working group called the *Greening Fordham Group* which served as a think-tank, organized activities such as Earth Day Celebration, and in these efforts collaborated with the Vice President for Administration. Participants in GFG included FTFCC Subcommittee on Environmental and Social Justice, Environmental Studies, Environmental Protection and Awareness Club, Graduate Student Association, United Student Government, Vice President for Administration, Dean of Fordham College, Community Service, Residential Life, and Student Affairs.

Practically speaking, there are seven mandates that accompany this audit: 1) Gather data about campus community consciousness and practices in the areas of grounds maintenance, water use, energy use, solid waste management, and environmental literacy. 2) Analyze the data to isolate the most noteworthy areas that require improvement. 3) Formulate building-specific policy recommendations to combat instances of inefficiency, with an eye towards cost savings and lessening negative environmental impact. 4) Create a general environmental strategy for the university community. 5) Publicize our findings to all members of

the campus community. 6) Help especially students learn about campus operations, budgetary processes, and administrative decision-making. 7) Institutionalize the environmental audit as an annual process, so that new and more precise data can be gathered, better conclusions and recommendations can be reached, and progress toward goals can be measured. Therefore, consider the current audit an important start, not a finished work.

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## B. Relation of Fordham University to Bronx River Alliance

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The present audit was also done in collaboration with the Bronx River Alliance (NYC Department of Parks, <http://www.bronxriver.org>) as a study of Fordham University in its historic relation to the Bronx River, and it will also be presented to the Alliance, a coalition of government agencies, community groups, and businesses whose objective is "to protect, improve, and restore the Bronx River Corridor and greenway so that they can be healthy ecological, recreational, educational, and economic resources for the communities through which the river flows" and especially "low-income and communities of color along the River's southern reaches" for sake of "environmental justice and community empowerment." The Bronx River is a 20 mile long waterway that begins at the Kensico Reservoir in Westchester County and flows southwest through the Bronx to the East River. A portion of the river runs along the edge of the Rose Hill Campus, although most students and faculty at Fordham are unaware of its presence.

The University has a long standing relation with the river as an educational, cultural, aesthetic, spiritual, and recreational resource. A number of items in the questionnaires sent to facilities personnel, academic department chairs, and students investigate the attitudes toward, use of, and impact on the river by the Fordham community. We feel it is important that the position of ecological stewardship Fordham has adopted—a position that dates back to the University's inception in the 19<sup>th</sup> century, and has been expressed through work to clean up the river, use of the river as an outdoor classroom, and appreciation of the river as an oasis of quiet and beauty in the midst of a busy city—is not weakened or abandoned. To this end, some of the goals of our project are to strengthen the Fordham community's understanding of its historical ties to the river, and to maintain a dynamic partnership between the Fordham community and the Bronx River Alliance.

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## C. Methodology

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The general goals, format, and methods of the audit were based on (1) the Jesuit ecology study "We Live in a Broken World--Reflections on Ecology," *Promotio Justitiae* 70 (1999), Part 4, "Community Lifestyle and Institutional Decisions"; (2) campus greening projects and audits at other American Catholic and non-Catholic universities, including the well-known student authored handbook *Campus Ecology: A Guide to Assessing Environmental Quality & Creating Strategies for Change*, by April Smith and The Student Environmental Action Coalition (Los Angeles: Living Planet Press, 1993); (3) interuniversity organizations and consulting agencies promoting conservation and sustainability on college campuses and providing assistance in conducting campus audits; and (4) the college campus environmental self-audit outreach programs at the federal EPA and the New York State Department of Environmental Conservation, the goal

of these programs being not simply environmental law compliance, but primarily encouraging institutions of higher learning to become models of environmental responsibility.

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## D. Internet References

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The following internet references provide a full list of resources used.

### **General Recommendations for Jesuit and Other Catholic Institutions of Higher Learning**

Report Commissioned by Jesuit Superior General, Peter-Hans Kolvenbach

"We Live in a Broken World--Reflections on Ecology," *Promotio Justitiae* 70 (1999).

<http://www.iqs.url.es/iqs/isjachem/broken.htm>

Jesuit Superior General, Peter-Hans Kolvenbach, "Our Responsibility for God's Creation,"

Address at Opening of Arrupe College, Jesuit School of Philosophy and Humanities, 1998

[http://www.jesuits.ca/justicecr/EcoProj\\_Jc/KolvenbachLetter/KolvenbachLetter\\_Eco.html](http://www.jesuits.ca/justicecr/EcoProj_Jc/KolvenbachLetter/KolvenbachLetter_Eco.html)

John Paul II, "The Ecological Crisis: A Common Responsibility," 1990 Address on World Day of Peace

[www.ewtn.com/library/PAPALDOC/JP900101.HTM](http://www.ewtn.com/library/PAPALDOC/JP900101.HTM)

"Renewing the Earth" & "Environmental Justice" Programs of the National Conference of Catholic Bishops

[www.nccbuscc.org/sdwp/ejp/index.htm](http://www.nccbuscc.org/sdwp/ejp/index.htm)

"Greening Academia Program" and "Theological Education to Meet the Environmental Challenge"

Programs of the Center for Respect of Life and Environment

<http://www.crle.org>

National Religious Partnership for the Environment

[www.nrpe.org](http://www.nrpe.org)

### **Interuniversity Organizations and Consulting Agencies for Campus Auditing**

*Campus Ecology: A Guide to Assessing Environmental Quality & Creating Strategies for Change*, by April Smith and The Student Environmental Action Coalition (Los Angeles: Living Planet Press, 1993).

Conducting A Campus Environmental Audit

<http://www.envirocitizen.org/cgv/blueprint/recommendations/four.html>

Blueprint For A Green Campus: Campus Earth Summit Initiatives for Higher Education

<http://www.envirocitizen.org/cgv/blueprint/index.html>

Sustainable Campus Program of the Association of University Leaders for a Sustainable Future: Leadership for Global Environmental Literacy

<http://www.ulsf.org>

Sustainable Development on Campus: Tools for Decision Makers and Greening Your Campus Program, International Institute for Sustainable Development

<http://iisd.ca/educate>

Education for Sustainability Program of the Second Nature Organization  
<http://www.secondnature.org>

Campus Ecology Program of the National Wildlife Association  
<http://www.nwf.org/campusecology/index.cfm>

Green Your Campus Program of the New York Student Environmental Coalition  
<http://www.nyseac.org/campaigns.html#GreeningYourCampus>

#### **University Self-Audit Outreach Programs at Government Agencies:**

Federal Environmental Protection Agency, Information for Colleges and Universities  
[http://www.epa.gov/reg3ecce/compliance\\_assistance/colleges.htm](http://www.epa.gov/reg3ecce/compliance_assistance/colleges.htm)

New York State Department of Environmental Conservation  
 Environmental Self-Audit for Campus-based Organizations  
<http://www.dec.state.ny.us/website/ppu/esacamp.pdf>

Environmental Compliance & Pollution Prevention Training Manual for Campus-based Organizations  
<http://www.dec.state.ny.us/website/ppu/ecppcamp.pdf>

#### **Campus Greening Programs and Audits at Jesuit Universities:**

Course-Based Campus Environmental Assessment Program, Santa Clara University  
<http://www.scu.edu/SCU/Departments/EnvironmentalStudies/Assessment/Assessment%20Entry.htm>

Greening Loyola Program, Loyola University of Chicago  
[www.luc.edu/depts/envsci/greening\\_loyola.html](http://www.luc.edu/depts/envsci/greening_loyola.html)

Boston College Environmental Management Plan  
[http://www.bc.edu/bc\\_org/fvp/ehs/emp\\_partone.html](http://www.bc.edu/bc_org/fvp/ehs/emp_partone.html)

#### **Campus Greening Programs and Audits at Other Universities:**

Columbia Conserves Program and Campus Audit 1998  
<http://www.columbia.edu/cu/green/index.html>  
<http://www.columbia.edu/cu/earthco/audit.html>  
<http://www.columbia.edu/cu/green/enviroplan.html>

"Brown is Green Program," Brown University  
[http://www.brown.edu/Departments/Brown\\_Is\\_Green](http://www.brown.edu/Departments/Brown_Is_Green)

Univ. of Buffalo UB Green Program and Campus Audit 1995  
<http://wings.buffalo.edu/ubgreen/content/resources/envaudit1995.html>

Penn State Green Destiny Council for Ecological Responsibility & Campus Audit 2000  
<http://www.bio.psu.edu/Greendestiny/indicators.shtml>

Harvard Green Campus Initiative  
<http://www.greencampus.harvard.edu>

Links to Campus Greening Programs

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## II. Executive Summary of Findings and Recommendations On Raising General Environmental Consciousness On Campus

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*Cura personalis, cura environmentalis*  
Fordham Cares About the Environment

This executive summary summarizes the findings and highlights the most important general recommendations for raising campus environmental consciousness among students, faculty, staff, and administrators. These are focused on the Rose Hill campus but are relevant for all university campuses.

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### A. Comment on Findings

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Fordham University has a rich environmental history stretching back to the early 19<sup>th</sup> century and beyond, with perhaps the “greenest campus” in the city still today. Authentic tradition is tradition that preserves itself by constantly renewing, adjusting, and growing itself in relation to the realities of the present and future, undertaking this with wisdom, care, and pride. **Today, the history of our “green campus” is coming back to haunt us in a new and exciting way, redefining itself so that “green campus” doesn’t only mean a lot of vegetation and natural beauty, but is expanded in terms of the “campus greening” movement to mean an increase in campus environmental consciousness and practices.** The Introduction above outlined how this “campus greening” process has been occurring in the last three years at Fordham, with significant interest, concern, work, and accomplishments on the part of groups of students (EPAC and Environmental Studies students, etc.), faculty (FTFCC, Environmental Studies, etc.), and administrators (VP for Administration/Facilities, Dean of Fordham College at Rose Hill, etc.) who have taken leadership in this regard. This interest and concern was also echoed in the student, faculty, and facilities questionnaires presented in the body of the audit.

**The findings also showed that a gap still exists between, on the one hand, this interest, concern, and activity by groups taking leadership and, on the other, the general consciousness of the campus community as a whole** in the four audit areas of general environmental awareness and literacy, solid waste management (primarily recycling), energy conservation, and water conservation and sustainable landscaping.

Findings also showed that given that this need for consciousness raising cuts across the university community from students to faculty, staff, and administrators, then **the key to success is a collaborative effort where all pitch in and help.**

**Our audit first empirically documents the above gap in the four audit areas and then makes concrete, realistic recommendations for closing it by enlisting the collaborative assistance of students, faculty, staff, and administrators.**

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## B. Immediate Recommendations for Academic Year 2002-03

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### *General Recommendation*

For the academic year 2002-03, the university community should not attempt to do anything overly ambitious or with an ad hoc approach, but should focus on gathering existing resources among students, faculty, staff, and administrators, organizing them, and providing the necessary institutional and financial infrastructure for a collaborative initiative that will produce real change in campus consciousness, though it be slow, and that will endure into the future. At the same time, it should attempt to implement a modest number of specific recommendations in the body of this audit, especially those in the area of environmental awareness and literacy (i.e., consciousness raising), but crucially needed physical technological changes in facilities that can be accomplished easily and quickly should also be carried out during this year and others planned for the following year. Environmental auditing should continue in Environmental Studies courses and elsewhere, and should focus on specific areas or questions within the present general audit that require more research.

### *Specific Recommendations*

This general recommendation is translated into the following three specific recommendations, which in the first year will bring about the necessary institutional and organizational infrastructure for a collaborative effort and allow a good number of specific projects to be carried out.

#### **Recommendation #1:**

##### **Either**

**(A) a formally appointed, collaborative “Advisory Committee on the Environment” that will assist the Vice President for Administration/Facilities in the attempt to promote campus environmental consciousness in recycling, etc.** (this is the normal course of the campus greening and audit projects that were discussed above; see for example, the advisory committee appointed at Columbia: <http://www.columbia.edu/cu/green/ace.html>)

**or (B) a consolidation of the existing “Greening Fordham Group” with a public expression of the administration’s continued participation in and support of the Group.**

Whether (A) or (B) is adopted, the committee/group should--in addition to including student and faculty “grass roots”--also collaboratively express and be backed up by the university administration’s official

commitment, institutional authority, and financial support in the areas of photocopying, website production and maintenance, list serve, and other means necessary to communicate effectively with the Fordham community.

### Mission Statement

The purpose of this committee is to assist the Vice President for Administration/Facilities in the attempt to promote campus environmental consciousness and practices in recycling, energy conservation, water conservation, and other areas at the Fordham campuses in the spirit of the general recommendations of the Jesuit document "We Live In a Broken World-Reflections on Ecology," *Promotio Justitiae* 70 (1999) and comparable campus greening initiatives at other Catholic and non-Catholic colleges.

### Annual Budget

Poster production, campus mailings, photocopying (\$1000). Production and maintenance costs for a website called something like "Fordham **Cares** About the Environment—**cura** personalis, **cura** environmentalis" or "Greening Fordham" (\$500-1000). One course reduction for the committee chair, if a faculty member. Two students workers from the Work Study Program.

### Composition

Committee/Group activities and meetings should be open to all interested students, faculty, and administrators, but should have official members who can vote if issues are put to vote. It should be chaired by a faculty member or the Vice President for Administration. Committee/Group members should be drawn from the offices and persons who participated last year in the informal, ad hoc think-tank and action group, "The Greening Fordham Group," as well as interested faculty with academic and professional expertise in the four audit areas of environmental education/literacy, solid waste management, energy conservation (e.g., Architect Colin Cathcart), and water conservation and sustainable landscaping (e.g., ecologists from Environmental Studies/Biological Sciences such as David Burney and Daniel Sullivan, an expert in Integrated Pest Management).

2001-2002 Green Fordham Group Participants:

Student Bodies:

Environmental Protection and Awareness Club  
United Student Government  
Graduate Students Association

Faculty Bodies:

Environmental Studies Program  
Faculty Task Force on Campus Culture, Subcommittee on Environmental and Social Justice

Administrative Offices:

Vice President for Administration  
Dean of Fordham College  
Dean of Residential Life  
Dean of Student Activities  
Community Service  
Campus Ministry

**Recommendation #2:**

**Appoint faculty member and green architect Colin Cathcart, AIA (Architecture, Fordham University; Kiss + Cathcart, Architects), as well as possibly other faculty with professional architectural expertise, to the planning committee for the new science facilities,** as well as other comparable planning committees for other buildings, and distribute to the committee for reflection Dr. Cathcart's study of the science facilities plan in Section V below. **Dr. Cathcart's work and his firm are highly respected in the field with an international reputation** (see [www.kisscathcart.com](http://www.kisscathcart.com)). This recommendation is consistent with campus greening initiatives at schools such as Loyola Chicago which has involved faculty with professional expertise in the new life sciences building planning: see their website [www.luc.edu/depts/envsci/greening\\_loyola.html](http://www.luc.edu/depts/envsci/greening_loyola.html). See also the following green building projects in the Brown is Green Program at Brown University: "Environmentally Responsible Design of W. Duncan MacMillan Hall (Sciences Building)" [http://www.brown.edu/Departments/Brown\\_Is\\_Green/reports/ncf\\_macm.htm](http://www.brown.edu/Departments/Brown_Is_Green/reports/ncf_macm.htm) and "Geological and Chemical Sciences Building Energy Efficiency Renovations" [http://www.brown.edu/Departments/Brown\\_Is\\_Green/reports/ncf\\_gc.htm](http://www.brown.edu/Departments/Brown_Is_Green/reports/ncf_gc.htm).

If the university decides to incorporate a solar power dimension to the new buildings, it should also consider consulting with the photovoltaic installation company that works with Kiss + Cathcart: Alternative Power ([www.altpower.com](http://www.altpower.com)), which is run by Anthony Pereira, a Fordham graduate from the late eighties and the President of the New York State Solar Energy Industries Association.

### **Recommendation #3:**

**A Publicly Visible Environmental Calendar**, which modeled somewhat on our Academic Calendar, provides a clear list of and time-table for planned activities, meetings, campus environmental events, etc. for the year 2002-03, which can be publicly posted on the website, bulletin boards, electronic bulletin board beside McGinley, etc. and can be used as an evolving template in future years.

The calendar will not only provide the committee/group with its yearly plan, but also **provide the student, faculty, and administrative communities with a publicly visible and easily accessible month by month breakdown of "what's happening" and even just "that something's happening"** in terms of environmental events on campus, for example, meetings and projects of the Environmental Protection and Awareness Club, campus ministry retreats with environmental content, environment-related funding raising events, volunteer Bronx river cleanup events through Community Service and Bronx River Alliance, etc.

The following roughly sketched calendar is recommended, with necessary revisions.

**May/June** Committee meeting to plan the calendar for the upcoming year and post it on the committee's website and elsewhere (the calendar at this stage should also list known upcoming campus environmental events and then be revised throughout the year as other events become known)

**Aug.** Distribution of 2-3 page "Fordham Cares About the Environment—What Can You Do?" or "Greening Fordham" information package (to include boiling down information in the present environmental audit and a reference to committee website for further information) on the four areas of environmental literacy, recycling, energy conservation, and water conservation to Residential Life, Student Activities, Assist Dean of Fordham College, Residential Assistants, Freshman Advisors, Vice President for Academic Affairs, Campus Ministry, and Vice President for Administration for all new student, faculty, and facilities staff orientation sessions and programs, as well as campus ministry programs

**Aug/Sept** Durable, light cardboard "Fordham Cares About the Environment—What Can You Do?" posters in all residences and university buildings, again to include boiling down material in the present environmental audit and a reference to the website. "Do's and Don'ts Posters" on water conservation, energy conservation, and recycling can also be downloaded and printed from the city Dept. of Environmental Protection <http://www.ci.nyc.ny.us/html/dep/html/hcsw.html>, Dept. of Sanitation, Westchester County Dept. of Environmental Planning, State Department of Environmental Conservation, EPA, etc.



**Aug/Sept** Submission of entries to be considered for university bulletin, student handbook, faculty handbook, university website home page, university promotional literature, etc.

**Sept.** Faculty/Administration/Staff Paper memo or electronic memo (to Chairs and Offices for distribution) consisting of a modified version of above 2-3 page information package

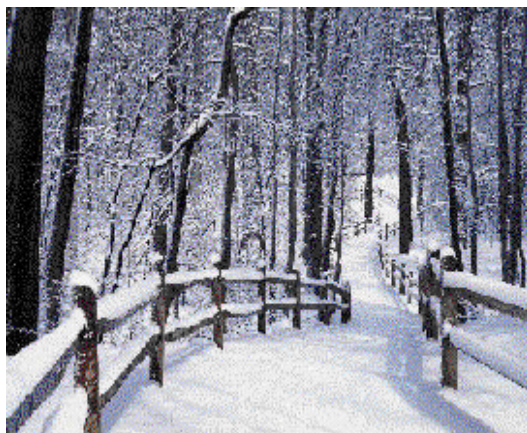
**Sept/Oct** Committee meeting to discuss progress and plans for addressing other specific audit report recommendations, including facilities renovation projects in recycling, energy, and water/landscaping, earth day celebration plans, environmental auditing, and other projects

**January** Committee Meeting

**February** Newsletter type memo to students, faculty, staff, and administrators reporting progress made, issues, and upcoming events such as Earth Day

**April** Earth Day/Environmental Awareness Celebration

**May/June** Committee meeting to plan the calendar for the upcoming year




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## III. Environmental Literacy, Culture and Community Relations

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A surprising number of Fordham community members don't know it, but this still-standing 40 acre old-growth Bronx River forest was originally part of our much larger 19th century Rose Hill campus. Students,

faculty, and staff walked this and other trails to the river to think, pray, love, swim, fish trout, skate, and enjoy the abundant wildlife such as beaver, martin, and deer. Now preserved in the NYC Botanical Garden. Photo courtesy of Botanical Garden.

#### A. Backgrounder on Environmental Education and Campus Greening

Whereas environmental studies, environmental sciences, and other environmental disciplines developed at institutions of higher learning from the early seventies onward, a sustained movement to increase general environmental awareness and literacy on college campuses began in the late eighties and nineties, was driven at first primarily by concerned students and faculty, and lead to the formation of a number of interuniversity programs and organizations.

The **student-driven campus greening movement** crystallized in 1993 with the publication of the well-known handbook *Campus Ecology: A Guide to Assessing Environmental Quality & Creating Strategies for Change*, by April Smith and The Student Environmental Action Coalition (Los Angeles: Living Planet Press, 1993). But already in 1989 the National Wildlife Federation had challenged colleges to support Earth Day 1990 by starting environmental programs on campus and in the community. This led to the creation of **NWF's Campus Ecology Program** which assists students, faculty, staff and administrators in transforming colleges and universities into learning and teaching models of environmental sustainability. During the same year **the Talloires Declaration**, composed at an international conference in France, made an official statement by university administrators of a commitment to environmental sustainability in higher education. This led to the formation of the **Association of University Leaders for a Sustainable Future: Leadership for Global Environmental Literacy** and its **Sustainable Campus Program**. Along with the Talloires Declaration, the **National Environmental Education Act** was passed to require the EPA to provide national leadership to increase environmental literacy. **Second Nature**, an educational non profit organization, was created in the nineties and its **Education for Sustainability Program** assists institutions of higher learning to take concrete steps toward realizing the general vision of a sustainable, just, and healthy world. *New York Student Environmental Action Coalition* has a campaign called *Greening Your Campus* which seeks to make our colleges, high schools, and universities environmentally sustainable.

This movement has also spawned a considerable body of academic literature by philosophers and others who extended traditional "philosophy of education" into the new area of **philosophy of environmental education, which attempts to rethink the traditional concept of the university and the liberal arts core curriculum in light of the present environmental crisis**. For example, J. Baird Callicott et al. (eds.), **Earth Summit Ethics: Toward a Reconstructive Postmodern Philosophy of Environmental Education** (SUNY); C.A. Bowers, **The Culture of Denial: Why the Environmental Movement Needs a Strategy for Reforming Universities and Public Schools and Education, Cultural Myths, and the Ecological Crisis** (SUNY); Gregory Smith, **Education and the Environment** (SUNY); David Orr, **Ecological Literacy** (SUNY); Bruce Wilshire, **The Moral Collapse of the University**. See also the Columbia University document on make an environmental course mandatory in the liberal arts core curriculum: "A Core Curriculum for a Green Future," <http://www.columbia.edu/cu/21stC/issue-2.1/colotost.htm>.

While above associations and programs included some Catholic school membership, it was not until the second half of the nineties that specifically Catholic and interfaith analoges developed. *The Center for Respect of Life and Environment* has a program called *Greening Higher Education*, which seeks to transform college and university curricula, research, and outreach to embody and teach sustainability. The *Renewing the Earth* and *Environmental Justice* programs of the National Conference of Catholic Bishops, drawing on various sources such John Paul II, "The Ecological Crisis: A Common Responsibility" (1990), assists primarily parishes and parochial schools, but also provides resources for institutions of higher learning. The *National Religious Partnership for the Environment* (Catholic, Evangelical, and Jewish) also provides educational resources. Other interfaith organizations include *Web of Creation: Resources on Ecology and Religion* and *Interfaith Climate Change Network: Joining Together in Protecting Creation*, a

collaborative effort of the *Eco-Justice Working Group of the National Council of the Churches of Christ* and the *Coalition on the Environment and Jewish Life*.

**Most important for Fordham's Jesuit identity and mission is the 80-page study commissioned by the Superior General, Hans-Peter Kolvenbach, "We Live in a Broken World--Reflections on Ecology," *Promotio Justitiae* 70 (1999), which links Ignatian spirituality closely to ecological stewardship and environmental justice, and in Part 4, "Community Lifestyle and Institutional Decisions" issues concrete recommendations which extend to Jesuit institutions of higher learning.**

**Building on this document are Kolvenbach's address, "Our Responsibility for God's Creation" and the Jesuit Ecology Project which provides services such as ecology retreats, presentations, courses, and an affiliation network.**

The above ideas and resources for increasing general environmental awareness and literacy on college campuses were in second half of the nineties practically realized in official programs of "campus greening" at particular schools, which involved the collaboration of students, faculty, and administrators. Ivy league and state schools first led the way in this movement, and the two best known representatives are the *Brown Is Green* program at Brown University and the *Columbia Conserves* program at Columbia University. Shortly thereafter, Jesuit and other Catholic schools began to develop such programs. The best examples are perhaps *Greening Loyola* at Loyola University of Chicago and the *Course-Based Campus Environmental Assessment Program* at Santa Clara University. Programs also exist at Seattle University, Boston College, and Marquette.

**The method employed by most schools who green themselves is to conduct an environmental audit of key areas such as environmental literacy, recycling, energy, water use, toxic waste disposal, community relations, etc.; present it to the administration; and then start an administratively supported program focusing on both education and physical technological changes in facilities. See, for example, the Course-Based Campus Environmental Assessment Program at Santa Clara University.**

**Fordham is presently moving toward the creation of such a campus greening program.** See section I. Introduction above for the history of this movement in the last three years, which involved the *Faculty Task Force on Campus Culture*, the *Environmental Studies Program*, and the *Greening Fordham Group*.

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## References

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### Student Literature:

*Campus Ecology: A Guide to Assessing Environmental Quality & Creating Strategies for Change*, by April Smith and The Student Environmental Action Coalition (Los Angeles: Living Planet Press, 1993).

Green Your Campus Program of the New York Student Environmental Coalition  
<http://www.nyseac.org/campaigns.html#GreeningYourCampus>

### Interuniversity Organizations:

Campus Ecology Program of the National Wildlife Association  
<http://www.nwf.org/campusecology/index.cfm>

Sustainable Campus Program of the Association of University Leaders for a Sustainable Future: Leadership for Global Environmental Literacy  
<http://www.ulsf.org>

Education for Sustainability Program of the Second Nature Organization

<http://www.secondnature.org>

Sustainable Development on Campus: Tools for Decision Makers and Greening Your Campus Program,  
International Institute for Sustainable Development

<http://iisd.ca/educate>

### **Catholic and Interfaith:**

Report Commissioned by Jesuit Superior General, Peter-Hans Kolvenbach

"We Live in a Broken World--Reflections on Ecology," *Promotio Justitiae* 70 (1999).

<http://www.iqs.url.es/iqs/isjachem/broken.htm>

Jesuit Superior General, Peter-Hans Kolvenbach, "Our Responsibility for God's Creation,"

Address at Opening of Arrupe College, Jesuit School of Philosophy and Humanities, 1998

[http://www.jesuits.ca/justicecr/EcoProj\\_Jc/KolvenbachLetter/KolvenbachLetter\\_Eco.html](http://www.jesuits.ca/justicecr/EcoProj_Jc/KolvenbachLetter/KolvenbachLetter_Eco.html)

"Renewing the Earth" & "Environmental Justice" Programs of the National Conference of Catholic Bishops

[www.nccbuscc.org/sdwp/ejp/index.htm](http://www.nccbuscc.org/sdwp/ejp/index.htm)

"Greening Academia Program" and "Theological Education to Meet the Environmental Challenge"

Programs of the Center for Respect of Life and Environment

<http://www.crle.org>

National Religious Partnership for the Environment

[www.nrpe.org](http://www.nrpe.org)

Web of Creation: Resources on Ecology and Religion

<http://www.webofcreation.org>

Interfaith Climate Change Network: Joining Together in Protecting Creation

<http://www.protectingcreation.org>

Eco-Justice Working Group of the National Council of the Churches of Christ

<http://www.webofcreation.org/ncc/Workgrp.html>

Coalition on the Environment and Jewish Life

<http://www.coejl.org>

### **Greening Programs at Particular Schools:**

"Columbia Conserves Program", Columbia University

<http://www.columbia.edu/cu/green/index.html>

"Brown is Green Program," Brown University

[http://www.brown.edu/Departments/Brown\\_Is\\_Green](http://www.brown.edu/Departments/Brown_Is_Green)

Links to Campus Greening Programs

[http://www.brown.edu/Departments/Brown\\_Is\\_Green/greencampus.html](http://www.brown.edu/Departments/Brown_Is_Green/greencampus.html)

Greening Loyola Program, Loyola University of Chicago

[www.luc.edu/depts/envsci/greening\\_loyola.html](http://www.luc.edu/depts/envsci/greening_loyola.html)

Course-Based Campus Environmental Assessment Program, Santa Clara University

<http://www.scu.edu/SCU/Departments/EnvironmentalStudies/Assessment/Assessment%20Entry.htm>

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## B. Findings

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### 1. Environmental History Tour of 1846 Campus, With Reference to William Rodrigue's Drawing

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by Allan S. Gilbert (Sociology & Anthropology) and Roger Wines (History)

Excerpted with permission and gratitude from Allan S. Gilbert and Roger Wines, "From Earliest to Latest Fordham: Background History and Ongoing Archaeology" in Thomas C. Hennessy, S.J. (ed), *Fordham: The Early Years* (Fordham University Press, 1998).

The full essay can be found at: <http://reserves.library.fordham.edu/tempfiles/tmp20963/VB2.pdf>

#### William Rodrigue's 1846 Campus Drawing



**The name Rose Hill** made its first appearance in what is now the central Bronx when one of New York's elite families established a country estate on **an aging Dutch farm** just after the Revolution. This was nearly 60 years before the arrival of the Jesuits in 1846. Older still is the Fordham name, which emerged with **the granting of colonial New York's first manorial patent in 1671**, 170 years before the inauguration of St. John's College. . . .

As he described it, Michael Nash arrived by train at St. John's College in August, 1846, to find **an idyllic, rural retreat** at the outskirts of a great port city. The college proper consisted of a small cluster of buildings surrounded by **expansive lawns, farmland, rustic lanes, and patches of forest and glade** only a short trip from New York City on the New York and Harlem steam train. **Here, in the pure country air of Westchester County, the Jesuit fathers could inspire their charges without the distractions of urban vice and commerce, at least until the place was engulfed by the city at the end of the nineteenth century.** . . . From the train station, Nash walked east toward the entrance to St. John's. Before him, a long, stone wall extended into the distance [along what later became Fordham Road, though no road was there at

the time] . . . . In the early years of the college, [Episcopal Reverend Dr.] Powell's **apple orchard** could still be seen above the stones. Nash turned left onto a narrow path lined by **cherry trees**.

The panoramic view that opened before him has been preserved in a drawing by William Rodrigue, brother-in-law of Archbishop Hughes [see drawing on title page of the audit—it faces the university church, etc. from roughly what is now the Fordham train station]. . . . The oval drive was tree-lined. . . . One **great willow** that stood opposite Moat's stone mansion was a spot favored by the college fathers for shady repose on warm summer days. . . . To the left of the main building [in Rodrigue's drawing] was the old Rose Hill Manor. A white, clap-boarded, wood frame **farmhouse**, it had been built most likely by a Dutchman, Reyer Michielsens, in 1694. . . . Although it does not appear on his drawing, the small cottage of William Rodrigue stood near the western end of the drive. . . . Just west of the rail line—well off the edge of Rodrigue's drawing—was **the Mill Brook**, a small south-flowing stream that presently runs through the sewers beneath Webster Avenue [and after which the campus "Mill Brook Road" is named]. The **college pond** was a small body of water at the foot of the lawn east of the tracks [near the present-day library] that flowed into the Mill Brook. From the brook's opposite bank rose a massive ridge, on the slope of which was the farm belonging to Jacob Berrian.

On the northern portion of the campus, beyond the buildings that circled the oval drive, was the major part of **the Rose Hill farm**. Here stood the **barns** and related outbuildings, including the residences for the field laborers, carpentry shops, and storage sheds. The farm was maintained through out the nineteenth century to help feed the students and faculty of the college, and **only in the early years of the present century was agriculture abandoned**. A **pasture with 30-40 cows** was located on the tract presently occupied by the field of Fordham Prep. East of the barns lay the plowed fields, and an **orchard** stood on the spot where today's Gymnasium now stands. **Apples, pears, and cherries** were grown. Just behind the Rose Hill Manor was a small truck garden for vegetables, such as **tomatoes, potatoes, and corn**. In the area of the present college cemetery was a **vineyard** that produced grapes for the table and for **wine that was used in the church** and the father's refectory. The cornucopia that emerged from these fields and gardens underwrote the cost of running the college, and it allowed tuition to remain stable for decades. **The whole endeavor was managed by Jesuit brothers, who cultivated the crops and supervised the workmen.**

Leading eastward from the college barns was a small lane overhung with old trees [today's "Constitution Row"]. On the right, it passed a hedged garden, then the playing fields, and **a little wooded hill where Keating Hall now stands**. In the area of the present parking lots [between what is now the Faculty parking lot and Millennium Hall], the lane bisected **a low-lying marsh**, which was flooded before each winter and **used for skating** and ice production. Continuing eastward, the lane entered **the woods that, in the 1880s, was incorporated into Bronx Park, eventually to become part of the New York Botanical Garden**. **The Jesuit cemetery lay to the left nestled between rocky outcrops** and probably surrounded by a stone wall. It was used over the next four decades, and provided final repose for numerous Fordham notables, including Fathers August Thebaud, Thomas Legouais, Edward Doucet, and Peter Tissot. Their repose there was not quite final, however, as **the city takeover obliged the Jesuit community to move their remains onto the main campus**. Fr. Zwinge supervised the exhumations and reburial in the present plot adjacent to the church in 1890.

Beyond the old cemetery, the lane passed through a wooded area until it opened onto the eastern border of the Rose Hill estate, **the Bronx River**. Students used this stream as a **swimming hole** from April to October. The splashing and dunking could be heard just down river from the well-known [today still extant] snuff mill of the Lorillard family. . . .

In the summer, **students would set out in groups of 15 with a Jesuit prefect to hike through the countryside**, perhaps to swim in the Harlem River. More frequently, they went to the college swimming hole on the Bronx River. **In winter, snowballing and ice skating were popular**. The two marshy areas in the rear in the rear of the college were flooded, and the Third Division utilized the northern pond [today's faculty parking lot], while the First and Second took the one to the south [today's Millennium Hall and its grounds]. . . . A single skate blade of steel was recovered from the brick debris of the main building's

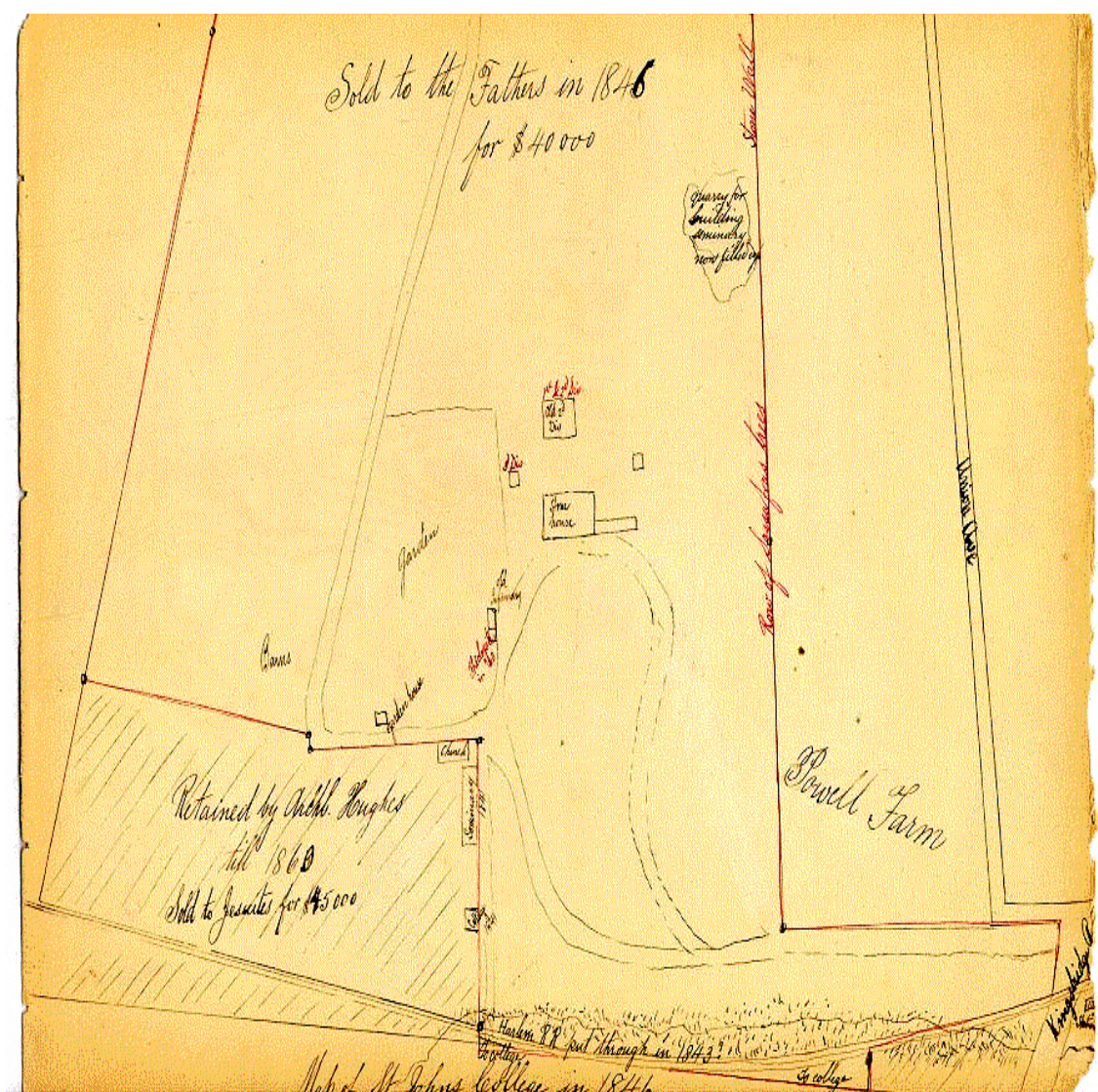


middle wing [eastern side of today's Administration Building] when it was disturbed during preparations for landscaped gardens.

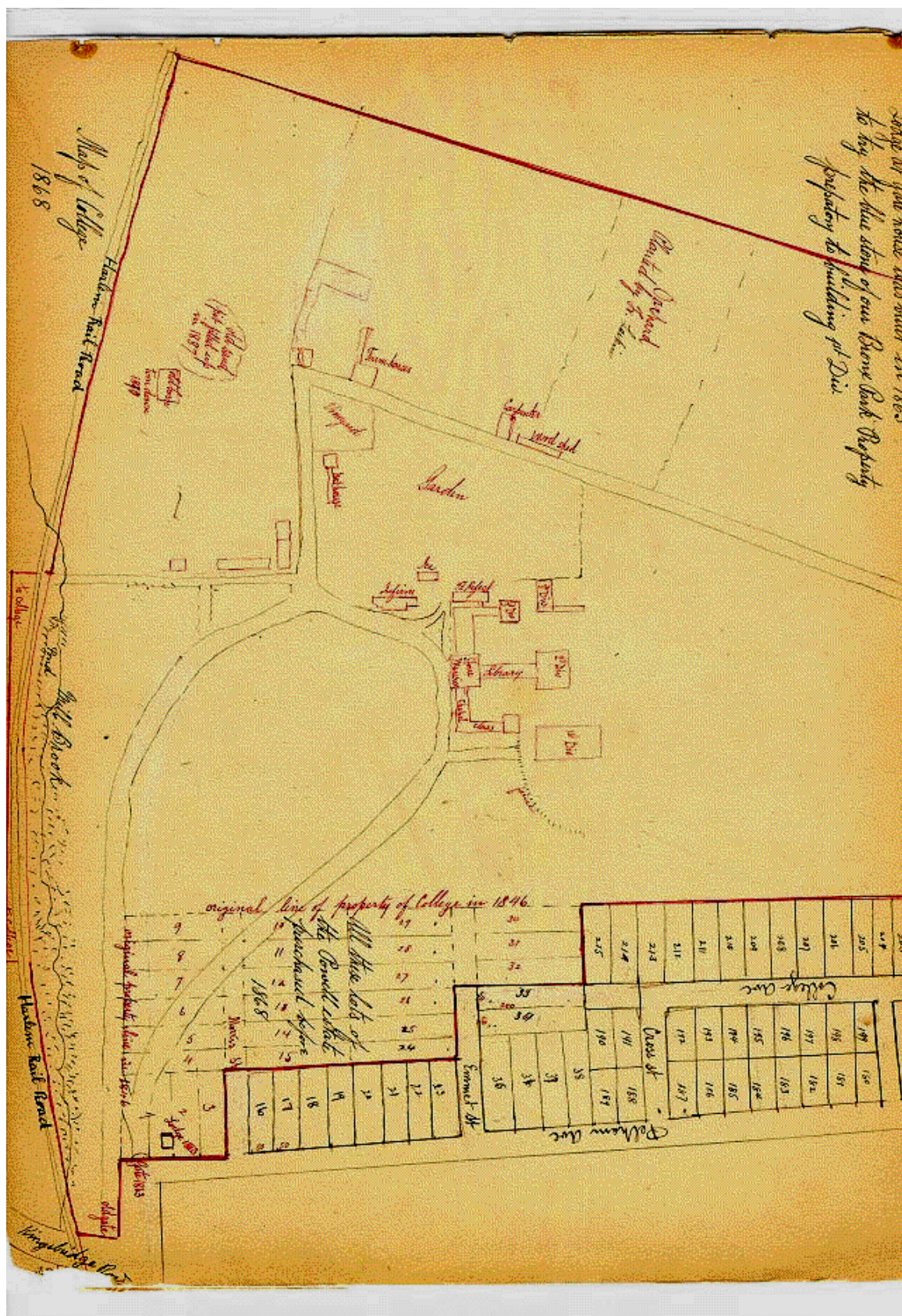
## 2. Photo Essay of 19<sup>th</sup> Century Rose Hill Campus

Assisted by Patrice Kane (Fordham Archives)

**1846 Campus Map In the Diary of the "Father Minister"**  
**Showing Oval Drive, Church, Garden and Garden House (now Alpha House),**  
**Barns (now Fordham Prep. and Athletic Field), etc.**

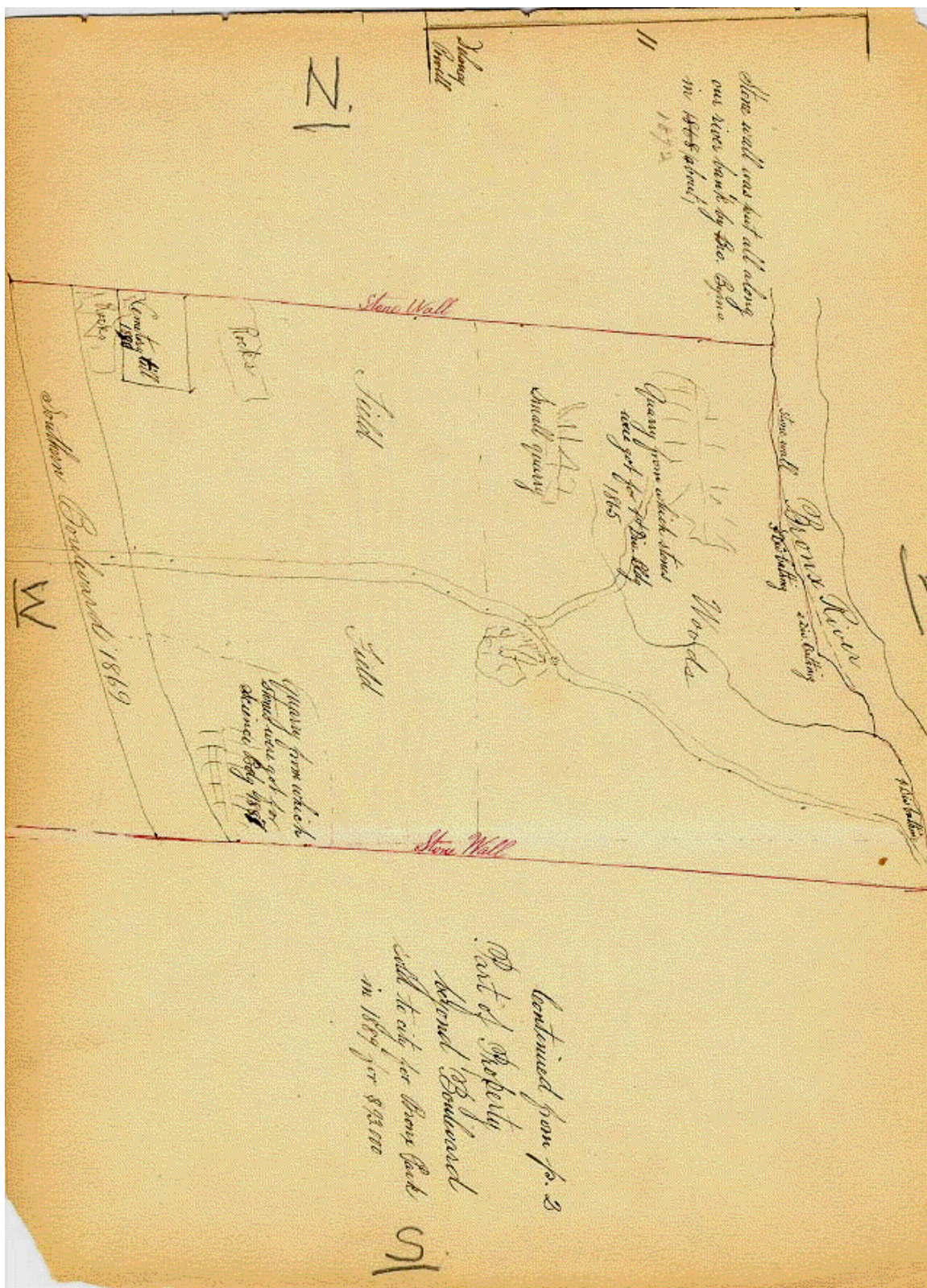








**Father Minister's Map of Campus Land on Opposite Side of Southern Boulevard,  
Including Fields, Cemetery (top left) and Swimming Holes on the Bronx River (right side).  
Inscription top right: "Stone wall was built all along *our river* bank by Bro. Byrne in 1872."  
Inscription on bottom: "Part of the Property beyond Boulevard sold to city for Bronx Park in 1889  
for \$93,000."**



**Man on a Bike, Perhaps a Postman,  
Probably at the foot of the oval drive beside today's Walsh Library**





**Man on a Horse in Front of ?**



**Mowing Fordham's Hay Fields**





**Fordham Strollers on a Snowy Day  
On Campus Grounds that Became the NYC Botanical Garden**



**Jesuit and Students at the Bronx River Swimming Hole**





**1<sup>st</sup> Division Swimming Hole on the Bronx River**





*Bronx River - 1<sup>st</sup> Div. Swimming Place  
S.E. extremity of former property*

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### 3. General Questionnaire

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The following questionnaire was filled out by the audit team and John van Buren by consulting university documents, administrators, and relevant faculty.

*(a) Campus Environmental History, Relation to the Bronx River and Bronx River Alliance*

**What is the history of the college's educational and cultural relationship with the nearby Bronx River: e.g., use as outdoor classroom in science labs and other courses, recreational resource, spiritual resource, community service river restoration, etc.**

See sections 1 and 2 above. Note that paleo-indian and neo-indian history on the Botanical Garden/Bronx River portion of the original campus was not documented. The main western Indian village was just north of Fordham where the Sprain Brook flows into the Bronx River (Yonkers/Bronxville), which the Indians called the Aquehung River. Indian rock paintings still remain in the Bronx river gorge in the Botanical Garden. Allan Gilbert in the Sociology and Anthropology Department has done some research on Indian culture around Fordham.

Fordham has had a positive, longstanding relation of stewardship with the river as an educational, cultural, aesthetic, and recreational resource, and in this regard a longstanding relation of cooperation and



collaboration with the Bronx River Working Group (now called "Bronx River Alliance"). The green space of the river corridor around and within the Rose Hill Campus has since the inception of the university in the 19th century been an important aesthetic, recreational, and spiritual dimension. The river has also traditionally been used as an outdoor classroom in science labs, other classes, and now in classes of the new Environmental Studies program, especially when travel to the distant biological/ecological research station at the Calder Center is not feasible. For years, volunteer students and faculty in the Community Service Program and in the Environmental Protection and Awareness Club have worked with the Bronx River Working Group (now Bronx River Alliance) to clean up and restore the river-complementing Fordham's other community service work to improve the lives of disadvantaged Bronx River corridor neighborhoods and communities. The Community Service Program now has a working relation with newly structured partnership group, Bronx River Alliance, in arranging community service opportunities, and the Environmental Studies program works with the Alliance in arranging internships for its minor students and independent major students in the course ESRU 4900-Environmental Internship.

**Are there any publications or documents in the university archives providing information on the college's relation to and use of the river in the 19<sup>th</sup> century when the "Fordham Farm" was purchased and in the early 20<sup>th</sup> century? What kind of relations did the early Jesuit community have with the river and its green space? Was an outdoor mass ever celebrated along the river?**

**The early environmental and cultural history of the campus seems to have been to a great extent lost, save for the labors of a few who have attempted to preserve it.** Documents exist in the university archives and Bronx archives, but a thorough environmental history of the campus remains to be researched and written. Some of these materials have been researched and gathered by Allan Gilbert and Roger Wine in connection with their archaeological research over the last 15 years on the Rose Hill Manor. Their following publications represent an essential first step in the campus becoming more aware of its own environmental history. The first article cited includes a bibliography of existing books on the history of Fordham university.

Allan S. Gilbert and Roger Wines, "From Earliest to Latest Fordham: Background History and Ongoing Archaeology" in Thomas C. Hennessy, S.J. (ed), *Fordham: The Early Years* (Fordham University Press, 1998). The essay can be found at <http://reserves.library.fordham.edu/tempfiles/tmp20963/VB2.pdf>.

Allan S. Gilbert and Roger Wines, "Fifteen Years of Excavations at Rose Hill Manor, Fordham University" in Allan S. Gilbert (ed.), *The Buried Bronx: Recent Archaeology in the Borough* (Bronx, New York: Bronx County Historical Society, forthcoming).

Allan S. Gilbert (ed.), *Collection on Bronx Environmental History* (in preparation).

**Have any Fordham faculty or others done natural history research and published on the original course of the river (prior to the last ice age) through what is now the Rose Hill Campus and more specifically what is now the Metro North rail line on the west side of the campus?**

Geology classes sometimes study the Bronx River in field work.

**Is the Bronx River mentioned in any university promotional material or in any publications for the Fordham community (bulletin, handbooks, website, etc.), e.g., as being a nationally recognized historical river/landmark (which it is, along with the Bronx R. Pkway, "America's First Parkway") and as an important dimension of the natural beauty of the college's setting and its educational resources? (Note: In contrast to the south and western campus boundaries, Fordham members have the rare NYC opportunity of taking a short walk from the north campus entrance through an old-growth eastern seaboard forest to the river gorge and waterfall in the Botanical Garden—and this resource is being expanded: Bronx River Alliance/Dept. of Parks recently purchased the large tract of old growth river forest north of the Garden on Allerton Avenue to create a park called "The Bronx Forest.")**

No. Only a few mentions here and there of the Rose Hill campus being Fordham's "green campus" in contrast to the Lincoln Center campus.

**What is the history of the college's public and community service relations with disadvantaged communities along the river? Has it participated in urban ecology and environmental justice projects to improve green space and environmental health conditions for these communities?**

Service has apparently been focused more on and framed around other urban issues such as housing, not urban ecology. But for years Community Service Program has arranged for volunteer students and faculty to work with the Bronx River Working Group (now Bronx River Alliance) to clean up and restore the river for local residents. Extent of this service is unknown.

**Has the college ever worked with the NYC Dept. of Parks and/or other city environmental agencies (e.g., Dept. of Environmental Protection, Housing, etc.) on a Bronx River project? Or other projects not involving the river, e.g., improving city parks elsewhere for disadvantaged communities?**

Unknown.

**Does the college have formal relations or cooperative programs with environmental education organizations on the Bronx River: Wildlife Conservation Society (Bronx Zoological Park), the NYC Botanical Garden, the Bronx River Alliance (coordinated by Partnership for Parks and NYC Parks Dept.)?**

According to Biological Sciences, the university has some kind of formal affiliation with the Wildlife Conservation Society, but it is unknown what it is. Community Service and Environmental Studies work with Bronx River Alliance, but are not formal members of the Alliance (other Bronx colleges are).

**Does the college have any other direct or indirect relations with the Bronx River and/or disadvantaged river corridor communities?**

Unknown.

### ***(b) Financial***

**How much money did the university allocate during the past academic year directly to the areas of environmental education, literacy, activities, community service, etc.?**

Environmental Studies budget: \$5000

Environmental Audit Grant to Environmental Studies: \$5000

Earth Day Celebration Organized by Greening Fordham Group: \$300

**Has this amount changed in the last five years?**

Yes. Environmental Studies Program began only this past year.

### ***(c) Curriculum***

**Does the college have an undergraduate environmental studies department? How many courses are offered? How many degrees are conferred each year? Is the number growing or decreasing and by how much?**

Environmental Studies began this past year. Offers three of its own courses, and crosslists 30-40 other courses. The program graduated 7 students this spring: 4 Individualized Majors in Environmental Studies it supervised, and 3 Environmental Studies minors.

**Are undergraduates required to take a core course that promotes environmental literacy?**

No. Though many of the listed core natural science courses have an environmental dimension and are crosslisted in the Environmental Studies program. The three general distributive areas in the core curriculum include only Freshman Seminar, Global Studies, American Studies.

**Does the university have graduate environmental degree programs: i.e. ecology (biology), environmental law, etc.?**

M.S. in Ecology (Biological Sciences)  
Law School has courses in environmental law and two environmental law faculty.

**Do professional schools have environmental courses in their curriculum?**

Law School

**Have there been any initiatives for training faculty to incorporate environmental themes into their courses?**

No.

**Does the college have a scholarship program for students in environmental science/studies, or participate in a state or national scholarship program?**

No.

**Do plans for the new science building(s) include incorporating a visible environmental or ecological dimension, e.g., a model ecosystem pond, roof plant ecosystem, etc.?**

Some, e.g., possible geothermal system in the renovation of the Duane Library. See the study of the university's planning document by Colin Cathcart in Section V below.

***(d) Research***

**Is environmental research conducted at the college? In which departments, institutes, or field stations?**

Environmental Studies (and associated faculty), Biological Sciences, Calder Center, etc.

**What are the subjects of any environmental research, the funding source, and which departments receive those funds?**

E.g., ecology and its subfields (Biological Sciences), e.g., paleoecological studies of anthropogenic species extinctions. Funding sources: NSF, etc. Environmental history of the Bronx (Anthropology). Sources: unknown. Environmental philosophy and ethics. Funding: primarily internal. Ecotheology. Environmental politics and law.

***(e) Mission and Administration***

**Has the college or university ever done an environmental self-study or audit regarding its mission, practices, facilities, public image, etc.? In what university areas was the study conducted?**

No.

**Is there a central office or committee which is responsible overseeing all environmental dimensions of the college or university?**

No. Facilities oversees some areas, such as environmental law compliance.

**Have any environmental courses or other student research (e.g., campus newspaper) studied the environmental impacts of the campus? What projects have students completed in this research and have any of them resulted in a change of campus policies?**

Student newspapers have featured articles on campus recycling, experimentation on animals at Fordham, etc.

**Is the mission statement of the university directly and publicly linked in any way to environmental stewardship? For example, with reference to the Jesuit ecology mission study “We Live In A Broken World—Reflections on Ecology” (1999).**

No.

**Is environmental literacy and responsibility (for example, recycling, energy conservation) covered in new faculty orientation sessions, orientation sessions for other employees, and orientations for prospective and new students?**

No.

**Is environmental literacy and responsibility promoted in any faculty development programs or workshops?**

No.

**Is information provided to faculty and other employees on socially and environmentally responsible retirement plan options?**

No.

***(f) Public Relations***

**Does the college or university belong to any environmental associations or programs that are interuniversity (e.g., National Council for Science and the Environment, Association of University Leaders for a Sustainable Future, or National Wildlife Federation’s Campus Ecology Program), government-university (e.g., the Environmental Protection Agency’s XLC/Excellence and Leadership for Communities Program, or NY State Dept. of Environmental Conservation’s Waste Reduction and Recycling Assistance Program), community-university (e.g., Bronx River Alliance), Catholic (e.g., Greening Academia Program and Theological Education to Meet the Environmental Challenge Program at the Center for Respect of Life and Environment), or interfaith (National Religious Partnership for the Environment)? If yes, are any providing technical or financial assistance to the university?**

Apparently not.

**Is the college or university part of a cooperative university-state government research and policy center? What research projects have been conducted?**

No.

**By national standards, most of the south Bronx is a highly environmentally degraded urban environment: e.g., there are four schools within a half-mile of Superfund sites, asthma rates in children are among the highest in the nation, etc. Does the college participate in any local urban ecology or environmental justice projects with local disadvantaged communities, or have any partnerships with local ecology and environmental justice community organizations?**

Apparently not.

**Do any students participate in outreach/internship K-12 environmental education work with local schools, e.g., in the teacher training program? Are there any partnerships with primary and secondary schools?**

Unknown.

*(g) Campus Life*

**What student environmental activities are present on campus: clubs, community service work, campus ministry retreats, Earth Day celebrations, campus ecology projects (recycling drives, energy conservation projects, campus garden, etc.)?**

Environmental Protection and Awareness Club, Camping Club. Community service work on Bronx River restoration. Earth Day celebrations sometimes.

**Does the campus have a residence program that encourages environmentally sensitive lifestyles?**

No.

**Does campus ministry incorporate the theme of stewardship into some of its activities, e.g., retreats at the Calder Center, special masses, etc.?**

Not found in any retreat literature, etc.

**Does the career development office provide information through job fairs and counseling on career opportunities in the area of the environment and career opportunities with businesses committed to social and environmental responsibility?**

Unknown.

**Does it encourage businesses to incorporate information in their presentation on their commitment to social and environmental responsibility?**

Unknown.

**Does food service have an organic food purchasing program?**

No.

**Is there a permanent and visible campus symbol of the college's commitment to environmental stewardship: e.g., a tree planting with plaque, small statue of St. Francis declared by John Paul II to be "the patron saint of environmentalism," model ecosystem pond or wetland, organic garden? Has it ever such a symbol?**

Not presently. There used to be a dome ecosystem on the northeast side of Keating Hall.

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#### 4. Student Questionnaire

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The following questionnaire was sent by email to a group of Fordham University students. The answers that we received are presented below. The respondents are identified at the top, and their initials are used throughout the document.

Abbreviations for Respondents' Names:

SisqoDream: <b>SD</b>	Nymetropolitans: <b>NY</b>
Sara Newman: <b>SN</b>	Oly: <b>OL</b>
James M. Jacobs: <b>JJ</b>	Casie Attardi: <b>CA</b>
Gabrile Deiacio-Loehr: <b>GDL</b>	Angels2833: <b>AN</b>
JME: <b>JM</b>	Steven Chang: <b>SC</b>
Mofiqul Islam: <b>MI</b>	Brian O'Neil: <b>BO</b>
Amy Peters: <b>AP</b>	Lindsay Toland: <b>LT</b>
Keryn M. O'Leary: <b>KO</b>	Julia Gostomski: <b>JG</b>

**Were you aware that the Bronx River is right beside the rose hill campus (5 minutes walk) in the Botanical Garden and Bronx Zoo?**

- Yes. (*SD*)
- I did not know that. (*SN*)
- Yes. There is also a nice green belt north of the Bot. Gardens with some good paths for running. (*JJ*)
- Yes. I visit the Garden frequently. (*GDL*)
- I was. (*JM*)
- No. (*MI*)
- No. (*AP*)
- Yes. (*KO*)
- Yes. (*NY*)
- No I wasn't. (*OL*)
- Yes. (*CA*)
- No, I wasn't aware. (*AN*)
- No I was not aware. (*SC*)
- Yes. (*BO*)
- Yes. (*LT*)
- Yes. (*JG*)

**Have you ever visited the river? If yes, why?**

- I have seen while visiting the Bronx Zoo. (*SD*)
- No. (*SN*)
- Yes; I jog in the garden and along the green belt. (*JJ*)
- Yes. While visiting the garden, I find that the area behind the Lorillard Snuff Mill is very quiet and relaxing. Because my father is a surveyor, I have developed a historical interest in urban growth and change. (I'm not sure 'development' is the right word.) (*GDL*)
- Yes. Because I went to the Botanical Garden and wanted to see it. (*JM*)

- No, because I was not so informed about it before taking Environmental Physics. (*MI*)
- No. (*AP*)
- Yes, with one of my classes. (*KO*)
- No. (*NY*)
- No I haven't. (*OL*)
- Yes, Philosophy field trip. (*CA*)
- Yes, I visited the river in the fall during a trip to the Botanical Gardens in the fall, though I wasn't aware at the time that it was the Bronx River. (*AN*)
- No. (*SC*)
- I have only seen it when the class walked to the Bronx Zoo. (*BO*)
- Yes, we visited the river during my Philosophy class this year. (*LT*)
- Yes, in Professor van Buren's Philosophy class. (*JG*)

**Do you have any kind of direct or indirect "relation" with the river—personal, educational, professional, etc.?**

- I feel a longing to learn more about it. (*SD*)
- If I had known about it I would definitely have visited it and tried to learn about it. (*SN*)
- No. (*JJ*)
- See above. Also, I follow the river's path up the parkways when I visit friends north, so it is a sign of continuity with the world outside of the city. (Sadly metaphoric, isn't it?) (*GDL*)
- Not really. (*JM*)
- I might have some educational relation with the river if I choose to participate in doing community service there (Bronx River Restoration Project). (*MI*)
- No. (*AP*)
- I have learned about the river from one of my professors and visited it, but that is my only "relation" to it. (*KO*)
- Yes. (*NY*)
- No I don't. (*OL*)
- Not specifically. (*CA*)
- No. (*AN*)
- No. (*SC*)
- No, I never knew it existed until I attended school here. (*BO*)
- Not especially. (*LT*)
- Nope. (*JG*)

**Do you think it would benefit students to connect the campus more with the river? If yes, why?**

- Absolutely, if I had never taken the Monorail at the Bronx Zoo, I would never have even seen it. It's not something that is really known to many students, and that's unfortunate. (*SD*)
- Definitely. I'm sure students would be interested in completing service hours there. (*SN*)
- Yes. This is a pretty bleak landscape; going to the Garden can be a real break from the concrete. (*JJ*)
- Yes, if it were a conservational move. It would begin to give them an appreciation of the large amount of parkland available in the Bronx, and cause them to consider if or how natural resources can coexist with urban development. Yet I think that it would be difficult for them to appreciate any effort they make to involve themselves in the river, when the rest of Belmont is a sty. (*GDL*)
- I think it would because it would raise awareness of the history of the river. (*JM*)

- Yes, it would definitely benefit students because helping by any means of student support can show that we are aware and concerned about community problems and not being ignored in a world where we should provide help by any means we are capable of to bring about possible positive outcomes. *(MI)*
- Yes—students need the exposure to non-urban settings. *(AP)*
- Yes, I think students need to have a greater awareness of the river because it is so close to Fordham. They should see and understand the conditions of the river and how our campus affects it. *(KO)*
- Yes. The river is a part of the environment that students place themselves in by attending Fordham; they should not consider themselves separate from it or remain ignorant of it. *(NY)*
- Yes, since students who are aware more of what surrounds them are more able to function as a person in a community rather than just in a university. *(OL)*
- Yes, to foster a better relationship between Fordham students and the surrounding physical features of the Bronx. *(CA)*
- Yes, I do. The river is part of the Bronx community and history. As students living in the Bronx, we should be more aware of our surroundings and the history of the Bronx. *(AN)*
- Yes, because it would help make the students aware of their surroundings and the history behind it. *(SC)*
- Yes, because I think it would concern more students if it were polluted, so more people might help clean it up. *(BO)*
- Yes, I absolutely do, because the Bronx is more connected with its culture on Fordham Road and Arthur Avenue, and I believe that the environment should be looked at with equal, if not more so, importance. The Bronx River is an important aspect of our environment, and should thus have more of a connection with our campus. *(LT)*
- Yes because it is a part of the community. It would give us another place to sit on pretty days and may help students become more aware of the need to take care of the environment. *(JG)*

**Do you think that the courses offered at Fordham provide students with enough exposure to environmental issues?**

- I am only a Freshman and so I'm not really familiar with what courses are offered. But, I was pleased to learn about the EPAC and the environmental courses offered here at Fordham. *(SD)*
- Not at all. *(SN)*
- No opinion. *(JJ)*
- Not qualified to answer. *(GDL)*
- I am not really familiar with all the courses here, but I would assume in the negative. *(JM)*
- To be frank, I am not aware of any other courses dealing with environmental issues except the one I am taking now and Life On Planet Earth that I have taken with Dr. Dale. I feel that those courses provide important exposure to what is happening in our community and our environment. *(MI)*
- Yes. *(AP)*
- No. The courses that all students are required to take in the core curriculum do not cover environmental issues and instead, we only learn about these issues when taking electives or major/minor courses about the environment, which not all students have the opportunity to do. *(KO)*
- No. *(NY)*
- Unless classes were environmental, none of my classes provide any type of exposure to the environment. *(OL)*
- Being, a freshmen, I haven't been exposed to many courses with significant environmental issues. This class, Philosophy of Human Natures, is the first to address such matters. *(CA)*
- No, so far the courses I have taken, with the exception of philosophy, there has been no real discussion of environmental issues. *(AN)*



- No. (SC)
- No. (BO)
- None of the courses that I have taken include any mention of environmental issues except for philosophy, and that being the case, my answer is no. (LT)
- Nope. (JG)

**How would you rate the college's level of commitment to environmental responsibility, its environmental record, and its public image?**

- I'm not sure how committed Fordham is to environmental issues, but being that this school is a huge lawn in the middle of NYC, it should be an important part of community life here. (SD)
- Judging from my first few months here, I think it's very poor. I'm not familiar with its public image but the college's commitment to environmental responsibility needs improvement. (SN)
- There could be more recycling receptacles (and they could be better observed by students). There does seem to be some unnecessary waste, but it is hard to say how much. (JJ)
- Good in terms of on campus conservation of Greenland. Excellent in terms of recycling opportunities provided. Otherwise, Not qualified to answer. (GDL)
- To environmental responsibility, terrible. The recycling is disgraceful. I don't know about it's environmental record, but I am sure it can't be good, considering how it is now, and it's public image is probably at the top of their list of things that they make sure are taken care of properly. I think that they care more about how they appear than how they actually are. (JM)
- Again, I am not so informed about these issues, so I am not fully able to comment. However, getting to be involved with various forms of community service programs provided by the Community Service office, I feel Fordham is geared toward the right path. (MI)
- It's not a central concern, but there is a minimal level of awareness. (AP)
- I think that Fordham is, for the most part, committed to the environment and its public image, but some improvements may be necessary. (KO)
- Poor to fair. (NY)
- Fordham's public image seems to be well regarded because it's something people from the Bronx can be proud of as being a part of their community. In terms of environmental responsibility, Fordham offers many programs that help with the environment such as the Urban Plunge program that begins a week before classes start and helps clean-up areas around the Bronx or help out by sending out volunteers. I don't know much of its environmental record to offer any kind of assessment. (OL)
- I wouldn't rate the school's environmental responsibility very highly. From my observations of recycling and daily disposal practices, the school does not have a very good awareness of the correct procedures. (CA)
- I'd say the college's level of commitment to these issues is average. Even though there are a few recycling receptacles around campus, there is not a strong effort to promote recycling. (AN)
- 7 [out of 10], I don't know too much about it. (SC)
- If I were to grade it, I would probably give it a C- since only a small amount of concern is given to it. (BO)
- From what I have been told concerning the college's environmental record, I would not rate the college's level of commitment to environmental responsibility very high. I have been told that, although a few recycling bins exist, all of the waste goes into the same trash bin in the end, and I find this disturbing. (LT)
- Not at all. (JG)

**How would you rate the level and quality of environmental activities on campus, e.g., Earth Day Celebration?**

- Again, I am a Freshman, so I have never seen any of these events. (SD)

- I'm eager to see how successful Earth Day will be but other than that one event, I'm not aware of any efforts that have been made to promote environmental awareness. (SN)
- Earth Day? (Actually, I think they should tie it into the religious theme of stewardship? the Jesuit/Catholic commitment there is strong and it gives the students a better theo-philosophical grounding.) (JJ)
- Not qualified to answer. (GDL)
- I have never attended, but I would say that there needs to be more advertising, as well as more environmental activities all together. (JM)
- See above question. (MI)
- I missed it. (AP)
- Because I am only a freshman, I have yet to witness Earth Day Celebrations at Fordham. However, from the few activities I have seen, I do not think that a great deal of consideration is put into the environment. (KO)
- Fair to poor. (NY)
- I haven't been to one so I wouldn't know. (OL)
- Not very highly... Being a senator on the United Student Government, I am aware that these activities and events do exist, but would be not be aware if I wasn't. Publicity, advertising are at a minimum. (CA)
- I haven't been aware of that many environmental activities on campus. (AN)
- 5 [out of 10]. (SC)
- I would give it a D because I have not heard much at all about environmental activities. (BO)
- I have yet to experience the Earth Day Celebration, however, if I were not on the mailing list for the online Fordham environmental awareness group, I doubt I would even know that such a celebration existed at Fordham. Therefore, although I am sure the quality of the activity is very high, I think that it should be more advertised. (LT)
- Poorly. (JG)

**How would you rate the level of environmental awareness and literacy of the average rose hill student?**

- I don't think most students, in general, are educated enough in nature and their environment. (SD)
- Very poor. (SN)
- Poor to average. Middle class kids from the suburbs are only environmentalists in order to rebel against their parents. (JJ)
- Poor. (GDL)
- Low. Awareness could be higher, resulting in increased care for the environment, but everyone knows that they should recycle, but they don't care. (JM)
- See above question. Students are more exposed about these issues mostly in classrooms and where they are required to take such courses, so I feel more options should be provided to bring about greater awareness. (MI)
- Minimal, though there are plenty of other issues to be concerned with (i.e. local and national concerns such as the war). (AP)
- I think that students are only somewhat aware and literate of environmental conditions on the Rose Hill Campus. (KO)
- I am not a Rose Hill student. (NY)
- Aware in terms of having an environment: high. Aware in terms of making it better: low. (OL)
- ZERO, recycling, and other environment responsibilities are virtually non-existent. (CA)

- I think the average rose hill student is not very aware of environmental issues. Perhaps the school could have an environmental fair, or at least sponsor more environmental activities. (AN)
- 7 [out of 10]. (SC)
- Like many of my friends, I have very little environmental awareness and literacy. (BO)
- The average Rose Hill student is probably somewhat environmentally aware, but I do not think that many of them act on this awareness. (LT)
- Very poorly. (JG)

**Do you think information sessions for prospective students, orientation sessions for new students, the freshman advising program, etc. should provide information on the college's commitment to environmental responsibility (recycling, energy conservation, etc.) and encourage environmental literacy/responsibility in the student population?**

- Yes, that's definitely a possibility. (SD)
- That would definitely be the place to start. (SN)
- Yes, but be tactful. If they have to do they won't like it. (JJ)
- Yes. (GDL)
- I definitely think it should because then they would be recruiting more environmentally conscious students, hopefully improving the importance of taking care of the environment for future classes. (JM)
- Yes, most definitely. See also above question. (MI)
- Yes, its part of the institution that is Fordham. (AP)
- Yes, students definitely need to be made more aware of how Fordham handles its environmental responsibilities. (KO)
- Yes, but a balanced approach. (NY)
- Somewhat, so it would give students the impression that the University does care about its image. Otherwise, students who don't know any better might ruin it for the rest of the students who do. (OL)
- DEFINITELY, Freshmen orientation should be incorporated in the awareness process. (CA)
- Yes, I believe these actions would affect the attitude of the student population. (AN)
- Yes. (SC)
- No, I don't think so because people would probably respond to it negatively, as if they were being forced. (BO)
- Yes. (LT)
- Yes. (JG)

**Would you like to see an organic food bar offered in the cafeteria?**

- I would like to see a lot of changes done in the cafeteria! But that sounds good. (SD)
- Most definitely. (SN)
- I don't know that this is as big an issue as the others. (JJ)
- Yes!!!! And in the Ramskellar, for those who visit from off campus (food choice for healthy eating is poor down there). (GDL)
- I would like to see tastier vegan food, and yes an organic food bar would be spectacular. (JM)
- Yes, why not. (MI)
- Yes. (AP)
- No. (KO)
- Yes, if it was price competitive. (NY)

- Wouldn't hurt. (OL)
- Many students would enjoy it. (CA)
- Yes, I think that would be a good idea. It would offer students another option. (AN)
- Sure. (SC)
- I'm not quite sure what would consist in an organic food bar. But, anyone change in the cafeteria's food could only be for the better. (BO)
- YES, very much so. (LT)
- YES PLEASE!!!!!!!!!!!!!! I would LOVE THAT!!!! I can only eat fries and burgers so many times a week. (JG)

**Today we see businesses, organizations, government agencies, universities, etc. instituting a "social and environmental responsibility" program to strengthen their missions, public image and quality of life in the work place. If cost-effective, do you think the college should implement something like this, taking simple steps in the areas of environmental education and literacy (e.g., providing more information on recycling, etc. in student/faculty handbooks), energy efficiency and conservation (e.g., stickers beside light switches, energy efficient lighting and appliances), solid waste management (increasing recycling bins, use of recycled paper), water conservation and protection (low-flow toilets and faucet sensors, stickers in washrooms about proper drain use, introducing some integrated pest management techniques to reduce polluted stormwater runoff from pesticides and fertilizers)?**

- Those are all wonderful ideas. I feel personally hurt when I see people disrespecting the environment tossing garbage on the floor, etc.). (SD)
- Yes. I feel that these steps are important but education needs to go beyond stickers next to light switches. Things like environmental awareness workshops and speakers would be good. (SN)
- Yes. (JJ)
- I think the water conservation and protection options are where the school must next focus its activity. As far as an entire program, I don't think this is necessary – I am against the creation of any additional committees. Perhaps this should fall under the control of facilities, and perhaps there can be simply a mediator position developed to work with facilities and the rest of campus. (GDL)
- Absolutely, without a doubt. Even if it isn't cost effective at first, how could it not be further down the line? (JM)
- Yes they should, especially to provide opportunities and awareness for those students that like to maintain a safe and clean environmental for themselves and the betterment of their community and world at large. (MI)
- Absolutely. (AP)
- Yes, most definitely. (KO)
- Yes. (NY)
- Definitely because in the end Universities aren't the only ones benefiting, students will leave the University knowing and doing better. (OL)
- It would definitely be a starting point in the quest to improve environmental conditions on campus. (CA)
- I think all these actions are important and necessary steps toward the awareness of environmental issues. I think Fordham should definitely implement some sort of program like this. (AN)
- Yes. (SC)
- As long as a large amount of money is spent, I really don't see any negatives in initiating a program like this. (BO)
- Yes. (LT)
- It is worth a shot, but I don't think signs and stickers would make a difference. (JG)

**Do you have any other suggestions?**

- I actually have to run to class right now, but I'll email some ideas if I come up with any. Thanks! (SD)
- I often pass by the baseball field at night and see the electricity-guzzling stadium lights illuminating a completely vacant field. What is the purpose of wasting all this energy???? I would like to see a lot more environmental programs on campus and I would love to help in organizing them. Please contact me if I can do anything. (SN)
- I grew up in the Baltimore suburbs, where there were several parks nearby that fed into the Chesapeake Bay (where else?) I know that the environmental education program in that area was excellent, and I suggest looking at the incentives Maryland has taken over the past dozen years to clean up the drainage basin. I would also prefer the environmental education to be focused on off-campus issues, as litter and recycling are problems that students contribute to off campus. Focusing on off-campus awareness as well as on campus awareness could eventually spill over to the Belmont community and be more effective. (GDL)
- MORE RECYCLING BINS!!! There are a few people on this campus (like myself) who would like to recycle while at school, but simply can't because either, there are no recycling bins, or they are there, but all filled with random garbage. More bins, and more sorting enforcement. (don't ask me how to enforce...) (JM)
- It is up to individuals to step up and take action, but more awareness needs to be provided so that those interested can help by their possible means. (MI)
- More regulation on whether or not paper placed in recycling bins is actually kept separate or combined w/ the regular trash—as seen done by maintenance workers (for ease). (AP)
- Not at this time. (KO)
- Partnerships with local offices of federal and state agencies with environmental foci - not just the municipal agencies. In addition, a more public acknowledgment of such associations and partnerships. In addition, some attention to the natural environments within the metropolitan area, which are not adjacent to Fordham (though starting local is logical and laudable). Most especially resources that students attending the Lincoln Center campus can relate to or appreciate. Central Park, though a landscaped park, is still a relatively natural - and significant – open space worthy of concern. The Hudson River, the East River, Jamaica Bay (perhaps the only Wildlife Refuge in the world accessible by subway!), the Hackensack Meadowlands, etc. (NY)
- Spring classes as well as early Fall classes should be spent outside, whether it be in the Botanical Gardens, in front of the Walsh library, Eddie's Parade, or just somewhere outside. (OL)
- A recycling bin in every room. Maybe if they enforce a penalty to students if they don't recycle and the punishment should be community service for separating the recyclables from the garbage. I heard from somebody, I don't even know if its true or not that Bloomberg was trying to take away recycling in Manhattan. (SC)
- Not really, I'm not really informed when it comes to nature, recycling, and taking care of the planet...sorry. (BO)
- I think that more environmental awareness is necessary on the campus, but all of the above suggestions are very good ones. (LT)

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## 5. Department Questionnaire

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The following questionnaire was sent to the chairs of all departments and programs at Rose Hill. Seven responses were received and are presented below.

**Does your department use the nearby Bronx River in the Botanical Garden and/or Bronx Zoo as an "outdoor classroom" for labs, field trips, etc.?**

- Not to my knowledge. (*Leo D. Lefebure, Theology*)
- No we do not use these places as an "outdoor classroom." (*Mark L. Chapman, African-American Studies*)
- No. (*Mark Russell Warren, Sociology*)
- Yes, for the Environmental Physics Course. (*Benjamin Crooker, Physics*)
- Literary Studies does not have any relationship with the Bronx River. (*Anahid Kassabian, Literary Studies*)
- No. (*Elaine Crane, History*)
- Yes, both. They've given us the occasional free entry for class tours of Design and Nature. (*Colin Cathcart, Architecture*)

**Has any member of your department done research on the Bronx River or the communities along it?**

- Not to my knowledge. (*Leo D. Lefebure, Theology*)
- Not to my knowledge, but Urban Studies director Dr. Mark Naison may very well have done some work in this area. (*Mark L. Chapman, African-American Studies*)
- Not on the Bronx River, but members do research concerning communities in the Northwest Bronx and South Bronx. (*Mark Russell Warren, Sociology*)
- Not to my knowledge. (*Benjamin Crooker, Physics*)
- Literary Studies does not have any relationship with the Bronx River. (*Anahid Kassabian, Literary Studies*)
- Yes, Roger Wines has. (*Elaine Crane, History*)
- No. (*Colin Cathcart, Architecture*)

**Does your department have any working relations with communities, neighborhoods, or organizations (e.g., Botanical Garden) along the Bronx River?**

- Don Moore does a service learning version of Faith and Critical Reason, having students do work in the community, but I do not know where they have gone in the past, and Don is in Jerusalem this semester. (*Leo D. Lefebure, Theology*)
- Urban studies and Dr. Naison might, but AAS does not—to the best of my knowledge. (*Mark L. Chapman, African-American Studies*)
- Not so much on environmental issues, but we do have relations with schools (e.g. Roosevelt H.S.) and organizations (University Neighborhood Housing Program, Fordham Bedford Housing Corporation, Northwest Bronx Community and Clergy Coalition). (*Mark Russell Warren, Sociology*)
- Yes, through Professor Mancini. (*Benjamin Crooker, Physics*)
- Literary Studies does not have any relationship with the Bronx River. (*Anahid Kassabian, Literary Studies*)
- Ask Roger Wines. (*Elaine Crane, History*)
- I've worked with Nos Quidamos in Melrose, I don't know if that qualifies. (*Colin Cathcart, Architecture*)

**Does your department have any other direct or indirect relations with the Bronx River?**

- Not to my knowledge. (*Leo D. Lefebure, Theology*)
- No—not to my knowledge. (*Mark L. Chapman, African-American Studies*)
- No. (*Mark Russell Warren, Sociology*)
- No. (*Benjamin Crooker, Physics*)
- Literary Studies does not have any relationship with the Bronx River. (*Anahid Kassabian, Literary Studies*)
- Ask Roger Wines. (*Elaine Crane, History*)
- No. (*Colin Cathcart, Architecture*)

**Do you think it would benefit students in your department to connect the campus more with the river? If yes, why and how should this be done?**

- No opinion for theology. (*Leo D. Lefebure, Theology*)
- It depends on what type of connection we're talking about, but generally speaking I do favor learning outside the classroom. (*Mark L. Chapman, African-American Studies*)
- Yes. What you're doing in your program seems great. (*Mark Russell Warren, Sociology*)
- No. (*Benjamin Crooker, Physics*)
- Literary Studies does not have any relationship with the Bronx River. (*Anahid Kassabian, Literary Studies*)
- Can't say. (*Elaine Crane, History*)
- Don't know. (*Colin Cathcart, Architecture*)

**Would your department be interested in making the theme of the environment more visible in its research/teaching activities and profile?**

- I would have to ask them. I have not heard any demand for such. (*Leo D. Lefebure, Theology*)
- Yes, especially as it relates to environmental racism. (*Mark L. Chapman, African-American Studies*)
- Not sure. Would have to ask individual faculty members. (*Mark Russell Warren, Sociology*)
- Possibly. (*Benjamin Crooker, Physics*)
- Some members already do. (*Elaine Crane, History*)
- Yes. (*Colin Cathcart, Architecture*)

**Would faculty development programs, workshops, and new faculty orientation sessions promoting environmental literacy and responsibility on campus (watershed protection, recycling, energy conservation, research opportunities, introducing the environment as a theme in courses, etc.) be welcomed in your department generally?**

- I believe so. (*Leo D. Lefebure, Theology*)
- Yes—I think we would be open to this. (*Mark L. Chapman, African-American Studies*)
- I think so. (*Mark Russell Warren, Sociology*)
- No. (*Benjamin Crooker, Physics*)
- Doubt it. Those who are interested in the environment have already integrated it into their courses. (*Elaine Crane, History*)
- Yes. (*Colin Cathcart, Architecture*)

**Today we see businesses, organizations, government agencies, universities, etc. instituting a “social and environmental responsibility” program to strengthen their missions, public image and quality of life in the work place. If cost-effective, do you think your department would generally welcome the college implementing something like this, taking simple steps in the areas of environmental education and literacy (e.g., providing more information on recycling, etc. in student/faculty handbooks), energy efficiency and conservation (e.g., stickers beside light switches, energy efficient lighting and appliances), solid waste management (increasing recycling bins, use of recycled paper), water conservation and protection (low-flow toilets and faucet sensors, stickers in washrooms about proper drain use, introducing some integrated pest management techniques to reduce polluted stormwater runoff from pesticides and fertilizers)?**

- I would welcome it. (*Leo D. Lefebure, Theology*)
- I say YES to all of these initiatives. (*Mark L. Chapman, African-American Studies*)
- I think so. (*Mark Russell Warren, Sociology*)
- Yes. (*Benjamin Crooker, Physics*)
- I think that's a role for Facilities. (*Elaine Crane, History*)

- Yes. (*Colin Cathcart, Architecture*)

**Do you have any other suggestions?**

- No. (*Leo D. Lefebure, Theology*)
- No. (*Mark L. Chapman, African-American Studies*)
- No. (*Mark Russell Warren, Sociology*)
- No. (*Benjamin Crooker, Physics*)

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## C. Recommendations

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Most surprising in the questionnaires was the lack of knowledge among students and faculty of the presence and value of the Bronx River in their backyard, and lack of knowledge of how the recycling program works, or even if it exists. Even Facilities was not able to answer the question when the recycling program started on campus. Yet in the questionnaires generally a significant interest was expressed in learning more about the issues being investigated. Students generally stated that environmental awareness is very poor on campus and better programs to educate students need to be developed by the administration.

Thus, the biggest challenge for the university seems to be to become more aware of and take advantage of all the resources it already has. It needs to gather, package, and present these resources (1) in fashioning its self-image and public image and (2) in instituting a modest general environmental education program for students, faculty, staff, and administrators.

The following are only a few of the recommendations that can be gleaned from the findings presented above.

### Fashioning Self-Image and Public Image

**Expand all statements about Rose Hill being a “green campus” on the Bronx River in university literature (advertising, bulletin, website, etc.), highlighting the campus’s rich environmental history, present environmental/natural resources, and its past and present commitment to ecological stewardship.**

**Highlight in literature, programs, etc. and strengthen Fordham’s *environmental community service profile* on the Bronx River with the Bronx River Alliance, a community and government based organization dedicated to “environmental justice” for Bronx residents.** The community service and outreach programs of city universities assist such community environmental justice and urban ecology organizations, e.g., Rutgers. Cornell University’s outreach program assists the South Bronx Clean Air Coalition in Fordham’s backyard.

**Likewise, highlight and strengthen relations with the Wildlife Conservation Society (Bronx Zoological Park) and the NYC Botanical Garden.**

**Include a commitment to environmental stewardship and justice in the mission statement of the university, along the lines of the Jesuit ecology mission study “We Live In A Broken World—Reflections on Ecology” (1999).**



**Join the affiliation network of the Jesuit Ecology Project which provides services such as ecology retreats, presentations, courses, etc.**

**Formally join a national interuniversity environmental association (e.g., National for Science and the Environment, Association of University Leaders for a Sustainable Future) and a local academic environmental association (a “Center for Urban Environment” headquartered in the Bronx is presently being planned by Bronx Zoo, Botanical Garden, Fordham Environmental Studies, etc.) or a local university/community collaborative association (e.g., Bronx River Alliance).**

**Incorporate into the new science building(s) a clearly and publicly visible environmental or ecological dimension, e.g., a model ecosystem pond, roof plant ecosystem, etc.**

**Create a permanent and visible campus symbol of the college’s commitment to environmental stewardship, especially if it can be done with reference to the campus’ environmental history (see **Tour of 1846 Campus above**):** e.g., a small vegetable garden, cluster of fruit trees, or vineyard to symbolically bring back the agricultural dimensions of the 1846 campus (students have expressed interest in starting a Gardening Club on campus), or a community vegetable garden to benefit local residents, if a piece of university, city or private property can be found on or beside the campus; a small model ecosystem pond or wetland ecosystem with reference to the 1846 “college pond” near the library or to the two 1846 marsh areas near Millennium Hall on which Fordham’s original students skated; a tree planting with a plaque, e.g., recreating the large weeping willow on the 1846 oval drive; a wildlife reintroduction project with reference to the original campus wildlife populations (chipmunks, rabbits, owls); a small statue of St. Francis declared by John Paul II to be “the patron saint of environmentalism.” Note that in the seventies or eighties students designed and erected a domed model ecosystem on the northeast side of Keating Hall beside Millennium Hall—according to Brian Byrne, VP for Administration, a book was written on it, but it was unable to be tracked down in the present audit.

**As the campus radio station to explore developing an “environmental music” show, highlighting classical folk/R&B music with an ecological message as well as new music. Have the show advertised as connected to Fordham’s greening initiative.**

**Run articles in the two student newspapers, Inside Fordham, and the university website on Fordham’s environmental history and current activities.**

#### Environmental Literacy Program

**See the recommendations for a formal “Advisory Committee on the Environment” and for a yearly “Environmental Calendar” of activities in the Section II. Executive Summary.**

**Expand core curriculum distributive area requirements (Freshman Seminar, Global Studies, American Studies) to include the fourth area of “Environmental Studies,” or if the Freshman Seminar requirement is phased out, replace it with Environmental Studies.** Most student already wind up taking an environmentally oriented natural science, social science, or humanities courses within or without the existing core curriculum.

**Distribute a one-page document on Fordham’s commitment to environmental responsibility in the areas of recycling, energy conservation, and water conservation in new faculty orientation sessions, orientation sessions for other employees, and orientations for prospective and new students.**

**If need be, circulate this document periodically as a memo from the Advisory Committee on the Environment to students, faculty, and staff.**

**Include statements in student and faculty handbooks.**

Ask campus ministry to incorporate the theme of environmental stewardship into some of its activities. The Jesuit Ecology Project provides assistance in arranging ecological retreats or assistance on how to arrange one's own.

If not already doing so, ask the career development office to provide information through job fairs and counseling on career opportunities in the area of the environment and career opportunities with businesses committed to social and environmental responsibility. Also, ask it to encourage businesses to incorporate information in their presentation on their commitment to social and environmental responsibility.

Join the popular college-based program called "Graduation Pledge of Social and Environmental Responsibility," a pledge by graduating seniors to consider the social and environmental aspects of their jobs. [http://www.manchester.edu/academic/programs/departments/Peace\\_Studies/files/gpa.htm](http://www.manchester.edu/academic/programs/departments/Peace_Studies/files/gpa.htm)

Correspondingly for faculty, administrators, and staff, ask the retirement plans to which the subscribes to distribute material on their social and environmental responsibility investment plans. Most of the companies will have one.



## IV. Solid Waste Management: Reduce, Reuse, Recycle

A food services dumpster combining food waste and recyclable materials like paper

**that are consequently contaminated and unable to be recycled. Photo courtesy of the Environmental Education Station.**

**Recycling one ton of paper (vs. making paper from trees) has the following benefits:**

Saves 17 trees, 3.5 barrels of oil, 7000 gallons of water; creates 5 times as many jobs; reduces air pollution by 60 pounds; saves 3 cubic yards of landfill space and 4100 kilowatt hours of electricity. Courtesy of Great Forest.

**“99% of Fordham’s office paper, photocopying paper, and discarded mail in faculty, administration, and student offices just goes into the garbage can.”**

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*[Note: During the final editing of this audit, it was announced that the new city budget beginning July 1, 2002 includes recycling only cans and paper, suspending the costly recycling of plastic for one year and glass for two years, in order to deal with financial losses from the terrorist attack of Sept. 11. Ironically, this simpler recycling policy may make it easier for the university to “improve” its internal recycling system. If only two kinds of material are to be recycled, and especially if this policy turns out to be long term, the university should consider suspending paying a contractor to sort its garbage and quickly refit its recycling system so that the Fordham community does its own sorting: (1) bins for cans (which can also be redeemed); (2) bins for mixed paper; (3) bins for high grade white office paper (the university needs to sign up for this voluntary program at the Dept. of Sanitation).]*

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## **A. Backgrounder**

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**Municipal Solid Waste (MSW)**, more commonly known as trash or garbage, consists of everyday items such as product packaging, grass clippings, furniture, clothing, bottles, food scraps, newspapers, appliances, paint, and batteries. In 1999, U.S. residents, businesses, and institutions produced more than 230 million tons of MSW, which is approximately 4.6 pounds of waste per person per day, up from 2.7 pounds per person per day in 1960.

According to the EPA’s ranking of solid waste management practices, **source reduction (including reuse) is the most preferred method, followed by recycling and composting (all of which divert material from the waste stream), and, lastly, disposal in combustion facilities and landfills.**

The traditional methods of **burning and decomposition in landfills** are the least preferable because they involve the emission of toxic synthetic chemicals such as dioxins, ground water contaminants, and greenhouse gases such as carbon dioxide that cause global warming. The connection with global warming has become a major concern of the EPA and other agencies. In 1996, burning and landfills led to the release of 33 million tons of carbon into the air—roughly the amount emitted annually by 25 million cars.

Another significant concern is that traditionally the locations of landfills, garbage transfer stations, and incinerators have disproportionately been near low-income, minority communities. This was brought to the public’s attention in the last decade by the emergence of the “**environmental justice**” movement in the U.S., which has grown out of the civil rights movement, argues that environmental practices in the country and in first/third world relations often involve “**environmental racism**,” and accordingly fights for the equal/just distribution of environmental benefits and burdens. This concern with environmental justice was

then taken up in the environmental justice programs of the EPA and the NY State Department of Environmental Conservation.

**New York City, and the Bronx in particular**, is not exempt from this issue—it has spurred one of the biggest environmental battles in the city. Community environmental justice groups, assisted by state and federal environmental agencies, have taken the city to court for disproportionately locating garbage transfer stations and garbage truck routes around low-income, minority communities, especially the 18 stations located in the South Bronx at Hunts Point. The South Bronx has one of the highest childhood asthma rates, if not the highest, in the country, caused primarily from high levels of particulates emitted especially from diesel-burning vehicles such as garbage trucks, buses, and power plants. See the NY City Environmental Justice Alliance at <http://www.nyceja.org>. The community service and outreach programs of some city universities assist such community environmental justice and urban ecology organizations, e.g., Rutgers. Cornell University's outreach program assists the South Bronx Clean Air Coalition in Fordham's backyard. Through its community service, Fordham assists the Bronx River Alliance, whose mission statement is also "environmental justice."

**Fordham's Rose Hill solid waste** is probably trucked to these proximate transfer stations in the South Bronx, though this was not able to be verified at the time of this audit.

In contrast to the solid waste management practices of combustion facilities and landfills, **source reduction (including reuse)** involves altering the design, manufacture, or use of products and materials to reduce the amount and toxicity of what gets thrown away: for example, manufacturing and (re)using non-disposable utensils, cups, plates, etc. in cafeterias. **Recycling** diverts items, such as paper, glass, plastic, and metals, from the waste stream. These materials are sorted, collected, and processed and then manufactured, sold, and bought as new products. **Composting** decomposes organic waste, such as food scraps and yard trimmings, with microorganisms (mainly bacteria and fungi), producing a humus-like substance.

According to the EPA, **recycling** is one of the best environmental success stories of the late 20th century. Recycling, including composting, diverted 64 million tons of material away from landfills and incinerators in 1999, up from 34 million tons in 1990. By 1999, more than 9,000 curbside collection programs served roughly half of the American population. Curbside programs, along with drop-off and buy-back centers, resulted in a diversion of 28 percent of the nation's solid waste. Currently, in the United States, 28 percent is recovered and recycled or composted, 15 percent is burned at combustion facilities, and the remaining 57 percent is disposed of in landfills. Typical materials that are recycled include batteries, recycled at a rate of 96.9%, paper and paperboard at 41.9%, and yard trimmings at 45.3%. These materials and others may be recycled through curbside programs, drop-off centers, buy-back programs, and deposit systems.

**Recycling isn't just "recycling." It has many and widespread benefits.** Recycling reduces the emission of toxic chemicals, greenhouse gases and water pollutants, saves energy, supplies valuable raw materials to industry, creates jobs, stimulates the development of greener technologies, conserves resources for our children's future, and reduces the need for new landfills, garbage transfer stations, and combustors that are often located proximate to low-income, minority communities, as in the Bronx. Recycling is good for curbing global warming: in 1996, recycling of solid waste in the United States prevented the release of 33 million tons of carbon into the air—roughly the amount emitted annually by 25 million cars.

Though a success story, **recycling still faces many challenges**. One is that while recycling continues to become more efficient and "everyone recycles," **the consumption ethic of contemporary mass society** continues to grow, increasing the amount of solid waste. Hence the need for source reduction (including reuse) of materials, as well as the promotion of environmental education and literacy regarding one's consumption ethic, etc., an issue highlighted in above section of this audit ("Environmental Literacy, Culture, and Community Relations") and being addressed by the Environmental Education Programs of the EPA and state environmental agencies, as well as by many other parties.

Another and immediate problem is that with the great success in the amount of recovered recyclable solid waste, **the economic infrastructure to buy, process, sell, and reuse the material has not kept pace**. Since the late nineties, the market for recyclables has collapsed, and there is a glut of material on the

market. With little or no recovery of recycling costs from sales, recycling is becoming increasingly expensive. For example, NY City winds up paying large sums for the recycling of much of the material it collects. This is also the case with businesses and organizations such as Fordham University, which pays an outside contractor to haul recyclables and “sort” the unsorted materials. The cost for the university’s solid waste disposal during the last academic year was approximately \$50,000 (see Facilities Questionnaire below).

This economic situation, exacerbated by the city’s financial losses from **the terrorist attack of Sept. 11**, has brought the city’s recycling system close to collapse, as proposals are considered to suspend recycling and the funds spent on it in order to recover financial losses from Sept. 11. Even if the system does not collapse, the lack of economic infrastructure for recycling and the associated high financial costs can still burden the system, leading to breakdowns, an erosion of public confidence in the system, and the growth of public apathy.

The following “Findings” document how close the Rose Hill Campus is to this kind of situation.

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## References

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EPA Office of Solid Waste: Basic Facts in the U.S.

<http://www.epa.gov/epaoswer/non-hw/muncpl/facts.htm>

<http://www.epa.gov/epaoswer/non-hw/muncpl/disposal.htm>

**The Link Between Solid Waste and Global Warming**

<http://www.epa.gov/globalwarming/actions/waste/>

<http://www.nrc-recycle.org/resources/ClimChange/ClimChange.htm>

**The EPA’s Three R’s of Solid Waste Management: Reduce, Reuse, Recycle**

<http://www.epa.gov/epaoswer/non-hw/muncpl/reduce.htm>

**EPA Environmental Justice Program**

<http://www.epa.gov/compliance/environmentaljustice/index.html>

**Environmental Justice Program, NY State Department of Environmental Conservation**

<http://www.dec.state.ny.us/website/ej/index.html>

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## B. Findings

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### 1. Student Questionnaire

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**Are students in residences properly informed about the campus recycling system?**

- Not really, aside from seeing recycling cans here and there. (SD)
- Not at all. And they often don't even take the time to put plastic in its appropriate trashcan. (SN)
- No opinion. (JJ)

- Not qualified to answer. (*GDL*)
- I don't reside here. But I would say no because the dormers that I do know, most don't know where a recycling can is, and worse, none use it. (*JM*)
- I am an off campus student, so I am guessing initiatives are taken for students to recycle properly. (*MI*)
- Unsure, I live off-campus. (*AP*)
- There are signs that tell us about the recycling system, but no one has ever personally explained this system to us, which is why most people do not abide by it. (*KO*)
- I commute. (*NY*)
- I'm a commuter so I wouldn't know. (*OL*)
- Not informed at all, save for the vague and ambiguous signs in the garbage rooms. (*CA*)
- No, I don't believe so. They are merely told to bring an extra garbage can to be used for recycling. Students should be told where there are recycling receptacles around campus. (*AN*)
- I don't know. I never lived on campus, but I think I saw some recycle signs in the dorms. (*SC*)
- I don't know one person that lives in my hall that really knows about the campus recycling system. (*BO*)
- No. (*LT*)
- Well we are informed, but the recycling system isn't made convenient or enforced. (*JG*)

**Are there enough recycling bins in your residence?**

- There could always be more, but I think for the most part, yes there are enough. (*SD*)
- There are enough, people just need to realize that they're there for a reason. But there needs to be recycling bins for paper. (*SN*)
- N/A (*JJ*)
- Live off campus. (*GDL*)
- There aren't enough in the non-residence buildings. Does that count? (*JM*)
- No. Not in terms of the neighborhood that I reside in. (*MI*)
- We recycle in my apartment complex (required by state law). (*AP*)
- I have only seen one recycling bin on each of the four floors in my dorm, and I do not think this is a sufficient amount. (*KO*)
- I commute. (*NY*)
- My house? Sure. (*OL*)
- No. (*CA*)
- No. In each room, it depends if the residents wish to recycle. And on each floor there is only one recycling can in the trash room, which is quickly filled up. (*AN*)
- I make an effort in separating my recyclables from my garbage. (*SC*)
- There are just 3 trashcans that contain all sorts of trash mixed together in each. (*BO*)
- No, there are none. (*LT*)
- Not at all... there aren't even enough garbage bins and therefore the recycling bins are used for garbage. (*JG*)

**12.) Would you like to see an organic food bar offered in the cafeteria?**

- I would like to see a lot of changes done in the cafeteria! But that sounds good. (*SD*)
- Most definitely. (*SN*)
- I don't know that this is as big an issue as the others. (*JJ*)

- Yes!!!! And in the Ramskellar, for those who visit from off campus (food choice for healthy eating is poor down there). (*GDL*)
- I would like to see tastier vegan food, and yes an organic food bar would be spectacular. (*JM*)
- Yes, why not. (*MI*)
- Yes. (*AP*)
- No. (*KO*)
- Yes, if it was price competitive. (*NY*)
- Wouldn't hurt. (*OL*)
- Many students would enjoy it. (*CA*)
- Yes, I think that would be a good idea. It would offer students another option. (*AN*)
- Sure. (*SC*)
- I'm not quite sure what would consist in an organic food bar. But, anyone change in the cafeteria's food could only be for the better. (*BO*)
- YES, very much so. (*LT*)
- YES PLEASE!!!!!!!!!!!!!! I would LOVE THAT!!!! I can only eat fries and burgers so many times a week. (*JG*)

## 2. Department Questionnaire

The following questionnaire was sent to the chairs of all departments and programs at Rose Hill. Seven responses were received and are presented below.

### Is there a need for more recycling bins in your department? If yes, explain.

- Not to my knowledge. (*Leo D. Lefebure, Theology*)
- There is a bin near the elevator on Dealy 6th floor—I haven't seen a problem so far. (*Mark L. Chapman, African-American Studies*)
- No. (*Mark Russell Warren, Sociology*)
- No. (*Benjamin Crooker, Physics*)
- I'm sure many faculty, myself included, would welcome and comply with more recycling efforts. (*Anahid Kassabian, Literary Studies*)
- No. (*Elaine Crane, History*)
- Absolutely. This is now a crazy omission. (*Colin Cathcart, Architecture*)

### How much recycled paper is used in your department? Do you think that purchasing should make more available to departments?

- I do not know. / I think that would be a good idea. (*Leo D. Lefebure, Theology*)
  - I do not know about this. / Yes, if using recycled paper is better for the environment and if it is less expensive, I don't see why not. (*Mark L. Chapman, African-American Studies*)
  - Don't know if our paper is recycled. (*Mark Russell Warren, Sociology*)
  - None that I know of. / Yes if the quality and cost was acceptable. (*Benjamin Crooker, Physics*)
  - We would certainly buy recycled paper if it were reasonably priced and readily available. (*Anahid Kassabian, Literary Studies*)
  - Don't know. (*Elaine Crane, History*)
  - Don't know. (*Colin Cathcart, Architecture*)
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### 3. Facilities Questionnaire

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The following questionnaire on solid waste management at Rose Hill was completed by Facilities under the direction of Brian J. Byrne, Vice President for Administration, and Peter J. Bundock, Assistant Vice President. Some questions were not able to be answered since the questionnaire was sent to them at short notice.

How much total solid waste does the Rose Hill campus generate annually, and what percentage does each type (garbage, organic, hazardous, etc.) contribute to this total? If not available, please specify total non-organic, non-hazardous "garbage." Information should be given by volume, in cubic yards, or by weight in pounds or tons. **3,600 cubic yards of solid waste and 900 cubic yards of bulk waste.**

For the last academic year, how much solid waste was (1) landfilled, (2) incinerated, (3) recycled, (4) composted and (5) mulched? **Unknown**

What were the costs of solid-waste disposal for the last academic year? **50,000 Approx.**

How have the costs of solid waste disposal changed over the past five years? **Minimal change**

When was the campus recycling program instituted? **N/A**

How many tons of material were recycled during the last academic year? **N/A**

Who is the contractor who collects recyclable materials, where are they transported, are there any net revenues from recyclables sold, and what are these revenues used for? **N/A**

Has a full and formal solid waste management audit ever been conducted on the Rose Hill campus by an internal office or an outside agency, or within a government university self-auditing outreach program such as the ones at the EPA (Wastewise Program), State Dept. of Environmental Conservation (Waste Reduction and Recycling Assistance Program), and NYC Department of Sanitation (Wasteless Program), or with the assistance of ngo agencies such as the National Recycling Coalition or the College and University Recycling Council? **N/A**

Does the campus belong to any solid waste reduction and recycling programs that provide technical or financial assistance, such as the ones above? **N/A**

Is there a program to inform the full campus community of the recycling program regulations and NYC recycling law? **No**

Is there a program to promote and provide information on the three Rs of solid waste management: recycle, reduce, and reuse? **No**

How many reams or tons of high grade writing and copy paper does the campus purchase per year? How much does it cost? Are they made of recycled paper? Are any campus publications printed on recycled paper? **Unknown**

What percentage of photocopying rooms contain a recycling bin? **Unknown**

What percentage of building floors consisting of department offices, other university offices, and student residence contain a recycling bin? **Unknown**

What is the total number of recycling bins on the Rose Hill campus? **Unknown**

Are recycled paper and other recycled products widely available in the campus bookstore? **Unknown**



How often are campus residence students and others reprimanded or fined for not complying with campus and NYC recycling regulations? **Unknown**

Does food service use disposable plastic and paper products or washable dishes and utensils predominantly? Are any recycled products used? What materials from food services are recycled? Who is responsible for complying with recycling regulations in food services? **Washable, Unknown, Unknown, Unknown.**

Is there a program to recycle printer cartridges, computers, and other appliances? **Unknown**

Is there a program to compost organic solid waste (grass clippings, leaves, etc.) with local facilities such as the Botanical Garden? Is any cost involved? **Yes, No**

What is the campus program to dispose of hazardous wastes from science labs, grounds maintenance (unused pesticides), and other sources? **Labs waste are handled by a contractor and grounds doesn't use pesticides.**

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## C. Findings on Specific Buildings and Recommendations

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One or two tours of the following buildings were conducted by two person audit teams in order to fill out the questionnaires.

*[Note: During the final editing of this audit, it was announced that the new city budget beginning July 1, 2002 includes recycling only cans and paper, suspending the costly recycling of plastic for one year and glass for two years, in order to deal with financial losses from the terrorist attack of Sept. 11. Ironically, this simpler recycling policy may make it easier for the university to "improve" its internal recycling system. If only two kinds of material are to be recycled, and especially if this policy turns out to be long term, the university should consider suspending paying a contractor to sort its garbage and quickly refit its recycling system so that the Fordham community does its own sorting: (1) bins for cans (which can also be redeemed); (2) bins for mixed paper; (3) bins for high grade white office paper (the university needs to sign up for this voluntary program at the Dept. of Sanitation).]*

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### 1. Alumni Court North and South

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Building Descriptions: residences, 4 floors plus basement, 120 residential rooms, lounges on each floor, 1 trash/recycling room per floor, none in basement.

# of trash cans in whole building (not including student rooms or Office of Residential Life): **21 in each building, 42 total**

# of recycling bins in whole building: **8 in each building, 16 total**

# of trash/recycling sites: **4 in each building (1 per floor), 8 total**

# of trash/recycling sites with proper information about trash disposable and recycling: **All 8**

# of recycling bins containing trash: **10 (the remaining 6 had recently been emptied)**

# of trash bins containing recyclable material: **All**

# of photocopy machines: **None**

# of photocopy machines using recycled paper: **N/A**

# of photocopy machines with a paper recycling bin: **N/A**

Additional Observations: One student on the second floor of Alumni Court North was obviously irritated by the neglect of recycling concern on her floor and made her own sign which designated one of the barrels for paper only. Sadly, the sign was hidden by a pizza box some one had tossed carelessly into the room.

### Recommendations

As a former resident of Alumni Court North, I admit that I did not always separate my trash. The times when I neglected to do so were always prompted by a messy trash room, a place that is not at all conducive to recycling. When there was trash in the recycling bins, I did not see much use in adding my recyclables because I thought the paper contents of the barrel were already contaminated and thus would not be recycled anyhow.

**Resident Advisers of each floor should create more awareness on recycling and possibly create some kind of punishment if someone is caught not obeying the policy.**

**Facilities should keep closer tabs on the trash rooms.** During my stay in North, I usually found that the rooms were not cleaned until the trash was piled high, although during my recent visit, I did notice much improvement. The person responsible for clearing out the trash room should replace the bag of a barrel if he notices any contaminated recyclables so that when further separated material is added to the barrel, it also will not be contaminated.

**There should be increased awareness and promotion of recycling as “the cool thing to do.”** People living in such close quarters learn from each other and follows their neighbors’ way. If recycling becomes a trend, more freshmen will participate. When freshmen get into trouble in the dorms, their punishment is often to decorate the halls. I think it would be very effective if they were assigned an earth-friendly theme. Creating a more earth-conscious atmosphere in the dorm would increase participation in the recycling program and perhaps harbor some feelings of guilt in those who neglected recycling if they were constantly reminded to do it.

**To increase environmental awareness at Fordham, there should be more advertising of the environmental programs it offers.** According to the student questionnaire, almost all respondents agree that Fordham does not offer enough environmental programs or that they do not know about them. Of course the former is not true, but I agree with them in that students, especially underclassmen, are not exposed to Fordham’s offerings. I did not become aware of the Environmental Club until sophomore year. Many of the environmental course offerings are not available to freshmen, which leads me to my next recommendation.

**A course in the Core Curriculum should be implemented which must be completed in the freshman year where students would study the environmental treasures of the Bronx community and take trips to the Bronx River, the Botanical Gardens, and the Bronx Zoo.** My reasoning for this is not that most students neglect visiting these places, because many do, but that since the Bronx does contain rich historical and geological wonders, such as glacial evidence (striations and erratic left from a glacier millions of years ago in the Botanical Gardens), learning about these treasures is bound to spark passion and interest in environmental policy and science at Fordham. Geology and Environmental Ethics, which I both took not until my senior year, fascinated me and I feel that I missed out taking other courses and learning as much as I could about the rich environment in which I live. I believe that the implementation of a course like this is necessary immediately.

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## 2. Dealy Hall

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Building Description: Used for classrooms and offices for a number of departments including English, Anthropology/Sociology, Economics, Psychology and the Counseling Center. The first floor of the building contains mostly classrooms as well as a computer lab and a student lounge. The second and third floors contain larger classrooms and some departmental offices. The top three of the six floors are all office space. The basements contains office space and houses laboratory animals used in psychology department experiments.

# of trash cans in building: **8 (larger hallway cans) and 200 (small trashcans in classrooms and offices)**

# of recycling bins: **10 (one per hallway and in some offices)**

# of recycling sites: **None**

Proper information about recycling: **None**

Recycling bins with trash mixed in: **All**

# of photocopy machines: **4**

Photocopy machines with recycled paper: **None**

Photocopy machines with recycling bin: **None**

Additional Observations: Deal is a good example of general situation of large amounts of paper waste from photocopying machines, classrooms, and offices not being recycled.

### Recommendations

**Our recommendation would be to place recycling bins next to each of the photocopy machines.** In a building filled with classrooms and offices, the amount of paper waste can be extreme if not recycled properly. Dealy Hall is a good example of this.

**Also, this paper can be recycled immediately by using the unused side for copying.**

To save paper used in memos, advertising, excessive poster on Eddie's Parade, etc., **an efficient university intranet should be developed and used. The electronic bulletin boards should be used, and an additional board considered. Maybe the TV sets in McGinley could also be used.**

**The classrooms should also be equipped with paper recycling bins as should the front of each department.**

**Computer labs, the print shop, and all photocopying stations should be equipped with special paper recycling bins.**

**Faculty and administrative offices should start recycling their paper--99% of Fordham's office paper, office photocopy paper, and discarded mail in faculty, administration, and student offices just goes into the garbage can.**

**Procurement Office needs to get a vendor that will supply departments, offices, etc. with cost-effective recycled paper.**

**High paper use offices, such as the Print Shop, computer labs, department offices, other offices, should find a cost-effective recycled paper use program.**

**The university has no recycling program for used printer cartridges**, though this is not required by law, and it is unknown whether used computers, which contain toxic heavy metals, etc. are recycled. CIMS, computer labs, faculty, students, probably the Print Shop, etc. just throw them into the garbage. However, **the manufacturers of cartridges used on campus—Hewlett Packard, Apple, etc.—have recycling collection programs and include in the packaging instructions and labeling for free UPS pickup.**

Hewlett Packard also has a “Large Volume Return” Program for businesses and organizations, and will pick up all materials free of charge. This or some other system should be used.

**The bins need to be clearly marked for cans, glass and paper, as we saw that all of the recycling bins and garbage cans were filled with mixed waste.**

**The recycling bins all over the campus need to be uniformly marked and maintained properly so that the system is uniform and streamlined, and there is no confusion.**

**There is clearly an inadequate number of recycling bins at high-traffic locations such as the copy room in the Library or next to soda machines in the Lombardi Center.**

**There needs to be a continuous campaign of literature, posters and informational guides on recycling and other campus environmental issues**, in order to get the Fordham community into the habit of being environmentally conscious. Without these things to remind students, faculty and staff these problems can be easily overlooked. On the other hand, with constant and simple reminders, being environmentally friendly becomes part of everyday life and not just a one-day a year celebration.

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### 3. Finlay Hall

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#### Building Description

Finlay Hall, located on the Southern side of the Rose Hill campus is a stone building dating back to the early 20<sup>th</sup> century. It was built to house the school’s Pharmaceutical program, but now houses undergraduate students. The building’s physical attributes include 5 floors, with a total of 150 rooms and 265 windows. This residence hall consists primarily of triple bedrooms with a small number of singles and doubles, all with private bathrooms. Most triple rooms are designed with a loft for added space. This hall houses approximately 295 upper-class students. Finlay has an elevator, one study lounge, a common lounge, and kitchen and laundry facilities. Air-conditioning is available for a few weeks after opening and at the end of the academic year.

How many trashcans in the whole building? **20**

How many recycling bins in the whole Building? **4**

How many trash/recycling sites are there located in the building? **5**

How many sites have proper information about trash disposable and recycling? **None**

In how many recycling bins was trash found? **All**

In how many trash bins was recyclable material found? **All**

How many photocopy machines are in the building? **None**

How many photocopy machines have recycled paper? **None**

How many photocopy machines have a paper-recycling bin? **None**

Additional Observations: There is no recycling going on in the building at all. Recycling bins are not clearly marked, and there is no information provided by the school as to what to do with recyclable materials or what those materials are. Trash is thrown in the recycling bins and visa versa. The only distinguishing mark that some of the bins were for recycling was that they had a clear bag in them, otherwise they were exactly the same. With out the necessary information, one cannot even assume that a student would know that those were recycling bins.

#### Recommendations

Our survey of Finlay Hall found the state of the waste management program to be alarmingly incompetent. We couldn’t imagine that the program could be much worse, and therefore have a number of suggestions for its improvement.

**The easiest (and most obvious) of these improvements would be the simple task of labeling the recycling bins.** In each of the building's trash rooms we had difficulty telling which cans were for recyclable materials and which were for regular trash. The simple act of slapping a sticker on the cans set aside for recycling would eliminate any confusion about the purpose of individual cans and probably drastically reduce the amount of garbage mixed with recyclable material.

**Every floor in every building on campus should have clearly marked containers for both recyclable goods and regular garbage.**

**Improved education** all around would also benefit the recycling program, as many students didn't seem to even realize one existed. **Posting literature outside the doors of the trash rooms and having RA's stress the importance of waste management at floor meetings** would give the residents the information they needed to help make a contribution to the building's recycling efforts.

**Another idea is to provide students with recycling containers for individual rooms.** Residents often throw recyclable goods in with their regular garbage just because they are too lazy to walk to the trash room for a single can of soda. Providing rooms with their own containers for recyclable material would make it easier for students to sort their garbage.

**If these measures don't help, the University could always levy fines on entire floors** if garbage and recyclable goods aren't sufficiently sorted. The fear of fines would lead students to be more vigilant in their own recycling efforts as well as watch to make sure other students do the same.

**An education program on recycling is needed not only for students, but also for the entire Fordham community, including faculty, staff, and administration.** From our own observations made during the tours of various buildings during class and the completed questionnaires we discovered that Fordham's solid waste management program is generally sadly lacking. And **just like the energy conservation program, the major problem seems to be lack of information and education on the subject.** Many students seemed clueless about what to do with recyclable materials in the survey, and many of the faculty were in the dark about such simple questions as whether their departments used recycled paper. And our own observations showed that the majority of campus must obviously be the same way, since every building we visited had an extremely disorganized (at best) recycling program. By simply making information on Fordham's recycling program more available to both students and faculty the recycling program could be greatly improved. We feel that if both students and faculty were educated on the goals and benefits of Fordham's recycling program and then given the means to implement it that the program could thrive campus-wide.

**Heads of departments and individual offices could attend a seminar in which they are educated on Fordham's waste management policies, and then pass this information on to their colleagues,** in much the same manner as we suggested resident assistants do with students on their floors.

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#### 4. Hughes Hall

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##### Building Description

Hughes Hall was initially part of Fordham Prep. What are now dorm rooms were originally classrooms. The building changed to a Residential House in the early 1990s and now only houses members of the Freshmen class at Fordham University. The rooms are designed to be quads (four people), with four beds, dressers and desks. Most rooms have very high ceilings, with the exception of the fifth floor and are longer than they are wide. Beds are used bunked to save space. There are still offices in the basement of Hughes as well as a laundry facility and study lounge.

How many trash cans in the whole building? **6 per floor, except for 5th floor (26 total)**



How many recycling bins in the whole building? **8**  
 How many trash/recycling sites are there located in the building? **None**  
 How many sites have proper information about trash disposable and recycling? **None**  
 In how many recycling bins was trash found? **All**  
 In how many trash bins was recyclable material found? **All**  
 How many photocopy machines are in the building? **1 (in the basement)**  
 How many photocopy machines have recycled paper? **None**  
 How many photocopy machines have a paper recycling bin? **One**

Additional Observations: Generally pretty bad. Garbage was strewn in lounges and staircases. The building needs better maintenance in this regard as well.

#### Recommendations

**There should be equal numbers of recycling bins and garbage cans.**

**Garbage cans should be lined up on one side, recycling on the other.**

**Along with a Blue Bag program, different colored cans could be used.**

**There should be more garbage and recycling cans in staircases since garbage seems to build up in these areas.**

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### **5. John Mulcahy Hall**

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Building Description: 6-floor classroom building also containing computer and science labs; three departments located within: Computer Science (floor 3), Mathematics (floor 4), Chemistry (floors 5 and 6).

How many hall trash cans in the whole building? **5**  
 How many hall recycling bins in the whole building? **7**  
 How many hall trash/recycling sites are there located in the building? **6**  
 How many sites have proper information about trash disposable and recycling? **5**  
 In how many recycling bins was trash found? **3**  
 In how many trash bins was recyclable material found? **1**  
 How many photocopy machines are in the building? **3**  
 How many photocopy machines have recycled paper? **0**  
 How many photocopy machines have a paper recycling bin? **3**

#### Additional Observations

This building has a descent quality of recycling.

Each photocopy machine has a paper recycling bin and recyclable material was only found in one trash bin. However, one main problem is the uniform usage of non-recycled paper each department is mandated to use from Staples.

Another problem is the confusion over the disposal of trash and recycled materials on the fourth floor due to improper information. Instead of one trash and recycling bin for this floor, the site contained two recycling bins, one of which was gray colored which is usually considered the regular trash while the other bin was the traditional blue color indicating "recycling." Even though "recycling" was inscribed on the gray bin, some individuals recycle according to color coordination of garbage pails (gray=trash, blue=recycling), resulting in mixed trash and recycling in one bin. Hence, this gray bin happened to be one of the recycling bins where trash was found. These two recycling bins in the trash/recycling site on the

fourth floor caused an uneven distribution of hall trash cans (5) and recycling bins (7) in the building when there should be 6 trash cans and 6 recycling bins.

It would be quite simple to remove the “recycling” sticker from the gray bin located on the 4<sup>th</sup> floor so that there may be a designated site to dispose of regular trash. This minor change will ensure an equal distribution of trash and recycling bins throughout the building.

### Recommendations

**Increased education on recycling for students and faculty** may result in less or no recycling bins with regular trash mixed in. Aside from commuters, all of the dorming students in the student questionnaire suggested that students aren’t properly informed about the campus recycling system. One student noted, “There are signs that tell us about the recycling system, but no one has personally explained this system to us, which is why most people do not abide by it.”

**Residential Assistants (RAs) should inform students about recycling policies** for the building at the beginning of the year to ensure that students are well-informed of these rules and regulations, including that they are part of city law. **This will allow RAs to enforce the rules in the rest of the year.**

**Putting recycling bins in every individual dorm room should be explored.**

**All campus buildings should have a sufficient number of recycling bins and a uniform recycling system.** Many students in the questionnaire said that there are not enough recycling bins in their residences. Two students even reported that there aren’t any recycling bins in their residences. Sometimes there is only one recycling bin per floor, which students didn’t think was sufficient.

**The departments within John Mulcahy Hall should advocate the use of recycled paper instead of non-recycled paper.** In the department questionnaire, departments expressed a lack of environmental literacy when questioned about whether they use recycled paper. 86% did not know anything about what kind of paper the department used. Some departments affirmed that purchasing recycled paper should be made more available to them if it is efficient, as one remarked, “if the quality and cost was acceptable.”

**A general environmental awareness program for the whole Fordham community, including reconnecting Fordham’s self-image to the Bronx River and its historical role as a steward of the river, would spill over into a more responsible recycling system.** See the “Recommendations” for this general education program in Section III above, “Environmental Literacy, Culture, and Community Relations.” The student and department questionnaires in Section III show that there is both a great need and a great interest in such a program.

**A program of building and department stewards should be explored.** A representative for each building or department could be chosen to supervise, educate, and implement regarding recycling, energy conservation, and water conservation.

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## **6. Larkin Hall**

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### Building Description

Located on the Fordham Road side of campus, close to the library, Larkin Hall stands three stories (not including the basement) and boasts an old stone exterior. The building sits in an “L” shape with only one main hallway on each floor, with a staircase on either end of the hallway. Larkin is primarily a biology building, full of labs for biology students and only several classrooms, the main classroom being a large lecture hall on the first floor. The basement is used primarily for housing laboratory animals used in experiments. All and all, it is a small, specialized building that many Fordham students never step foot in.

Something to be noted right from the start is that Larkin produces waste unlike the waste found in most Fordham University buildings. Due to its numerous biology labs, environmentally harmful, and often times, toxic waste is created and must be taken special care of. Larkin seems to do an excellent job at this.

Unfortunately, the same cannot be said about the day to day waste management of common trash. Again though, I must point out that Larkin is kept very clean, and no obvious trash was scattered around the building - it all was at least near trash cans or seemed to be gathered in piles with some organization. **The real problem was the lack of recycling bins.**

### Findings

While I was not able to get in to every room, I would estimate there to be about **25 trashcans throughout the building** - assuming every lab had at least one trash can in it. Even if that were the case though, there were not nearly enough large "main" trash/recycling areas in Larkin. In fact, **only one main trash/recycling site in the whole 3-storey building plus basement was found** (first floor hallway, 1 large trashcan, 1 blue recycling bin). **No recycling instructions were posted.**

**I found 3 trashcans that had recyclables in them** - I was unable to check very trashcan in the building.

**The one recycling bin was void of any trash.**

**Large piles of collapsed cardboard boxes** were found at the end of the hallway on the both the second and third floors--each pile six feet wide and six feet tall. I was not able to determine if these were collection sites for recycling, were waiting to be packed to the one recycling bin on the first floor (far too small for the cardboard material), or had just been "thrown" there.

**Number of photocopy machines: at least one, first floor.**

**Use of recycled paper: Unknown**

### Recommendations

**A trash/recycling site is needed on all floors, not just the first floor.** Someone who drinks a can of soda on the third floor is most likely not going to walk all the way to the first floor to recycle it.

**Instructions for recycling should also be posted.**

**A separate, clearly marked cardboard recycling site is needed** if it doesn't already exist, and if Biological Sciences generates a lot of such packaging waste from the materials its uses.

**Recycled paper should be made available to departments in this and other buildings.** I have never seen a piece of recycled paper being used here during my four years.

**Departments and offices using a lot of paper (for example, the library) should sign up for the city's "white office paper recycling" program.** Even when it is put into recycling bins, white high quality paper is often being mixed in the bins or in the contractor's sorting process with other recyclables such as leaking bottles, food-covered aluminum, etc. that contaminate the paper, so that it cannot really be "recycled."

**A uniform, streamlined, and clearly marked system of trash/recycling is needed for all buildings, sites, along with a university-side program of education on recycling.** Over the four years I spent at Fordham, I saw that most students considered the recycling stations a joke and an embarrassment--often overflowing with trash or poorly located and rarely with any effective instructions.

## 7. Millennium Hall

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### Building Description

Millennium Hall is a three-wing, five-level residence hall, housing 550 students. Air-conditioning is available for two weeks in late August and early September, and at the end of the academic year. Bedrooms are mostly doubles. Each bedroom affords residents a private bathroom. (Single bedrooms share a private bathroom located between two rooms.) The building contains thirteen community lounges, seven quiet study lounges, four seminar rooms, and a large Great Room.

Total number of trashcans: **64**

Total number of recycling bins: **13**

Total number of trash/recycling sites located in the building: **13**

Total number of sites with proper information about trash disposal and recycling: **0**

Total number of recycling bins containing trash: **9**

Total number of trashcans containing recyclable material: **56**

Total number of photocopy- machines: **None**

### Additional Observations

Trash/recycling rooms are not equipped with bins for paper recycling. Each room contains one bin labeled “Recyclables.” However, no instructions are present to indicate what counts as recyclable material. Additionally, as indicated above, the bare ratio of trashcans to recycling bins means that students are more likely to dispose of recyclable material in trashcans. Trashcans are simply more conveniently located, and there are more than four times as many of them. Most of the trashcans in the building contained recyclable materials at the time of our audit.

Assuming that this problem is mitigated by having Fordham’s contractor “sort” our mixed waste, and this was not investigated in the present audit, but should be, this still leaves the problem of what it says about we members of the Fordham community, about our “character,” and about our level of environmental awareness.

For example, on a tour of the McGinley Center it was observed that food services throws food waste (heads of lettuce, chicken cutlets, tomatoes, etc.) *and* recycling material (cans, glass, paper, etc.) into a single trash dumpster/compactor. **We saw rotten lettuce and chicken mushed together with metal cans and plastic bottles and paper inside the compactor. A food service worker poked his head out the door, smiled, and called out: “You want to see how it works!”**

It also leaves the problem of the high cost of having a contractor do this “sorting,” when we could do it ourselves.

It also leaves the problem of the complete lack of paper recycling bins, such that paper is often contaminated when put in the mixed recycling bins and especially when put in trash bins.

### Recommendations

**That all trash/recycling rooms be outfitted with separate bins for paper recycling.**

**That the university explore signing on to the city’s white office paper recycling program.**

**That the number of recycling bins be increased to match the number of trashcans such that wherever there is a trashcan there is also a recycling bin.**

**That proper information about trash disposal and recycling be posted beside all trashcans in such a way as to be clearly visible.**

**That the solid waste recycling system be carefully reviewed to determine how much recyclable material ends up in landfills subsequent to the sorting of mixed garbage by whatever independent contractor the university retains.**

**That the amount of money spent by the university on having a contractor “sort” our waste be investigated, as well as, then, how much it could save by having members of the Fordham community do the sorting themselves by simply following the rules of our recycling system.** According to the Facilities Questionnaire, \$50,000 was spent on solid waste disposal during the last academic year.

**That the use of disposable cups, plates, utensils, etc. be minimized in the cafeterias and elsewhere on campus.**

**That all incoming students, faculty and staff to the university be informed of proper recycling procedures during orientation.**

**That a deposit reimbursement area (similar to that of a supermarket) be set up on campus to encourage students to recycle empty containers.**

**That Fordham’s recycling program join, or at least become more connected with, and take advantage of some of the outside governmental and non-governmental recycling programs that provide technical and financial assistance to businesses and institutions, e.g., the ones listed in the Facilities Questionnaire: the solid waste management outreach programs at the EPA (Wastewise Program), NY State Dept. of Environmental Conservation (Waste Reduction and Recycling Assistance Program), and NYC Department of Sanitation (Wastele\$\$ Program), the National Recycling Coalition, and/or the College and University Recycling Council.**

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## 8. Queen’s Court

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### Building Description

Queen’s Court is a freshmen residence that holds 150 students. Queen’s Court also houses the student deli and the EMS office in its basement. St. John’s was built in 1844 while the other two buildings were built in 1940. All are three floor residences, except for Bishops first floor, which is a study lounge. The basement of Robert’s Hall has a recreation room, a classroom, and study rooms. The basement of St. John’s Hall is the laundry room and the EMS office. The basement of Bishops is the student deli.

### Findings

**The trash/recycling system in the three halls is not uniform.** St. Robert’s Hall has a trash/recycling room. St. John’s Hall has trash/recycling areas on the stairwells on each floor that consist of four or five total receptacles, one or two of which were for recycling. Bishops Hall has no such trash/recycling area-- Bishops Lounge has two recyclable containers and the laundry room has one. There were also trashcans in the kitchen, study rooms, recreation room, and the classrooms all had a trash can apiece.

**St. Robert’s second floor trash/recycling room is the only room with signs telling the residents how to properly discard their garbage.** However, the trashcans themselves are not labeled and the room itself is not labeled as the garbage room. The first and third floors have a recycling sign on the door but no other labels or signs. The third floor of St. John’s has one trash can with a recycling label on it, there are no other signs regarding proper trash disposal in that section of the building.

**Three of the recycling bins were found with trash in them on the first tour, and four were found on the second tour.** However, the recycling bins also had a good deal of recycling material in them.



**Seven trash bins had recycling material in them on the first tour, though material found was often just one recyclable, such as a soda can in the garbage in the recreation room, or one water bottle in the Robert's third floor trash room. On the second tour, five recyclable items were found in the trash bins.**

While about a third of the trash bins contained some wrong items, the number of items that were discarded in the wrong receptacles was few. As stated previously, the recycling receptacles often had many recyclable contents inside, showing at least that the majority of the residents were making a conscious effort to recycle. Also, each garbage station had at least one receptacle for recycling, while in some other building on campus this is not the case. There is, however, room for improvement in the building.

### Recommendations

The most problematic aspect of Queen's Court recycling program is the lack of signs in trash/recycling areas and/or information presented elsewhere in the building. Only one of the trash rooms in the building has a sign informing the residents the proper way to dispose of waste.

**Signs besides bins, stickers on bins, posters, or handouts should explain the following:**

- (1) NY City recycling laws,**
- (2) the building's recycling rules,**
- (3) the system of fines,**
- (4) facts about how much garbage the city produces and why it is important to recycle as opposed to burning waste or disposing of it in landfills (air pollution, ground water contamination, greenhouse gas production and global warming, environmental justice, etc.).**

**The entertainment room, the study rooms and lounge, kitchen, laundry room bathrooms, and the deli should have both a trash and a recycling bin.** As is, they only have one or the other kind of bin, leading to—as was observed on the tours—the wrong type of waste being put in the bins.

**The student deli especially should have recycling bins since it sells recyclable materials.** Presently it does not.

**A system should be devised to collect cans and bottles that can be returned for money** that can go into informing students about recycling. Or, redemption money for residence projects can be used as an incentive to recycle.

**Generally on campus, trash/recycling bins should be properly labeled, whereas presently they are too often not.**

**A general education program for the whole Fordham community is needed, including orientation information for freshman, faculty, and staff,** as indicated by the student and faculty questionnaires, and so that no one can claim ignorance.

**Once everyone is informed of the rules, penalties and fines should be given to the violators to enforce the rules.**

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## **9. Walsh Hall**

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### Building Description

Walsh Hall is an upperclassmen residence building. It is thirteen stories high consisting of four and six bedroom apartments. Each apartment includes a living room, bathroom, full kitchen, and dining area. In the basement there is a common lounge, and there is one large laundry room and single unit laundry facilities on every even number floor.

How many trashcans are in the whole building? **39**

How many recycling bins are in the whole building? **7**

How many trash/recycling sites are there located in the building? **13**

How many sites have proper information about trash disposable and recycling? **13**

In how many recycling bins was trash found? **3 out of 7**

In how many trash bins was recyclable material found? **13**

How many photocopy machines are in the building? **None**

How many photocopy machines have recycled paper? **N/A**

How many photocopy machines have a paper-recycling bin? **N/A**

Rating from 1 to 10 (10 being the best): **3**

#### Recommendations

**There should be 1 trashcan and 1 recyclable bin in the main lobby of Walsh Hall.**

**There should be a sign posted outside of each trash room door indicating that it is the trash room.**

**Covers on trashcans should be removed thus allowing students to properly dispose of their garbage in the trashcan instead of the recycling bins.**

**Or, covers on trashcans could have a wider opening therefore allowing students to easily throw away their garbage without any difficulty.** This would also reduce the number of trash bags that are disposed in the recycling bins, which do not have any covers.

**A recycling bin should be placed in the basement lounge alongside the trashcan because there are vending machines containing recyclable products. Above them a recycling guide should be posted as well.**

**In addition to placing more recycling bins in the trash rooms in all residence halls, there should be a more organized fashion in which all trash and recyclable bins are placed/situated in the trash room.** For instance, 3 trashcans could be on the left side of the room and 2 recycling bins on the right side of the room so that students become accustomed to where things go and eventually it would become part of their daily routine.

**Even though signs are posted around campus about the recycling system, there should be someone or an environmental group that can personally explain the system to all students and faculty at the beginning of each school year.**

**Residence directors should enforce stricter rules concerning fines against students, or even better, an entire floor should be held accountable when the recycling system is not followed the correct way.**

**Classroom buildings need to have 1 trashcan, 1 recycling bin, and 1 white paper bin in one particular standing order at every entrance of a building, and at every hallway door leading to a stairwell with a sign above it.**

**The color of each bag in each bin is also extremely important.** For instance, students are confused when a blue bag (recycling) is placed in a bin labeled "trash", or vice versa with a black bag in a bin labeled recycling. Is the bin 'recyclables' or 'trash'?



Custodial workers should be properly informed of the need to use the right colored bags to reduce the level of confusion experienced by students.

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## V. Energy Conservation

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Photovoltaic Skyscraper at 4 Times Square, designed by Professor Colin Cathcart (Architecture). Courtesy of Kiss + Cathcart, Architects.
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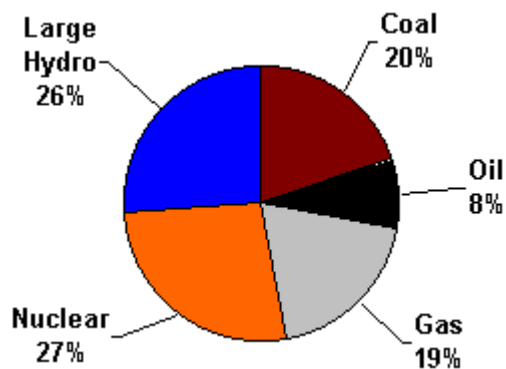
### A. Backgrounder

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Energy is often taken for granted. You flick a light switch, click on a computer, or turn up a thermostat and perhaps neglect to consider where the energy comes from, how it is produced, and the effect its use has on the earth's resources.

Most electricity in New York comes from power plants that use coal, gas, nuclear energy and large hydropower.

#### Electricity Sources in NY State



Source: EPA E-GRID 97 Version 1.1  
 For more information, visit the [E-GRID website](http://www.epa.gov/AIRMARKET/egrid/index.html).  
<http://www.epa.gov/AIRMARKET/egrid/index.html>

This kind of traditional electricity production takes a severe toll on our environment. Generally in the U.S., the **fossil fuels** coal, oil, and natural gas account for over 85% of fuel use. Producing energy from these fossil fuels puts a strain on our environment in terms of **pollution**. Air, land, and water are all becoming increasingly polluted. Also, burning fossil fuels produces greenhouse gases like carbon dioxide that contribute to **global warming**. Finally, **fossil fuels are non-renewable**. The earth only contains so much coal and oil—when these are used up, we will be forced to find alternate sources of energy. It would, however, be better, environmentally *and* economically, to develop **alternative energy sources**, while we still have a choice—sources such as wind, solar, geothermal, and hydrogen which are safer, cleaner, and renewable. Absent using clean energy, the very least we can do is to use traditional energy sources as efficiently as possible. Primarily, this means reducing electricity consumption and **conserving energy**.

Conserving energy **not only saves us money in the short term, but in the long term reduces dependence on foreign oil, air and water pollution, acid rain, global warming, risks to human health, risks to health and survival of the earth's ecosystems, and risks to future generations.**

Electricity generation is the leading cause of industrial air pollution in the U.S. Coal and gas power plants are responsible for 67% of the nation's sulfur dioxide. When combined with rainwater, this chemical causes **acid rain**, which affects the chemistry of soil, damages and kills plants, alters the acidity of rivers so that fish cannot live there, and releases harmful metals into stormwater runoff and groundwater. In addition, these power plants produce 33% of the country's mercury, which not only contaminates soil and waterways, but also accumulates in the fatty tissue of living creatures, becoming more concentrated the higher up the food chain it gets and causing liver and central nervous system damage as well as birth defects. 1/3 of our carbon monoxide also comes from traditional electricity production, as does 1/3 of nitrogen oxide; both these pollutants cause respiratory illness and blood and heart disease. Electricity production effects the **health of ecosystems and human health**.

Particulates are microscopic **air-born particulates** made of trace amounts of heavy metals, radioactive isotopes, hydrocarbons, sulfates, and nitrates. Besides being a chief cause of **smog**, they contribute to approximately 64,000 air pollution-related deaths each year. 15,000 of these deaths stem from electricity generation. Exposure to particulates can shorten life span by up to 6 years, and this risk is borne by almost all who live in U.S. metropolitan areas, where the highest **asthma** rates are found. Especially vulnerable are children, the elderly, and those with preexisting heart or lung conditions.

Ironically, traditional electricity generation produces high amounts of lower atmosphere ozone, while also emitting 36% of the nation's carbon dioxide output, which eats away at upper atmosphere ozone, and contributes to global warming. Ground level ozone causes significant respiratory problems, from chronic coughing to lung cancer, for 1.5 million people every year. The **long-term effects of global warming** are

unknown, but a growing consensus among scientists and researchers is that the impact will be major. Mass species extinctions are predicted (perhaps as much as 40 to 50 percent of present plant and animal species), and whole ecosystems will disappear entirely. The spread of diseases such as malaria, dengue, etc. to previously temperate areas is predicted, as was already seen in NY City with the outbreak of West Nile Fever. Drought is likely to be an acute problem in some areas, flooding in others, sea-level rise in coastal cities, as well as a general increase in damaging storms, hurricanes, tidal surges, and tornadoes that already cause billions of dollars a year in the U.S. A 5-10 degree Fahrenheit rise in temperature over the next 100 years is predicted based on the current growth level of emissions of heat-trapping gases. This temperature change would pose serious problems to infrastructure (especially in coastal areas), public health (as heat intensifies the effect of air and water pollution), and the future of many ecosystems (especially in the Mid-Atlantic region from **southeastern New York state** to North Carolina).

Given this connections to global warming, acid rain, etc., **how we use energy today will effect the long term ecological and economic health of the New York City area—from its water supply system in the northern Catskill/Delaware and Croton watershed ecosystems to the Bronx River watershed and the NY Harbor estuary ecosystem.** What will the Bronx River, Fordham's Rose Hill campus, and the Bronx generally look like 100 years from now if the high-end predictions of global warming (10 degree rise) are realized?

The urgent recommendation of scientists and experts, and the only way to reduce the real risk of a worst-case scenario, is to cut dramatically the consumption of fossil fuels, particularly in electricity and vehicles. **Nuclear energy** offers an alternative source of electricity production, but the threat of radiation with its attendant health effects—cancer, leukemia, sterility, deformities, miscarriages, immune system damage, and death—makes it less appealing. Add the problem of disposing of radioactive waste, and the possibility of disastrous nuclear accidents, and it becomes clear that we need a better solution.

One such solution is pushing for clean energy to replace fossil fuels. **Renewable energy sources** such as solar, wind, geothermal, biomass, and small hydro can all help lessen the impact on the environment, reducing smog, acid rain, other air and water pollution, and global warming. The price of many of these technologies has dropped in recent years; more government funding for research and implementation would ensure that they drop further, quicker. Cleaner, safer, renewable sources of energy will both protect the environment for future generations and reduce our dependence on foreign oil. It makes sense ecologically, politically, and, in a very real sense, ethically—squandering resources and poisoning our planet is a wanton act rooted in greed and self-centeredness.

While at present we have only limited control over the type of energy that produces our electricity, we have much greater influence in the sphere of energy efficiency. **Technology to increase energy efficiency** has improved much faster than it has been adopted. An aggressive program to implement this technology, from fluorescent lighting to energy saving computer systems, will save money on utility bills and help ease environmental problems arising from traditional energy use. Lest one conclude that such conservation efforts will be fruitless, bear in mind that, according to the Environmental Protection Agency, since 1970 every dollar spent on controlling pollution has led to a \$45 gain in health and environmental benefits. So with regard to energy, we need follow a dual strategy: increase efficiency while moving toward cleaner and safer energy sources.

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## References

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### Electricity Sources in NY State

[http://www.green-e.org/your\\_e\\_choices/new\\_york.html](http://www.green-e.org/your_e_choices/new_york.html)

### Environmental Effects of Electricity (Pollution, Acid Rain, Global Warming)

[http://www.green-e.org/your\\_e\\_choices/environment.html](http://www.green-e.org/your_e_choices/environment.html)

[http://www.green-e.org/your\\_e\\_choices/pollutants.html](http://www.green-e.org/your_e_choices/pollutants.html)



## Effects of Global Warming on Our Area in the Next 100 Years

<http://www.nrdc.org/media/pressReleases/000612.asp>

## Electricity and Health

[http://www.green-e.org/your\\_e\\_choices/health.html](http://www.green-e.org/your_e_choices/health.html)

## Energy and Global Warming

<http://www.sierraclub.org/globalwarming/cleanenergy/>

## Energy Project, Pace University School of Law

<http://www.pace.edu/lawschool/env/energy>

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# B. Findings

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## 1. Energy Sources/Air Emissions of Campus Supplier (Con Edison) And Green Power Companies in NY State's Deregulated Market

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**Rose Hill Campus gets its electricity from Con Edison, last year using 21,952,318 KWHRS at a cost of \$2,898,575** (see Facilities Questionnaire below).

**Con Edison's energy sources** for the year April 1, 2000 through March 31, 2001 were heavily based on nonrenewable fossil fuels (77%), with almost no use of alternative, renewable energy (less than 1%):

### Alternative, Renewable Energy

Biomass Less than 1%

Solar 0%

Wind Less than 1%

### Traditional Energy Sources

Coal 20%

Natural Gas 51%

Oil 6%

Hydro 12%

Nuclear 9%

Solid Waste 1%

**Thus Con Edison's emission of the greenhouse gas carbon dioxide** for the year April 1, 2000 through March 31, 2001 was 30% higher than the state average.

### Acid Rain and Smog Causing Emissions

Sulfur Dioxide 11% over the average emission levels of all suppliers in NY State

Nitrogen Oxides 116 over the average

### Global Warming Causing Emission

Carbon Dioxide 30% over the average

This information comes from Con Edison itself in the form of its “Environmental Disclosure” that it has started periodically sending out with customer bills. With implementation of the deregulation of the energy market in the state, **the Public Service Commission now requires all suppliers of electricity to provide their customers with periodic environmental disclosure statements.** Consumers can now shop for an electricity supplier that offers the best price and value for their energy dollars. **The environmental disclosure allows consumers to consider the environmental impact when selecting electricity suppliers.**

This free market mechanism is part of the state’s strategy to encourage energy conservation and reduction of air emissions causing smog, acid rain, and global warming. Deregulation is also meant to attract into the market **certified “green power” companies** (at least 50% renewable energy: geothermal, wind, small hydro, biomass, etc.). See “Green Power” at Public Service Commission’s website: <http://www.dps.state.ny.us/energyguide.htm>. See also the green power certification organization at <http://www.green-e.org>. Green Power companies are already operating in other states such as California and Connecticut, and **a number of colleges have recently switched to these companies**, which often simultaneously provide technical assistance in doing an audit of campus energy use and setting up a conservation program: for example, Connecticut College (<http://www.resource-solutions.org/press/conncollege.html>) and Loyola-Marymount University in California. See the Connecticut Energy Cooperative at <http://www.energyforme.com>.

**At present, there is one green power utility serving New York City:** 1<sup>st</sup> Rochdale Cooperative NYC, “Green Apple Renewable Energy Program,” <http://www.1strochdalenyc.net/GreenEnergy/GreenEnergyFRAME.htm>. Fordham graduate Anthony Pereira of Alternative Power [www.altpower.com](http://www.altpower.com) is involved in this program.

Other measures besides deregulation and environmental disclosure that the state is taking include **the order that all state offices and agencies get at least 10% of their electricity from green sources by 2005.** To comply, NYC Transit has now begun to use solar energy (photovoltaic panels) in lighting and track switches, and its new Bronx depot gets %15 of its power from photovoltaic panels, which translates into a savings of \$60,000 per year. It is presently building a Coney Island depot with 72,000 square feet of photovoltaic panels on the roof, which will provide most of the power for the building. See <http://www.newsday.com/news/local/wire/ny-bc-ny-solartransit0525may25.story>.

By following suit, Fordham could both save much money in the long term and do something very good for the environment.

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## **2. Facilities Questionnaire**

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The following questionnaire on energy use at Rose Hill was completed by Facilities under the direction of Brian J. Byrne, Vice President for Administration, and Peter J. Bundock, Assistant Vice President. Some questions were not able to be answered since the questionnaire was sent to them at short notice.

What is the electric utility serving Rose Hill Campus? What are the sources of its energy (hydro, coal, nuclear, oil, natural gas, alternative energy, etc.), and what percentage of the energy is provided by each source? **Con Edison provides electric Power. Con Ed obtains power off the North American grid which is in turn serviced by sources of power of every nature in unknown proportions.**

How much electricity (kilowatt hours) did the Rose Hill campus buildings and grounds use in the last academic year, and what was the total electrical bill? **21,952,318 KWHRS costing \$2,898,575**

How has the Rose Hill campus electricity use changed over the past five years? **Information not available.**

Does Rose Hill campus have an energy-efficiency or conservation program? If yes, please describe, as well as what monetary savings have resulted from this. **Standard procedure is to purchase high efficiency light bulbs and motor. Savings have not be tracked.**

Does the campus belong to any energy efficiency and conservation organizations that provide technical assistance, such as the EPA's Energy Star Program for colleges and universities or the New York Energy Smart Program of the state Energy Research and Development Authority? **No.**

If the campus does not have an energy-efficiency or conservation program, is one planned for the future? **Yes.**

Is there a policy for using energy efficient lighting and appliances? **Yes**

Is energy conservation encouraged in student residences and in other college buildings? If yes, explain. **No.**

Are new buildings or buildings under construction or planned (Millennium Hall, new library, renovation of the old library, etc.) up to the latest standards and technologies of energy efficiency, and is any financial or technical assistance being sought for this from agencies such as the New York State Energy Smart Program or EPA Energy Star Program? If yes, please describe. **??**

Does the university's planning document or development plan contain environmental criteria? Do they promote the "preservation and enhancement of historic buildings and open space"? **??**

Are there examples of environmentally sound building design on campus, i.e. solar technology, energy efficiency techniques or nontoxic, recycled building materials? **??**

Has a full and formal energy audit ever been conducted on the Rose Hill campus by an internal office or an outside agency, or within a government university self-auditing outreach program such as the ones at the EPA , State Dept. of Environmental Conservation, or State Energy Research and Development Authority? **No**

Are there any public bond monies or grants available to the campus to fund costs of energy efficiency and conservation programs, such as the New York Energy Smart Program of the State Energy Research and Development Authority? If so, have any of these been used?

Does the college own or lease any alternative fuel vehicles or electric vehicles? **NO.**

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### **3. Sustainability Study of the New Science Facilities Plan: Findings and Recommendations**

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by Colin M Cathcart, AIA,  
Associate Professor of Architecture, Fordham University

Online version does not include following appendices that are available upon request:

- (1) Green Building Council, LEED (Leadership in Energy & Environmental Design) Rating System
- (2) Labs For the 21<sup>st</sup> Century: Environmental Performance Criteria for Laboratories for the 21<sup>st</sup> Century

(3) Kiss + Cathcart Design For Marine Biology Laboratory now under construction in Panama for the Smithsonian Tropical Research Institute



Oberlin College Science Building, Designed by McDonough + Partners, American Institute of Architects' Top Ten List for Green Design Projects. <http://www.oberlin.edu/~envs>. Loyola Chicago University is presently building a comparable life sciences building. See [www.luc.edu/depts/envsci/greening\\_loyola.html](http://www.luc.edu/depts/envsci/greening_loyola.html).

### Background

This review for sustainability of the current plans for Fordham's new Science Facilities was requested by the Greening Fordham Group and the Environmental Studies Program <http://www.fordham.edu/es/>. The planning document was made available by Jeffrey von Arx, Dean of Fordham College at Rose Hill.

The writer serves on the Environmental Studies executive committee, and works at Kiss + Cathcart, Architects, ( [www.kisscathcart.com](http://www.kisscathcart.com) ) who are generally considered 'green' by the profession. We are active members of the USGBC (US Green Building Council) <http://www.usgbc.org> and our design for a marine biology laboratory now under construction in Panama for the Smithsonian Tropical Research Institute (STRI) <http://www.stri.org>, was accepted for presentation at the most recent 'Labs for the 21<sup>st</sup> Century' conference <http://www.epa.gov/labs21century> co-sponsored by EPA and DOE. This presentation has been posted by the sponsors of the conference at <http://www.epa.gov/labs21century/conf/conf2001/presentations/final/cathcart.pdf>

### The Master Plan

The current Master Plan (1/17/01) for Fordham's science facilities contains a section entitled "Sustainable Considerations". This section appears to follow the outline of LEED™, a system for rating green building design practices devised by the USGBC. However, this section does not propose going beyond conventional practices at this time, nor does it propose that the building design achieve a certified, silver, gold, or platinum rating. Green design considerations do not appear elsewhere in the report, for example, in evaluating site planning and program allocation criteria.

### LEED

Attached to the hard copy of this report is LEED 2.0. If green considerations are to be incorporated at little or no extra cost, they must be incorporated in the programming and schematic design phases of the project. The following issues are either unmentioned in the master plan or if mentioned are not used in assessing site and program planning options:

- daylighting, +
- solar orientation,
- renewable energy,
- heat island effects,
- light pollution reduction,
- building commissioning,

- CFC and HCFC reduction,
- DOE 2 energy modeling
- ETS control,
- IAQ during construction,
- individual HVAC control,
- LEED accredited design professionals.

There are problems with LEED. One of those is that it is a one-size-fits-all rating system, which does not account for the particular needs and impacts of specific building programs and situations. For example, while LEED gives points for operable windows (EQ 6.1), labs can actually become quite dangerous when windows are opened. To remedy this general deficiency, the USGBC is preparing separate editions of LEED 3.0 to address specific design goals for campuses, maintenance, existing buildings, residential buildings, interiors, and laboratories.

### Labs21

An EPA/DOE sponsored partnership program called ‘Labs for the 21<sup>st</sup> Century’ is currently developing LEED for Labs, with a board of representatives of the DOE, USGBC, five national labs, several university labs, and private consultants. Although LEED for Labs is not yet published, I am attaching an early draft to the hard copy of this report. I would recommend giving particular consideration to the following items:

- No ‘once-through’ equipment cooling,
- VAV fume hoods,
- Enthalpy wheels for waste heat and energy recovery,
- Highly zoned HVAC by use,
- No 100%-outside-air zones larger than 1000 sq. ft.,
- Air cascading (whole building approach)
- Low pressure drop ductwork design,
- All EnergyStar<sup>TM</sup> equipment, otherwise rated in the top 25<sup>th</sup>%le for energy,
- ‘Right-sized’ mechanical equipment, and
- Design flexibility for future re-use; the building itself is designed for recycling.

### Full Sustainability

Full sustainability incorporates other issues besides green design. Issues and impacts of the following should be addressed by the administration in weighing the long term costs and benefits of the project:

- use diversity,
- urban biodiversity,
- maintenance practices,
- community interaction,
- stakeholder responsiveness,
- environmental reporting,
- green space and landscape amenity,
- job creation,
- economic sustainability,
- local labor and materials, and
- social benefits

### Cost

Cost issues are bound to be a priority, and in response to the inevitable question – ‘how much does sustainable design cost?’ – frankly, no one has good numbers. In my observations of the process, ‘green design’ has been indistinguishable from ‘good design’. Laboratory buildings tend to be generously budgeted due to the technical nature of the building function. If design is initiated according to sustainable principles, these principles permeate all decision-making, and it becomes quite impossible to separate green



principles from design principles, at any budget level. For an owner like Fordham, the long-term economic benefits will substantially outweigh first-cost considerations anyway.

Nevertheless, there are many examples of low-cost sustainable design. The Vancouver Island Technology Park received a LEED gold rating recently, and asking rents are only \$7.00 - \$8.50 per square foot. Kiss + Cathcart's biology lab for STRI -- quite radical in its approach to sustainability -- is being constructed for less than \$200 per square foot, despite its remote location. Information on both these labs is attached.

Finally, environmental responsibility may provide a good 'hook' for effective fundraising and flattering publicity. Generous funding is often available for sustainable features from agencies like the New York State Research and Development Authority (<http://www.nyserda.org/>).

#### Recommendations

- that Fordham become a Lab21 partner and a USGBC member
- that Fordham require its new lab building to be rated according to LEED
- that fundraising for the new lab highlight a commitment to sustainability
- that Fordham's development personnel meet with NYSERDA to explore funding
- that accredited LEED professionals be required on the design team.

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## C. Findings on Specific Buildings and Recommendations

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One or two tours of the following buildings were conducted by two person audit teams in order to fill out the questionnaires.

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### 1. Alumni Court North and South

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Building Descriptions: residences, 4 floors plus basement, 120 residential rooms, lounges on each floor, 1 trash/recycling room per floor, none in basement

# of lights in building:

**approximately 338 (not including bedroom lights) per building. Almost all had double bulbs, totaling 679 bulbs in the common areas of each building.**

Type of lights in Halls: **Long Fluorescent – 2 bulbs per light**

Type of lights in rooms:

**almost all lights were long, short or circular fluorescent bulbs. There were two regular (candescent) bulbs in the back stairwells.**

Number of windows in the building:

**Wall of glass windows in the downstairs study lounges. In the stairwell there were 12 big windows per building. In the basement there were no windows. The back staircase had 1 window per floor.**

**In the hallway there were two large windows per floor at each end. Research does not include bedrooms.**

Number of windows per room: **varied according to the room.**

Is the building air-conditioned: **believed to be central air**

How many single units in building: **N/A**

Is the light in the trash room always on: **In our findings, yes.**

How many unneeded room lights were on because no one was in the room:  
**trash rooms on every floor, study lounges, public bathrooms on the first floor, empty laundry room, stairwells. Not including empty bedrooms with lights left on.**

How many unneeded room or hall lights were on because natural window lighting was sufficient:  
**All hallways during the day had sufficient lighting without the hall lights on. The stairwells had more than enough natural light. The study lounges had more than enough natural light without lights on. Only the basement did not have sufficient natural lighting.**

How many halls and common rooms have clearly visible means of turning off lights, how many don't:  
**Neither the hallways nor the stairwells (where the lights were not needed) had visible switches.**

How many light switches have energy conservation stickers beside them: **None**

Do all or most lights in the buildings or rooms stay on all night:  
**yes. All the lights are on at night in the hallways, stairwells, entranceway etc. There are also more lights used because of outside lights that are on.**

Though almost all lights in the buildings use fluorescent light bulbs, almost all rooms had all lights on unnecessarily either because there was no one in the room or there was sufficient natural lighting. **During the day there was a total of 676 lights on in the two buildings' common areas. Only 33 out of 676 lights were necessary** for lighting during the day since they were in the basement and there are no windows. I was unable to assess individual bedroom light use but the few rooms I entered had lights on though the windows provided enough light. In asking students if they turn off their bedroom lights before leaving the room, a staggeringly high 7/8 students said they usually did. While it is difficult to monitor private bedroom usage, the common rooms can be more efficiently monitored for light use.

### Recommendations

**A more conscientious use of lights in these two relatively new dorm buildings is recommended.**

**There is no need to have every light on in the common rooms of the buildings during the day--the buildings were designed with enough windows for adequate natural lighting. The staircases, hallways, and study lounges have very large windows that, during the day, make indoor lighting completely unnecessary.**

**The trash rooms, bathrooms, laundry room and study lounge lights should be kept off unless there is a person using the room.**

**Switches should be made more visible and added where necessary. Because there are no visible switches, students cannot turn off lights in common rooms and hallways when they are not needed.**

**In the study halls, students should be able to turn on only the lights necessary for the part of the room they are in, if light is needed at all.**

**Education on energy conservation should be provided so residents of the hall can be responsible for their own building.**

**And, since that may not be sufficient, perhaps the Resident Assistants can be in charge of checking the lighting on their specific floor.**

**The person sitting at the front desk can be in charge of the entranceway and downstairs study lounge.**

**Students should also be encouraged to turn off their bedroom lights when they are not in the rooms.** This can be done by posting reminders on each floor and educating students about energy conservation during their first hall meeting when they initially arrive at the school.

**During the night, unnecessary lights in buildings and on athletic fields, including library lights and all computers and computers in Smart classrooms.**

**With Fordham University's annual energy bill totaling \$2,898,575.00 for 21,952,318 KWHRS there is much to be gained for more efficient energy practices.** Walking around campus during the day, either on the campus or in the classroom buildings, **one can see energy being wasted generally.**

On the path from Walsh to Keating, **outdoor lamps are left on all day long, but should not be.**

**The lights in Keating Hall, both in the hallways and used/unused classrooms, are left on all day despite sufficient natural window lighting.**

**Heaters are often on under open windows.**

**Air conditioning, when available, often simply replaces opening windows on days when such a method of cooling is adequate.**

If the University were to take small steps such as **replacing all regular bulbs with long-life, energy efficient fluorescent bulbs and monitoring the use of the lights**, there would be remarkable **decrease in the energy costs** by the university as well as environmental improvements.

**Monetary savings could go toward environmental education and environmental improvements in the buildings or in future development projects.**

Facilities indicated in their responses to the questionnaire that **the new buildings, as well those under construction, are not up to the latest standards and technologies of energy efficiency.**

In the questionnaire, questions such as **"Does the university's planning document or development plan contain environmental criteria?"** and **"Are there examples of environmentally sound building design on campus?"** are given question marks as the response.

**There are no alternative fuel or electric vehicles owned or leased by the campus—there should be some, even for symbolic purposes. They are available from major American auto makers.** For information, go to Department of Energy's Clean Cities and Buyer's guide website <http://www.ccities.doe.gov> and NRDC's college alternative vehicle program <http://www.nrdc.org/earthsmartcars/actsch.html>

**Education is very important for improving energy conservation and environmental awareness.** It is not only a lack of effort toward environmentally sound policies that is the problem, but also a lack of knowledge regarding existing policies or alternatives to these current practices. **Faculty and student**

**questionnaires reveal that both students and professors are uneducated about environmental issues and policies at this school.** Generally, there is a **lack of appreciation for and connection with the local Bronx natural environment** and the global environment. A lack of connection with the environment and the local community results in an apathy regarding campus environmental efforts. It seems there is **little correlation made between on-campus policy and the local or overall health of the environment.**

Education programs informing the Fordham population about the effects of their actions on the earth could provide the necessary motivation to improve personal behavior.

**An indepth energy study or audit should be done** on the potential monetary savings resulting from an energy conservation, monitoring, and education program, conducting this study either with internal resources and/or using an outside private or government agency, including government university-self-auditing outreach programs such as the ones at the EPA, State Dept. of Environmental Conservation, or State Energy Research and Development Authority, as mentioned in the Facilities questionnaire.

**The university should explore the long-term cost-effectiveness of switching from Con Edison to a green power electrical utility.**

**For general assistance, including the new science facilities (as outlined by Professor Cathcart's study), the university should join—per one questions in the Facilities questionnaire--some energy efficiency and conservation organizations that provide technical assistance, such as the EPA's Energy Star Program for colleges and universities or the New York Energy Smart Program of the state Energy Research and Development Authority.**

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## 2. Dealy Hall

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### Building Description

Used for classrooms and offices for a number of departments including English, Anthropology/Sociology, Economics, Psychology and the Counseling Center. The first floor of the building contains mostly classrooms as well as a computer lab and a student lounge. The second and third floors contain larger classrooms and some departmental offices. The top three of the six floors are all office space. The basements contains office space and houses laboratory animals used in psychology department experiments.

Total # of Lights: **1200** (estimate)

Types of Lights in Halls and Rooms: **Fluorescent bulbs**

# of windows: **160** (estimate)

# of windows per room: **1-2 per room**

Is the Building Air Conditioned?: **Yes**, with individual units in each classroom.

AC units in buildings: **90** (estimate)

# of unnecessary room lights lit: **125** (12bulbs in each classroom, 2 classrooms per floor)

# of visibly clear light switches: **All**

# of Energy Conservation Stickers: **None**

Lighting at night: **Hall lights stay on all night**

### Recommendations

**Post conservation stickers next to each light switch in the building.** This would remind students and faculty to turn off the lights when exiting the room.

**Most classrooms can be adequately lit with natural light at lot of the time.** For example, by simply pulling up the shade the large windows supply enough light to fill the classroom. In fact, **during our tour there was a class in session which chose to use only natural light.**

**Hallway lights could be turned off at night when the building is locked and not in use.**

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### 3. Finlay Hall

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#### Building Description

Finlay Hall, located on the Southern side of the Rose Hill campus is a stone building dating back to the early 20<sup>th</sup> century. It was built to house the school's Pharmaceutical program, but now houses undergraduate students. The building's physical attributes include 5 floors, with a total of 150 rooms and 265 windows. This residence hall consists primarily of triple bedrooms with a small number of singles and doubles, all with private bathrooms. Most triple rooms are designed with a loft for added space. This hall houses approximately 295 upper-class students. Finlay has an elevator, one study lounge, a common lounge, and kitchen and laundry facilities. Air-conditioning is available for a few weeks after opening and at the end of the academic year.

How many total lights in the building? (Estimate based on sample study)

**210 Fluorescent lights and 1 incandescent light provided. Students can bring as many other lights of any type they want**

What types of lights in Halls? **Fluorescent - 12**

What type of Lights in Rooms?

**One Fluorescent provided in each, Lounges have 12 Fluorescent each**

How many windows in the Building? **265 total windows**

How many windows per room?

**Varies between rooms, with an average of 1 to 2 per room and a total of 18 in the lounges**

Is the Building Air-conditioned? **Air conditioned with single units**

How many single units in the Building? **Approximately 130 single units**

Residential Halls – Is the light in the Trash room always on?

**The lights in all the trash rooms were observed on**

How many unneeded room lights were on because no one was in the room?

**Both Lounges and all trash rooms.**

**Did not observe the inside of any of the student rooms, but some lights were observed on from the outside.**

How many unneeded room or hall lights were on because natural window lighting was sufficient? -

**Approximately 10**

How many halls and common rooms have clearly visible means of turning off lights in halls and rooms? -

**All, although, when tried, some did not work**

How many don't? **None**

How many light switches have energy conservation stickers beside them? **None**

Do all or most lights in the buildings or rooms stay on all night?



### **All lights in common rooms and hallways stay on all night**

A number of steps have been taken to make the building more energy efficient, but it lacks the final steps needed to bring to maximum efficiency. While the building does have the physical means to turn lights off or open blinds and give sufficient natural light, the building has no posted information to encourage students to do so. Fluorescent lights are best for the building and having them through out the student rooms in good. The building seems to be half way to a goal of efficiency and conservation.

### Recommendations

**Posting information on energy conserving techniques throughout the building.** Simple signs reminding students about such easy tasks as **shutting of the lights when leaving the room, not leaving computers running 24 hours a day, and opening the blinds to allow natural light** into the room could go a long way on towards cutting down wasted energy. These types of things often simply slip the mind of busy students, and little reminders throughout the building would be useful in jogging their memories.

**Motion sensors could also be installed in the garbage rooms as opposed to leaving the lights on all day and night.** This would drastically cut down on wasted energy, as the lights in these rooms would only be on when somebody is in them, which is rarely.

**Limit the amount of needless lights (such as Christmas lights) students can use in individual rooms.**

**Sell energy efficient bulbs for private lighting fixtures at a reduced rate.**

**The number of hallway lights left on during daylight hours could be reduced by half and set on a timer so that the full compliment of lights only comes on after dark.**

**These steps should be taken in all campus buildings.** Nearly every building on campus suffers from old equipment, and lights and other electrical devices being left on for no reason, as is indicated by the audits of other buildings and Dr. Cathcart's sustainability study.

**A university wide energy conservation education program is needed for students, faculty, staff, and administration.** Posting energy conservation information in all the buildings, putting stickers next to light switches, and encouraging both students and faculty to shut off unused electrical appliances is a low-cost way to greatly improve the energy efficiency of the entire campus. Many people on campus don't seem to give energy conservation a second thought, and giving them the necessary **education on the subject is the first and most important step to improving Fordham's energy policies.**

**All old equipment on campus needs to be upgraded, using energy star compliant devices and other strategies recommended in Dr. Cathcart's sustainability study above.**

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## **4. Hughes Hall**

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### Building Description

Hughes Hall was initially part of Fordham Prep. What are now dorm rooms were originally classrooms. The building changed to a Residential House in the early 1990s and now only houses members of the Freshmen class at Fordham University. The rooms are designed to be quads (four people), with four beds, dressers and desks. Most rooms have very high ceilings, with the exception of the fifth floor and are longer than they are wide. Beds are used bunked to save space. There are still offices in the basement of Hughes as well as a laundry facility and study lounge.

**How many total lights in the building? (estimate based on sample study)**

11 lighting fixtures per hallway:  $11 \times 5$  floors = 55 fixtures. One large lighting fixture per room and roughly twenty rooms per floor:  $20 \times 5$  floors = 100 fixtures). All together there are approximately 155 lighting fixtures in the building.

**What types of lights in Halls?** Fluorescent

**What type of Lights in Rooms?** Fluorescent

**How many windows in the Building?** 40 windows were floor ( $40 \times 5 = 200$  windows)

**How many windows per room?** Two

**Is the Building Air-conditioned?** No

**Is the light in the Trash room always on?**

Yes, the trash bins in Hughes Hall are located in the stairwells and the lights in the stairwells and hallways are always on.

**How many unneeded room lights were on because no one was in the room?**

Because the rooms in Hughes are very tall with thin windows, dorm rooms are rather dark. The room's one main light is usually left on throughout the day.

**How many unneeded room or hall lights were on because natural window lighting was sufficient?** See previous answer

**How many halls and common rooms have clearly visible means of turning off lights in halls and rooms?** All

**How many light switches have energy conservation stickers beside them?** None

**Do all or most lights in the buildings or rooms stay on all night?**

The stairwell, hallway and usually the bathroom lights are always on. The actual dorm room light usually is usually turned off for a few hours a night in order to sleep.

While it may seem excessive that the hall, stairwell and bathroom lights remain on all night, these are common areas that need to be well lit. Overall the building is given a 4 rating because the fluorescent room lighting in most cases is not bright enough for the residents. Many residents have lamps in their rooms to brighten them up.

Recommendations

**Increase the number of fluorescent lights in the dorm rooms, thus decreasing high wattage conventional lighting provided by students.** Because of the ineffectiveness of one fluorescent light fixture in each room, students bring in their own lamps with high light bulb wattage. Fluorescent lighting is clearly more environmentally friendly and cheaper than regular light bulbs.

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## 5. John Mulcahy Hall

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Building Description

6-floor classroom building also containing computer and science labs; three departments located within: Computer Science (floor 3), Mathematics (floor 4), Chemistry (floors 5 and 6).

Total Lights in Building: **600**

Types of Lights in Halls: **Florescent**

Types of Lights in Rooms: **Florescent**

Number of Windows in Building: **196**

Number of Windows per Room: **2-3**

Is Building Air-conditioned and what type: **Central air-conditioning.**

Number of unneeded room lights on with no one in room: **50**

Number of unneeded room or hall lights on with natural window lighting sufficient: **20**

Number of halls and common rooms with visible means of turning off light in them: **40**

Number of those that don't: **10**

Number of light switches with energy conservation stickers beside them: **0**

Do all or most lights in the buildings or rooms stay on all night: **Most**

#### Recommendations

**Lights in rooms or halls should be off if there is sufficient natural lighting.**

**Lights should also be turned off if no one is in the room.**

**Janitors should be assigned to make a sweep of the building for these instances.**

**Light switches should have energy conservation stickers next to them.**

**Lights in rooms should remain off at night while the lights in major halls remain on if necessary.**

**Generally, Fordham University should have an energy conservation program.** Energy conservation on campus saves state tax dollars and reduces environmental impacts associated with energy production and consumption.

**Energy management and conservation should be studied and monitored in each building to find specific energy saving solutions for each building.**

**Students and faculty need to be educated on energy conservation practices.**

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## **6. Larkin Hall**

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### Building Description

Located on the Fordham Road side of campus, close to the library, Larkin Hall stands three stories (not including the basement) and boasts an old stone exterior. The building sits in an "L" shape with only one main hallway on each floor, with a staircase on either end of the hallway. Larkin is primarily a biology building, full of labs for biology students and only several classrooms, the main classroom being a large lecture hall on the first floor. The basement is used primarily for housing laboratory animals used in experiments. All and all, it is a small, specialized building that many Fordham students never step foot in.

Most of the lights in Larkin hall are **fluorescent** tubes in groups of three contained in fixtures. There are about 12 fixtures per classroom, 6 per lab, and about 8 per "L"-shaped hallway. Since there are three floors and a basement, there are an estimated **200 fluorescent lights** in the building. There are a few non fluorescent bulbs, and they are in the lounge on the first floor—about 8 of them.

A large number of windows--the hallways are lined with them on the side opposite the classroom/lab/office doors. There are about 5-6 windows per classroom, and we estimated about **90 windows** in the building.

**Not air conditioned**, though there are probably a few units faculty offices.

**Old-fashioned heating radiators** that come up to waist-high—probably not as efficient as the newer methods.

A **staggering amount of lights left on in each of the classrooms for a Saturday**—in fact, all classrooms were empty at the time we surveyed the building (no classes on this day--1 pm on a Saturday), and most lights were left on. The non-**fluorescent bulbs in the lounge were on as well**, and no one was in sight. Because of the overabundance of large windows, there weren't any lights needed at the time, however most were left on in all 3 floors. It was about **Clearly visible means of turning these lights off**, and on one floor's hallway, the lights were even labeled with stickers.

**The one lab inspected was empty and 4 light fixtures (fluorescent) were left on.** All other labs were locked.

**The stairwells had unnecessary lights left on.**

**No conservation stickers on any light switches.**

**Only one or two lights stayed on at night in the building on the third floor.** This is a positive sign of energy conservation.

#### Recommendations

**Lights in classrooms and labs should be turned off when classes, labs, and research is not in session.**

**The hallways and stairwells don't even need lighting during the day because the windows suffice.**

**The lounge needs to be monitored and lights turned off when not in use.**

**Faculty in Larkin should be notified that they should turn lights off in the rooms when they finish occupying them.**

**Custodial and other facilities should make sure that superfluous lights are turned off, and they should be notified of this.**

**Label all switches, along with energy conservation stickers.**

**These recommendations should be applied to all buildings in a general energy conservation education program, potentially saving the university tens of thousands of dollars that could be used for better purposes.**

**The education program should provide information on WHY it is important to conserve energy: financial, global warming, etc. See backgrounder on energy conservation above.**

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## **7. Millennium Hall**

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### Building Description

Millennium Hall is a three-wing, five-level residence hall, housing 550 students. Air-conditioning is available for two weeks in late August and early September, and at the end of the academic year. Bedrooms are mostly doubles. Each bedroom affords residents a private bathroom. (Single bedrooms share a private bathroom located between two rooms.) The building contains thirteen community lounges, seven quiet study lounges, four seminar rooms, and a large Great Room.

Total number of lights: **850 (most lights are constantly illuminated)**

Types of lights: **Florescent**

Types of lights in rooms: **Florescent**

Total number of windows: **650**

Average number of windows per room: **1**

Air-conditioning: **Central unit operating one month per year**

Trash Room lights: **Intermittently illuminated per motion-activated switches**

Total number of unneeded room lights left on during daytime hours: **N/A**

Total number of unneeded hall lights left on during daytime hours: **375**

Total number of halls with clearly visible means of turning lights off: **None**

Total number of common rooms with clearly visible means of turning lights off: **All**

Total number of light switches with energy conservation stickers beside them: **None**

Motion-activated light switches in trash/recycling and common rooms saved the building from a much lower rating. The exclusive use of energy efficient florescent bulbs also contributed to a higher rating. However, hallways could stand to be more dimly lighted at certain times. For instance, although they are mostly windowless, half the number of bulbs would be sufficient to light the hallways during daytime hours.

#### Recommendations

**That the lighting configuration be reviewed with a view to reducing the number of bulbs illuminated during daylight hours.**

**That energy conservation stickers be placed beside light switches in bedrooms and common rooms.**

**Generally, all residence halls should have timers that shut off at least half of the hallway lighting during early morning hours**

**All trash rooms and common rooms that do not have motion-activated switches should have such switches installed.**

**The feasibility of solar panels on the roofs of buildings should be investigated.** Fordham architect, Dr. Colin Cathcart (see his study above), specializes in this technology.

**Residence halls that do not have florescent lighting in the bedrooms should be so equipped so that students need not bring energy inefficient lighting into the residences.**

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## **8. Queen's Court**

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### Building Description

Queen's Court is a residential building on the Fordham University campus. It is a freshmen building and holds approximately 150 students with about four Residential Life staff and four resident assistants. This building is three floors and a basement. Each floor has three sections to it. The Robert's Hall section holds the most students and is completely composed of rooms on both sides of its hallways; the Bishop's Hall has two floors of rooms on only one side of its hallway with the first floor consisting of a study lounge and a



small kitchen; the John's Hall section is divided in half by a stairwell with rooms on both sides of the hallway and a lobby on the first floor. The basement has the laundry room, the resident hall office, one recreation room, three study rooms, and one classroom. There are bathrooms and garbage rooms spread throughout the building in strategic places.

**Approximately 450 lights, not including those in the rooms.** Most of the lights were **fluorescent** with few regular light bulbs in the study rooms of the basement and at individual work areas of the main study lounge in the Bishop's first floor. Since each section in Queen's Court, other than the Robert's section, is non-uniform, and since room access was unavailable, an official number of the total number of lights in the building was difficult to get.

**Approximately 215 windows, not including those in rooms.**

**Light switches in the hallways and stairwells can only be turned on and off with some form of special key presumably possessed by the resident assistants and residential life staff.**

**Lights in all hallways, stairwells, garbage rooms, and bathrooms were on, despite the relatively efficient amounts of natural sunlight in the afternoon** coming in through the windows of these areas and the relatively low use of these areas.

**The main study lounge, the basement lounges, the classroom, the laundry room, and the kitchen have clearly visible light switches that can be used by anyone.**

*Interestingly, the lights in these rooms were all off in the afternoon !*

**No light switches have an energy conservation sticker beside it.**

**Air conditioners are not allowed in student rooms** unless there is a legitimate medical reason. But the rooms of the resident assistants and the residential life staff as well as the classrooms have air conditioners, but none of them were on.

#### Recommendations

**Implement light switches throughout the building that can be operated by students and not just staff.**

**Put up energy conservation signs and stickers near these switches and in other strategic areas such as in the study lounges and in the halls.**

**Implements these two policies campus wide, and take other steps in energy conservation education.**

**Strive to become as excellent in environmental literacy and conservation as in other traditional areas—academics, community service, etc.**

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## **9. Walsh Hall**

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### Building Description

Walsh Hall is an upperclassmen residence building. It is thirteen stories high consisting of four and six bedroom apartments. Each apartment includes a living room, bathroom, full kitchen, and dining area. In the basement there is a common lounge, and there is one large laundry room and single unit laundry facilities on every even number floor.

How many total lights in the building? **1,200**

What types of lights in Halls? **Fluorescent bulbs**

What types of lights in rooms? **Fluorescent bulbs**

How many windows in the Building? **470**

How many windows per room? **4 per 4 person suite; 5 per 6 person suite**

Is the Building air-conditioned? **No**

How many single units in the building? **3**

Is the light in the Trash room always on? **Yes**

How many unneeded room lights were on because no one was in the room? **All trash rooms and laundry rooms (50)**

How many unneeded room or hall lights were on because natural window lighting was sufficient? **Lobby (35)**

How many halls and common rooms have clearly visible means of turning off lights? **All Trash rooms and suites**

How many don't? **Lobby and hallways**

How many light switches have energy conservation stickers beside them? **None**

Do all or most lights in the buildings or rooms stay on all night? **Yes**

#### Recommendations:

**There should be a light switch in the lobby which can be used to shut off the lights during the day when there is enough natural light entering through the doorways.**

**Motion sensor lights should be installed in the trash rooms and the laundry rooms to prevent the lights from staying on when no one is using them.**

**Windows should be sealed better, to prevent the constant draft through residential windows, in order to save on heating costs.**

**Since there is a policy for no air conditioners in the building, then it should be followed by everyone and Resident Directors should not be the exception--since they are left in all year long, they are a source of heat loss during the winter.**

**Limit the number of lights in the halls since presently they are over-lit.**

**Generally, institute a campus wide energy conservation information program and a general environmental education program for all university community members.** In the Student and Department Questionnaires it seemed that in general most were in favor of including environmental awareness issues into university life, and even into the curriculum. Not only do we need to conserve energy to save money but we also need to protect our natural resources for the future, especially future generations.

**Explore making it part of official university policy, outlined in student and faculty handbooks, etc., that community members are requested and expected to turn off lights when rooms, etc. are empty.**

**Dimmer switches should be installed in rooms, especially dorm rooms and classrooms, in order to allow students and faculty to control the lights according to the amount of natural light that is available at the time.**

**Energy conservation stickers should be placed next to all light switches in the University.** When people are reminded to turn off the lights they will probably do so--the problem is that they forget and if there were stickers they may not forget.

**It was noted in the Student Questionnaires that lights on the baseball field were left on all night, but shouldn't be.** Facilities should be more aware of turning off lights which are used to light large areas, such as the baseball field and Murphy's Field when not in use.

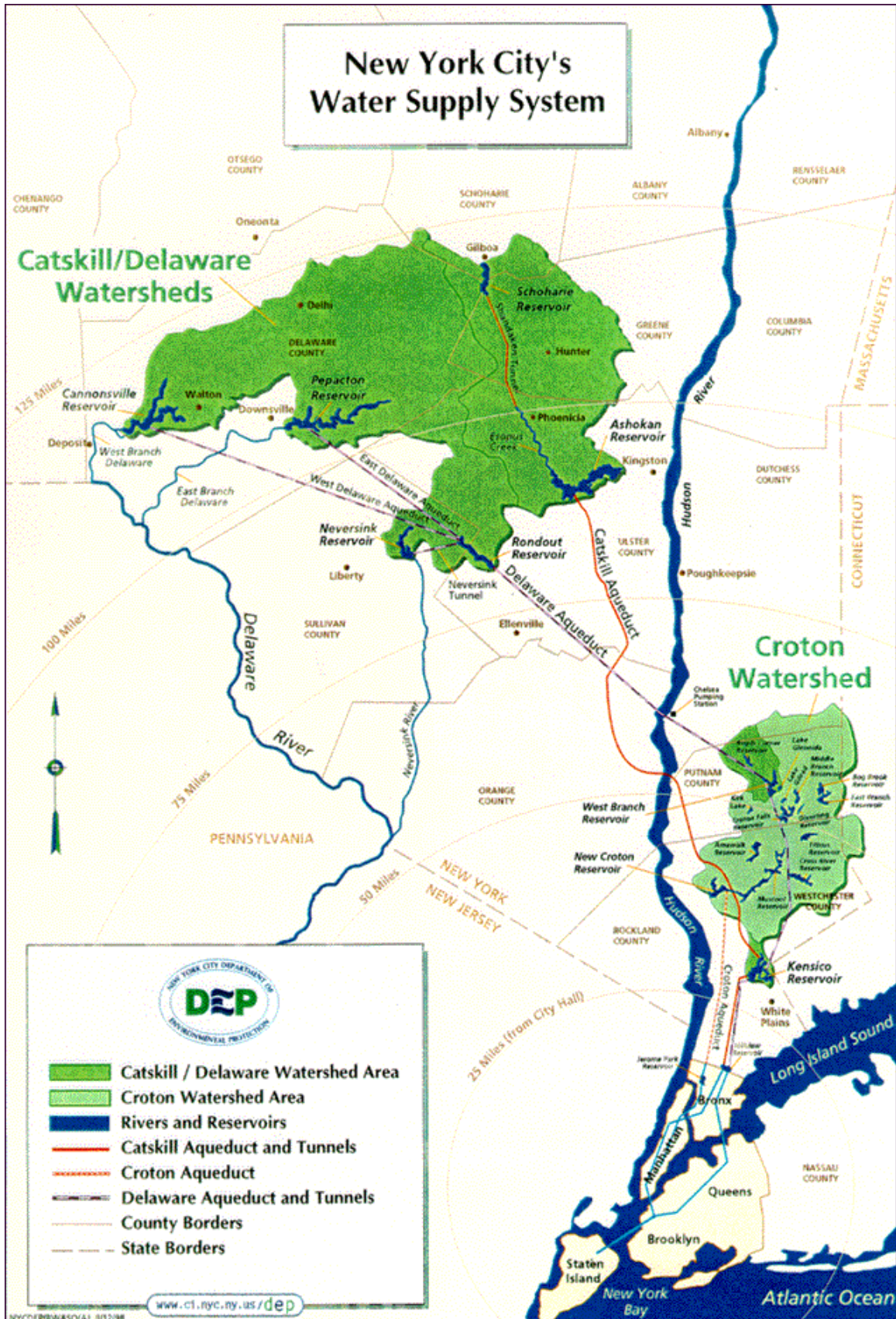
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## VI. Water Conservation & Sustainable Landscaping

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Bronx River, Still Wild and Beautiful, As It Was When It Belonged to the Original 19<sup>th</sup> Century Rose Hill Campus. Now Preserved in the NY Botanical Garden. River source today is the NYC Kensico Reservoir in Lower Westchester, which draws its water from Catskill/Delaware watersheds.





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## 1. Backgrounder

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According to the EPA and other federal agencies, **one of the biggest environmental problems facing the U.S. and the rest of the world is the long-term availability of a sufficient supply of clean, healthy water** to sustain human life and all life on the planet.

**NY City presently faces this problem in an acute form** due to stresses on the northern watersheds that supply the city—and this is quite rare for a metropolis—with nonfiltrated water, as well as the continued degradation of urban and suburban streams and rivers such as the Hudson and Bronx Rivers. The standing grade issued by the EPA for the city’s water supply is in the C range. If improvements are not made, billion-dollar water filtration plants will be mandated by the EPA for the entire city water supply system. Costs will be passed on to tax payers, businesses, and organizations like Fordham University which as is paid the NYC Department of Environmental Protection \$374,378.00 just for water use at the Rose Hill Campus.

**Three main anthropogenic (human-caused) stresses on water supply and quality**, including the case of NY City, are **(1) point and non-point source pollution, (2) overuse, and (3) increased droughts brought on by global warming.**

**Nonpoint source pollution**, which according to federal agencies is the most widespread kind of water pollution problem, comes from many diffuse sources and cannot be traced to an original starting point. The main cause of nonpoint source pollution is **stormwater runoff from streets, parking lots, vehicle washing areas, yards, lawns, construction sites, farms, and mines** which occurs when precipitation moves downward through the lower atmosphere, over the ground, through the ground, and often through storm drain systems not connected to a treatment plant, collecting and carrying with it pollutants that will eventually be deposited in lakes, rivers, wetlands, and even our underground drinking water sources. Nonpoint contaminants include: **small pieces of garbage** (paper, bottles, food waste, floatable objects, etc.); **organic debris** such as leaves; excess **nutrient-rich fertilizers (especially synthetic ones) and pesticides** from agricultural, residential, and commercial sources; **oil, grease, and toxic chemicals** from urban areas and sites of energy production; **bacteria and nutrients from livestock, pet wastes, faulty septic tanks or city sewer systems, and storm drains** not connected to a treatment plant; **sediments** (primarily “dirt”) from improperly managed construction sites; **salt** from irrigation activities and winter road maintenance; **acid mine drainage** from abandoned mines; and **air-borne chemical pollutants** (smog, acid rain, etc.).

While agriculture, industry, and mining are major contributors to the above nonpoint pollutants, the most problematic contributor today is the runaway increase in **suburban sprawl**—the spread of residential and commercial development away from urban and proximate suburban areas into sensitive watershed, wetland, and reservoir areas, such as the Croton and Catskill/Delaware watershed systems that supply NY City with its water. The most polluted of these is the Croton watershed in Upper Westchester which supplies Fordham’s Rose Hill campus and the rest of the Bronx with its water, but contains the highest levels of microbial parasites such as cryptosporidium and giardia which even at lower levels can cause illness in and even kill those with weaker immune systems (the young, elderly, and sick, such as AIDs patients). A billion-dollar, EPA-mandated water filtration facility is presently being planned by the city for the Croton system. The “best water” from the Catskill/Croton system supplies Manhattan and other parts of NYC.



**Point source pollution**, on the other hand, is pollution from known discharge points such as pipes or spills. For instance, raw sewage draining from a pipe directly into a stream is considered a point source water pollutant, as is the release of chemicals into a water body by an industrial plant or a tanker oil spill.

A particularly problematic kind of point source pollution in older urban areas like NY City and suburban areas with public sewer systems like towns in Westchester County are **Combined Sewer Overflows (CSOs)** which occur in systems which combine the storm drain system with the sewer system, channeling both stormwater runoff and sewage/gray water into the same water treatment facilities. During heavy rain storms, the increase in runoff overloads the processing capacity of the treatment facilities and backs up the system. Raw sewage is mixed with storm water all along the system, and as the system continues to back up, a mixture of sewage and storm water (containing the non-point source pollutants listed above) is discharged directly into a water body such as a river at designated **CSO points**. The public is most familiar with these CSOs in the form of **beach closings** when fecal matter, toilet paper, and other household materials disposed of in toilets and sinks can be seen in the water, and the concentrations of pathogens (bacteria, viruses) poses a high risk to human health. Located in NY City, **Fordham University uses the city's very old Combined Sewer System**.

There are **CSO points on the southern portion of the Bronx River** near Fordham and on the **Grassy Sprain Brook** which flows into the Bronx River a few miles to the north. The EPA and other federal agencies list the Bronx river as unfit for drinking, swimming, etc. primarily because of the problem of high levels of pathogens from point and non-point sources.

**Water quality** is determined by the ability of a specific water body to serve its intended uses, e.g. drinking, habitat, swimming, fishing, etc. **Negative water quality effects from nonpoint and point source pollution processes include:** (1) **flooding**, due to increased water volume because with high percentages of human-made impervious surfaces (paved roads, parking lots, etc.), stormwater is not slowed down and absorbed by wetland areas, vegetation, and permeable soil, but gathers and rushes (with all the pollutants it collects) quickly along impervious surfaces; (2) **erosion**, as stream and river banks are washed away due to higher and faster flows of water; (3) **sedimentation and turbidity**, due to upstream soil erosion, which is deposited into nearby bodies of water; (5) **increased water temperature**, due to heated runoff; (6) **loss of oxygen** in water due to high levels of nutrients from fertilizers and fecal matter super-feeding microbial life (especially algae); (6) **high levels of toxic pathogens** (bacteria, viruses), chemicals, and heavy metals, etc. that render the water unfit for drinking, swimming, etc.; (7) **loss of wetland and water habitat** for many fish and wildlife species, due to the above problems; (8) **higher water costs** for tax payers, business, and organizations as measures to combat water quality degradation need to be taken; and (9) **costs of flooding** that can run from thousands to millions of dollars and involve the tragic loss of human life.

**Water conservation measures to deal with water quality problems** include:

- (1) **water filtration plants;**
- (2) **more efficient combined sewer systems**, or eliminating them;
- (3) **smart growth policies** to curb suburban sprawl and urban development; and
- (4) **water conservation education programs** such as those of the NYC Department of Environmental Protection and Westchester County's Department of Environmental Planning "H2OK Program"), which provide information on point and nonpoint source pollutants and encourage the public to decrease them (e.g., **pet waste, washing vehicles beside storm drains, improper disposal of household materials** such as chemicals and body care products in sewer systems, the use of **organic methods of yard maintenance and landscaping** that minimize pesticides and synthetic fertilizers and employ methods of **integrated pest management**).

The other two stresses on the supply of clean, healthy water mentioned above have perhaps more to do **water quantity** as opposed to **water quality**, though they also affect the latter.

They are (2) **overuse in agriculture, industrial production, businesses, and households** especially in a consumer society that takes the supply of water for granted, and has been lucky enough to be able to this

for geographical reasons, as we have in NY City (drinking, cooking, water toilets, shower/bath, washers, dishwashers, yard watering, etc.); and (3) **increased droughts brought on by global warming.**

**Water conservation measures to deal with these water quantity problems** include:

- (1) **new efficient, water conserving technologies**, e.g., efficient sprinkler systems, low-flow toilets, faucet sensors, front loading washing machines, etc.
- (2) **combating global warming** through energy consumption and alternative energy (see Section V above on “Energy Conservation”)
- (3) **water conservation education programs** which encourage the use of the above technologies and simple traditional methods of conservation (not letting the tap run, taking shorter showers, not flushing every time, not running the dishwasher or clothes washer unless full, proper yard watering times, using native or other plants and trees that require less water and are more drought resistant, using recycled grey water, etc.).

**NY City presently faces not only the first problem of water quality, but also these latter two water quantity problems**, experiencing in the last decade many of the mildest, driest winters and hottest, driest summers on record, **suffering presently from a drought** that may continue for years to come, and having continued to use water “as if there were no tomorrow” until the city declared a **drought emergency** this spring and instituted mandatory water conservation measures for businesses and households.

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## References

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### Stresses on NY City’s Water Supply System

<http://www.nrdc.org/water/drinking/attack/attinx.asp>

### Fact Sheets on Nonpoint Source Pollution

<http://www.westchestergov.com/planning/environmental/default.htm>

### Fertilizer Water Contamination

<http://www.watoxics.org/thlf.htm#organic>

<http://es.epa.gov/oeca/ag/tfer.html>

<http://www.epa.gov/owow/nps/facts/point6.htm>

### Water Quality and Pesticide Use

<http://www.dec.state.ny.us/website/dshm/pesticide/pm1.pdf>

<http://www.dec.state.ny.us/website/dshm/pesticide/pm5.pdf>

### Integrated Pest Management

<http://www.dec.state.ny.us/website/dshm/pesticide/pm2.pdf>

### Combined Sewer Overflows (CSOs) and Pathogens in NYC Estuary System

[http://www.harborestuary.org/pdf/hep\\_toxics.pdf](http://www.harborestuary.org/pdf/hep_toxics.pdf)

[http://www.harborestuary.org/pdf/hep\\_cso.pdf](http://www.harborestuary.org/pdf/hep_cso.pdf)

<http://www.harborestuary.org/pathogen.htm>

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## B. Findings

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### 1. Facilities Questionnaire

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The following questionnaire on water use and landscaping at Rose Hill was completed by Facilities under the direction of Brian J. Byrne, Vice President for Administration, and Peter J. Bundock, Assistant Vice President. Some questions were not able to be answered since the questionnaire was sent to them at short notice.

#### *Water Use*

Where does the campus water come from—which watershed and aqueduct system? What is the status of that supply, is it in danger? **New York City Public Water Supply - Upstate watershed.**

How many drought alerts has the campus received from city or other agencies in the last five years? **Two**

Whom does the college pay for its water? **New York City – Dept. of Environmental Protection.**

What was the cost last year? **\$374,378.00**

How has this amount changed in the last 5 years? **Increased due to two new buildings being built and one renovated.**

Are the changes a result from change in usage or cost? **Usage.**

How has population and campus expansion affected water usage? **Population increase due to new dormitory**

What irrigation system is used? Are automatic sprinklers, timers, weather-related management, or drip irrigation used? **Automatic with timers.**

Do campus buildings have low-flow toilets and faucet sensors? **Low flow toilets.**

Have old buildings been remodeled? **Yes.**

What are the standards for the new buildings? **New York City code.**

Does the campus have a water conservation program? If yes, please describe, including when and why it was established? How has it changed amounts of water usage? **No.**

Are water conservation posters or stickers placed in bathrooms? **No**

Is the campus population informed during drought alerts that and how water should be conserved? **Yes. Notice in newspaper.**

Does the campus belong to any water efficiency, conservation, and protection programs that provide technical and financial assistance, such as the “Educational Institutions” section of the EPA’s partnership WAVE Program (Water Alliances for Voluntary Efficiency)? **No**

***Grounds Maintenance: Pesticide and Fertilizer Use***

How much does campus pest control presently cost per year?

How much has the cost increased in the last five years? **Minimal**

What are the problematic pests on campus and why? **Gypsy moth- kills Elms.**

Does the campus have pest-control staff? Are services contracted to a private firm? **Contracted**

What pesticides are used on campus and how much? Who produces them?

Have amounts of pesticides increased or decreased in recent years? Why? **No increase.**

Are pesticides used that may possibly be carcinogens? How much and where are they used? Are alternatives being sought out?

What public agency observes pesticide use on campus? Does it inspect the campus? **N/A**

Are warning signs posted about time and place of pesticide usage? Do these warnings meet legal regulations? **Yes**

Do any chemical neighborhood 48 hr notification laws apply? **No**

How is excess pesticide disposed of? **N/A**

Are non-chemical pest-control methods (integrated pest management) used on campus? What methods are used and where? What are the results? Are non-chemical methods being planned for the future? **No**

Are any sustainable landscaping techniques used—e.g., emphasizing native plants, biodiversity, wetland creation to catch storm water runoff? **Native plants & Disease resistant plants**

Is there groundwater contamination or contaminated runoff from landscaped areas or athletic fields? **No**

Is the campus part of a state, county, or municipal pest-control project? **No**

What kind of salt is used to remove ice in the winter? What was the cost last year? **Calcium Chloride and rock salt, Unknown.**

How much was spent on fertilizer last year for grounds, including athletic fields? **\$6,000**

How much has this figure increased in the last five years? **1- 2%**

What kinds of fertilizers are used—manure, biosolids, fertilizers from industrial waste? Is any organic manure fertilizer used? **Chemical fertilizers and organic soil conditioners.**

Are fertilizer/pesticide mixtures used? If yes, please describe. **No**

If fertilizer/pesticide pellets are used, are any measures in place to prevent ingestion by geese, ducks, and other campus wildlife? **No**

***Wastewater and Storm Runoff***

What costs, if any, are associated with treating campus wastewater? And how have these costs changed in the last five years? **Waste water is not treated except for a small chemical waste stream in the**

**Chemistry Building that is run through a limestone tank prior to discharge to the combined sewer of the campus.**

Where and how is wastewater treated? Where is the treated wastewater discharged?

**See Question 1.**

Does the campus have combined sewers, or is it connected to a combined sewer system—single pipes to transport both stormwater runoff and sewage? If yes, what percentage of the campus sewer system does this account for? **Sewer lines within the buildings are separated but upon exiting the building they are connected to a campus wide combined sewer system that ultimately discharges to the City Sanitary sewer system.**

Where are the outfalls/outlet points for the combined sewer overflows (CSOs) containing campus wastewater—Bronx River, Hudson River, New York Harbor? **There are no overflow points.**

Does any campus storm water runoff (storm drain system) run directly into the Bronx River? **NO.**

Has the campus initiated any programs to reduce wastewater volume and/or toxicity? If so, please describe. **No**

Does the campus use any reclaimed water in its facilities or on landscaping? If so, how much? **No**

Is there an education program to instruct the campus population not to put chemicals, toxic cleaning products, and other inappropriate material down the drain or into toilets? **There are training programs in the Science Departments that address the prohibition of disposing of hazardous materials into the sewer system.**

Are any nontoxic cleaning products used on campus? **Yes**

Are organic household/residence products (laundry, body care, household cleaners, etc.) available on campus to the student population? **No.**

Are vehicles washed in the street? **Yes**

Is water used to cleanse streets, parking lots, buildings, etc.? If so, what safeguards are implemented to minimize dirt, oil, debris, animal fecal matter, pesticide and fertilizer residues, etc. washing into storm drains? **No**

Are there safeguards for minimizing dirt, oil, debris, animal fecal matter, pesticide and fertilizer residues, etc. washing into storm drains during rainfall? **No.**

Roughly, what percentage of the campus surface is impervious to rain water—pavement, cement, artificial turf, etc. **Approximately 25-30%**

Are there flooding problems on campus? If yes, where do they occur?

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## **2. General Campus Tour Observations**

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Tour conducted after NY City declared a drought warning and then a drought emergency.

## Water

**Water conservation signs (when used) were sometimes confusing and ill placed.**

Signs posted on bathroom doors in the Lowenstein Building at Lincoln Center were much more explanatory of what a drought situation means and what may be done to help the situation.

**For a period of two to three weeks in late April/early May 2002, one water fountain in particular in the fitness room area of the Lombardi Center was malfunctioning in such a way that allowed water to run continuously instead of turning off when the button was released. A "Save Water" sign was posted near the water fountain for a few days before it was fixed.**

**The island flower-bed (located in the roadway junction between the McGinley Center, Edward's Parade and Alpha House) was watered via a hose connected to the fire hydrant. No attempt was made to conserve water as the hose was left on during walks between the hydrant and the island.**

## Landscaping

**Signs were posted on several lawns (i.e. Edward's Parade, Walsh Library Lawn) warning that pesticides/fertilizer had been used recently, and that the grass should not be used by people until a specific date. Signs did not specify the type of chemicals used, nor the specific risks they posed.**

**Washing of vehicles with a hose and soap was observed in the parking lot adjoining Dealy Hall. Vehicle washing occurs regularly outside the Facilities building beside Fordham Prep—a stream of soapy, oily water runs along the road and people have to jump over it, or get their feet wet.**

**Edward's Parade is equipped with timed automatic, in-ground sprinklers. These sprinklers were seen functioning a few times during the New York area's drought during the spring of 2002.**

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### **3. Findings on Specific Buildings**

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#### **(a) Walsh Library**

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Every bathroom in this newly (1996) built building is essentially the same; there seem to be no discrepancies among types of toilets, sinks etc. The *Symmons* brand sinks have **automatic stop faucets**. The *Aquaflush* model of *Zurn* brand toilets with the "WS 1" **low consumption flush** use 1.6 gallons/flush for toilets and 1.0 gallons/flush for urinals as compared to "FF" full flush systems that use 4.4 gallons/flush and 3.0 gallons/flush for toilets and urinals respectively.

Each of the four five floors of the library has a male and female public bathroom. Combining male and female, each of the upper four floors then has 14 sinks, 11 toilets, 4 urinals and 2 water fountains. The basement facilities have 10 sinks, 7 toilets, 2 urinals and 2 water fountains.

**No water conservation signs were visible in the library.**

**Sandbags have been noted at the top of the deliveries ramp in an attempt to control flooding, which has been a problem for the library in the past.**

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(b) John Mulcahy Hall

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Firstly, it is important to understand the layout and purpose of this building. JMH serves as the chemistry headquarters, the Computer Science base and the Mathematics department headquarters. As such, it is a rather large building, containing six floors, many laboratories, many offices and computer labs.

In the building there are more men's bathrooms than women's bathrooms. First floor has only a men's room while the second floor has a female and male restroom.

**Labs are all labeled with permanent signs prohibiting smoking and with a warning of potentially hazardous substances.**

Bathrooms slightly vary in set-up but most have three stalls and three sinks. The faucets in most bathrooms are **automatic turn-off**, meaning that once you let go of the button, the water flow stops. **The toilets do not appear to be water conserving** due to the old appearance and the apparent large flow of water per flush.

**Until May 9th, there was no notification to conserve water due to the drought situation. In fact, none of the floors had any type of stickers about conservation at all.**

The third and fourth floor of this building has obviously been recently renovated, as the floor, walls and Information technology department appear much more new. Also, the computer labs are bright and new. **However, the bathrooms did not seem to be renovated. All of the bathrooms have both automatic turn off and manual faucets. Again, there are not stickers addressing water conservation.**

On the fifth floor of this building, there are more laboratories with eye wash stations that use automatic turn-off faucets.

**An examination of the laboratories indicated that they are run pretty well.** All toxic reactions are performed under a ventilated hood and although the labs are ancient and the equipment is not state-of-the-art, precautions are taken. Waste is labeled as "organic," "basic" and "acidic." Waste seems to be put in the appropriate containers. The drainage usually works properly and only once have I seen a water back-up due to a clogged sink. The chemicals are all labeled carefully and warnings are found where appropriate.

**Several professors in the chemistry department informed me of a waste management team that comes in every six months to dispose of the chemical waste accordingly.** The team assesses the labs and gives a price to dispose of the chemicals. The professors seem fairly satisfied with the disposing of chemicals and claim that environmentally sound measures are taken in the labs.

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## C. Recommendations

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### General Comments

The conclusions of this "maiden" audit are fairly general, but will hopefully prove useful to the design and execution of future audits. **One of the most evident aspects of Fordham University's environmental practices is they are not easily discernible.** For example, much digging is required to discover exactly what types of chemicals are used in pesticide and fertilizer applications to the grounds. Most people routinely disregard such mundane/technical information as it is viewed as stuff of an often-distant scientific realm. Difficulties in obtaining environmental information also stems from a lack of awareness on campus. As long as environmentalism, and indeed science in general, fails to make itself accessible and of importance in daily life, people will continue to assume that they don't really matter to them.

**Overall, indoor water usage levels and practices are determined by the age of given buildings.** For example, Mulcahy Hall's bathroom facilities do not conserve as much water as those of the newly constructed library.

**Another aspect of the age of the campus is that specific information about the sewer/drainage systems is difficult to obtain.** During this semester, we were unable to discern exactly where all of Fordham campus's runoff goes. Therefore, our assessment of runoff and drainage turned more to what sort of materials were being allowed to seep into the groundwater and to drain into the sewers in general. We could not be sure that such things were or were not going to the Bronx River or Hudson River; **however, our rationale in critiquing certain pesticide/fertilizer practices is that this "stuff" is going somewhere.**

**Many students found the pesticide/fertilizer warning signs on Edward's Parade personally disturbing. They wondered what sort of chemicals they were being exposed to even after the "safe" dates posted on the flags.** We would like to take this one step further and suggest that anything that is deemed potentially harmful to people **could have similar if not worse affects on smaller animals/birds living in the area to which the water flows.**

Fertilizers that facilitate the growth of very green grass usually contain levels of nutrients too high for complete absorption by plants. This results in the unused nutrients to seep down into the water table when it rains. So, without knowing the exact ingredients of the lawn treatment products used by Fordham, we can assume by the need for warning signs that they are not the safest available.

As stated previously, our conclusions are not the most specific or complete, but they do point to certain water use/drainage concerns that may be investigated more in the future.

From the information offered by various Fordham University academic and departments, students and facilities, it is apparent that while the University has implemented some measures towards environmental stewardship, including the area of water use and grounds maintenance, much progress can and should be made. This needs to be done in a comprehensive manner and on various levels. The recommendations are thus presented on the following three levels: study body, faculty, and administration (Facilities).

Environmental change and conservation on Fordham's campus can only come from a cooperative effort. Students, administrators and faculty members must work together if substantial change is to be achieved.

### **Recommendations for Student Community**

**Environmental consciousness and literacy among the student body needs to be increased parallel with any changes in policies and physical facilities in order to ensure the success of such changes.**

Education often begins with simple observation and participation in the natural world. This is difficult in part due to the urban location of the University. However, our situation of little resource availability should push Fordham students to act in a more

environmentally conscious manner. Students will become aware of water conservation and pesticide use only if they are informed, so we recommend more publicity campus-wide. The past four years at Fordham have seen a significant growth of environmental activities. More programs such as Earth Day need to be implemented.

**Especially in times of drought, articles should readily appear in the campus newspaper. As of mid- May 2002, some water conservation signs have only begun to appear now in some residence halls and the Lombardi Center, even though the New York area has been suffering a water crisis for many months.**

Behavior changes are simple. We must make students aware of how much water can be saved by simply turning off the faucet while brushing teeth and taking shorter showers. We acknowledge that widespread environmental awareness will not happen overnight; however, in a short time the level of awareness among many of the students has grown in leaps and bounds over the past few years. Student interest in the new Environmental Studies Minor, coupled with the development of the Greening Fordham Group shows that students do care and that the potential exists for real change.

#### **Recommendations for Faculty and Administrative Offices**

**This change could be accelerated by policy changes in academic departments and administrative offices.**

Perhaps there is a way to **incorporate the Botanical Garden and the Bronx Zoo into more course curricula**. A good number of science classes do utilize these assets, but many departments do not. Moreover, **environmentally geared courses need to be created in more disciplines**. Such changes may aid in making more students aware of their local environment including the Bronx River, Bronx Zoo and Botanical Garden.

**Natural aspects of the campus such as campus wildlife, vegetation, geology, environmental history, etc. are sometimes used in science, archaeology, and environmental studies courses, and this should be encouraged and expanded.**

**Water conservation signs should be posted in every department as well as instructions on how to conserve and how to teach students to conserve.**

#### **Recommendations for Facilities**

**On a wider scale, campus-wide policies in Facilities should be changed and new efforts to "green" Fordham implemented.**

**A comprehensive water (quantity and quality) conservation and sustainable landscaping plan should be developed.**

**This plan development should use not only Facilities staff, but also Fordham scientists in Biological Sciences, Geology, Chemistry, Natural Science, and Sociology and Anthropology (campus archaeologist, Dr. Allan) with expertise in these areas:** e.g., ecologists Drs. Burney, Lewis, Sullivan, and Giuliano.

**Plan development should solicit ideas from other faculty, students, and administrators.**

**Plan development should consider joining the “Educational Institutions” section of the EPA’s partnership WAVE Program** (Water Alliances for Voluntary Efficiency), which seeks to reduce water use, wastewater discharges, other water pollution, and energy, and provides technical and financial assistance to education institutions.

See <http://www.epa.gov/owm/genwave.htm>, <http://www.epa.gov/owm/pdfs/faq.pdf>, <http://www.epa.gov/owm/pdfs/wave-edu.pdf>.

**Studies should be conducted on areas in the Facilities for which answers were not able to be given, with professional help if necessary:** storm drain/sewer system and its impact on local watersheds; ground water system and what leaches into it; list of pesticides used by the outside contractor; whether campus wildlife is affected by pesticide and fertilizer use; wildlife, insect, and plant/tree inventories (rabbits, skunks, squirrels, rats, birds, etc.); etc.

The plan development should consider the following recommendations.

#### Water Quantity and Quality Conservation

In dormitories, measures can be taken to conserve water. **Showerheads can be changed from their current state to pressure reducing heads and/or low flow showerheads.** While this may mean a slightly less pleasurable shower, the amount of water saved is huge. According to the University of Pennsylvania audit, **by replacing a standard 4.5 gallons per minute showerhead with low flow showerheads, a family of four can save approximately 20,000 gallons per year.** Many of the residence halls serve hundreds of students and could consequently waste or save much larger amounts of water depending on whether or not action is taken.

Some **low-flush toilets** are used on campus, for example, in Walsh. This saves many gallons of water per flush. In addition to this type of water conservation plumbing, **toilet displacement devices** that further reduce the amount of water used per flush could be installed. Using inexpensive **faucet aerators** can decrease faucet flow in sinks. They work by breaking water into smaller droplets thereby using air to make up for the decrease in flow. **These devices have been known to reduce water usage by sixty percent while maintaining a good steam of water.**

**The EPA suggests ways to conserve water on landscaping, especially during times of drought.** They suggest reparations in irrigation systems such as leaks. They also suggest **watering lawns during the coolest times of the day**, avoiding watering on

windy days, and varying watering depending on the root systems of the type of plant. The EPA suggests setting sprinklers carefully as **to water only the lawn**, not sidewalks and pavement and to use **soaker hoses and trickle irrigation systems**. In terms of planting, the EPA suggests having soil tested for nutrient contents, as **good soil** retains water better and to use **native plants** (as they require less care and water). Further, **mulch** serves as a great way to reduce evaporation, along with **longer grass blades**. Lastly, **minimizing fertilizer** reduces the need of additional watering.

**Institute a no vehicle washing in the streets policy and take other measures to cut down on nonpoint source pollution**, e.g., not allowing oil and debris to collect on impervious surfaces and wash into storm drains. **Oil and gas were observed on the ground outside the Facilities sheds behind the McGinley Center** that store small engine equipment: lawn mowers, etc. Vehicles should be washed in a proper facilities building.

### Sustainable Landscaping

**Landscaping with plants that need little water saves fertilizer, labor and water.**

According to an audit of the campus at University of Pennsylvania, using indigenous plants can save more than 50% of the water normally needed to care for exogenous plants. The same audit recommends **a water re-use policy whereby water is re-circulated**. This "gray water" can be used for many purposes provided the quality of the gray water meets the needs of its intended purpose.

**When pesticides are not necessary, use should be made of the organic methods of integrated pest management (IPM).** See the EPA rundown at <http://www.epa.gov/pesticides/ipm>. Also <http://schoolipm.ifas.ufl.edu/>. Professors Sullivan and Burney in Biological Sciences have expertise in IPM and should be consulted.

**Organic fertilizer, not synthetic petroleum based fertilizer, should be used, unless a grounds area needs special nutrient treatment.**

**Cost-effective organic laundry products, body care products, and household cleaning products (conveniently available from major sellers like Seventh Generation) should be made available in Laundry Rooms, Student Deli, and Campus Bookstore.**

**Organic cleaning products should also be encouraged in Custodial Services.** While classes are in session in Keating, etc., custodial staff have been observed using special floor cleaning chemicals that clearly advertise "TOXIC" on the containers and give off a very stringent odor.

**Through instructions and posters, custodial staff, as well as students, faculty, and other staff, should be informed not to put chemicals, toxic cleaning products, and other inappropriate material down the drain or into toilets.** There are training programs in the Science Departments that address the prohibition of disposing of hazardous materials into the sewer system, but no education program for anyone else.

**Facilities should prevent a grounds percentage increase in impervious surface that leaves stormwater nowhere to go and cause flooding (e.g., around the Library) and water seepage into basements (e.g., Larkin and Collins basements).** Presently, approximately 25-30% of campus property is impervious, according to the Facilities Questionnaire. Repairing building damages from stormwater flooding and seepage has been a longstanding and very costly problem, e.g., the north wall of the Collins basement has to be replastered and painted every 2-3 years. Biological Sciences has asked Facilities to do something



about the constant problem of water seepage into the animal facilities in the basement of Larkin, which is often in violation of federal regulations for housing laboratory animals.

**This effort should be coordinated with the recommendations above for model wetland ecosystems or organic garden/orchard/vineyard areas on campus (with references to the original Rose Hill Campus) to collect stormwater and channel it away from million-dollar buildings.** Organizations such as the National Wildlife Federation’s Campus Ecology Program provide assistance in creating such collection wetlands, and ecologists in Biological Sciences would be able to provide valuable, free help. Note that in the seventies or eighties students designed and erected a domed model ecosystem on the northeast side of Keating Hall beside Millennium Hall—according to Brian Byrne, VP for Administration, a book was written on it, but it was unable to be tracked down in the present audit.

**Residences and departments could be encouraged to collaborate with Facilities staff in developing wetland and planting programs around their buildings.**

**One of the most problematic areas is the large southwest-sloping lawn from Martyr’s Court to Walsh Library (the oval drive of Rodrigue’s 19<sup>th</sup> century campus drawing). It turns into a slippery, dirty, and dangerous “mud bath” during rain storms and sometimes leads to very costly library flooding.** The campus groundwater also runs in this southwest direction from the old Rose Hill Manor to the Walsh Library, according to Dr. Allan in Sociology and Anthropology. **The 19<sup>th</sup> century “college pond” just west of Walsh was perhaps fed by groundwater springs and stormwater runoff, since the historical research states that it was not fed by, but ran into the Mill Brook on the west side of the railroad tracks. It perhaps served the purpose of stormwater collection and flooding prevention,** in addition to being a skating rink in the winter, as did the two marsh areas that existed on today’s faculty parking lot and Millennium Hall.

**A wetland ecosystem somewhere on campus might be an Integrated Pest Management technique to draw Mallard ducks and Canada geese away from problematic areas such as Eddie’s Parade.** This spring a Mallard duck was run over by a car on the road behind the university church.

**A wildlife reintroduction project, with reference to the campus’ original wildlife population, should be explored. Rabbits** have been seen on campus, probably coming to graze from the Botanical Garden, so that is a possibility. Also **chipmunks** which are plentiful in the Botanical Garden and Zoo. Small predatory **owls** (screech owls) are another possibility, especially if they functioned as **an Integrated Pest Management mechanism** to control the mouse/rat population and discourage the gathering of Canada geese on lawns. **Urban ecologist, Professor Giuliano in Biological Sciences, is in an expert in urban wildlife reintroduction, and has reintroduced screech owls in Central and chipmunks in other Manhattan parks. His work has been highlighted publicly in the New York Times, etc.**

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End

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*Cura personalis, cura environmentalis*  
*Fordham Cares About the Environment*

