

**A REPORT BY THE OFFICE OF THE
BRONX BOROUGH PRESIDENT**



It's Not Easy Being Green:

How to achieve pro-growth and pro-environment policies by encouraging the production of green construction materials by the NYC manufacturing industry

**Bronx Borough President Adolfo Carrión, Jr
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EXECUTIVE SUMMARY

“It’s Not Easy Being Green: How to achieve pro-growth and pro-environment policies by encouraging the production of green construction materials by the NYC manufacturing industry,” was prepared by Bronx Borough President Adolfo Carrion, Jr. to encourage the New York City manufacturing industry to become more “green” by making safer, healthier, and environmentally responsible building products for developers. This report is a study about ways to increase “green manufacturing” and “green building.”

“Green manufacturing” describes a means of manufacturing that diminishes waste and pollution through a special process of designing a product that is less harmful to the environment. “Green building” refers to increasing the efficiency with which buildings use “energy, water, and materials,” and, “reducing building impacts on human health and the environment through better design, construction, operation, maintenance” of buildings.¹

“It’s Not Easy Being Green,” begins by detailing efforts currently being done by the Borough President to encourage more green buildings and the main problems that exists to prevent greater numbers of green building. Afterwards, it outlines the benefits of green building and green manufacturing; and assesses the current conditions of the building-related manufacturing industry in New York City.

Next, two green manufacturers in the Bronx are examined; concerns raised by developers and manufacturers about green construction materials are addressed; and existing efforts to help manufacturers and developers become more environmentally responsible are analyzed.

Finally, the report recommends proposals to provide more resources, reduce costs and serve as incentives for developers to buy green construction materials and for manufacturers to make green construction materials.

“Green construction materials” are environmentally friendly goods that are beneficial to the building occupants and management immediately or over the life of the building. As a result, they are resource efficient, and have far-reaching global impacts. Environmentally responsible products fall under a number of categories such as engineered woods, paints, construction adhesives, carpets, architectural sealants, and furniture.²

Benefits of Green Building

- **Overall economic benefit:** A \$4 investment (per square foot) in building green nets \$46 dollars in health and productivity benefits, \$8.50 in operation and maintenance costs, \$5.80 in energy saving, \$1.20 in emissions savings,

¹ The Federal Commitment to Green Building: Experiences and Expectations. Office of the Federal Environmental Executive. 2006. 24 October 2006. <http://www.ofee.gov/sb/fgb_report.html>.

² <http://www.nyc.gov/html/ddc/html/ddcgreen/documents/guidelines/greeng07.pdf>, accessed October 30, 2006

and \$0.50 in water savings (per sq. ft.) totaling \$58 (per square foot) over 20 years.³

- **Energy savings:** Over 20 years, green buildings provide a net benefit of between \$50-\$65 per square foot. Commercial buildings employing green building materials see an average reduction in energy use exceeding 30%.⁴
- **Better health:** Higher environmental standards in ventilation systems have resulted improved air quality that caused an 83% decrease in flu symptoms, a 63% decrease in sick building syndrome, and a 72.5 % decrease in asthma symptoms for employees⁵

Potential Impact of Bronx Building- Related Manufacturers

- **Large Number of Bronx Building-related Manufacturers:** 183 building-related manufacturers in the Bronx, comprising 42% of Bronx manufacturers. They employ approximately 4,498 people, contributing \$197 million in wage income to the Bronx economy
- **Billions in Sales:** Utilizing an estimated 5.5 million of square feet of space, these Bronx building-related manufacturers generate \$2.32 billion in average annual sales⁶. The average Bronx firm has 20,000 square feet of space, with average annual sales of \$3 million.⁷

As a follow-up to this report, we plan to partner with economic and environmental organization to analyze the feasibility of the following recommendations:

- **Green Manufacturing Sales Tax Exemption-** Investigate possible legislation to create a green sales tax exemption; developers purchasing these materials would not have to pay sales tax, similar to what is done with the clothing sales tax exemption in New York City.
- **Green Manufacturing Tax Credit-** Investigate possible legislation for the creation of a green manufacturing tax credit; analyzing the possibility providing for tax credits up to 29% for green manufacturing businesses located in the Empire Zones that create new jobs and make new investments in production, property and equipment.
- **Green Manufacturers Educational Resource Initiative -** Urges initiatives to provide practical methods to (1) properly marketing these incentives directly to the manufacturers and (2) to create a resource in a readily accessible medium that provides information of city and state incentives.

³ Green Building by the Numbers. October 30,2006. <<http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1442>>.

⁴ Greg Kats, Economic Costs and Benefits of Green Building, June 2005

⁵ Carnegie Mellon University for Building Performance. October 30, 2006. <<http://www.cap-.com/ewebeditpro/items/059F7707.pdf>>.

⁶ Reference USA. 2006. October 2006. <www.referenceusa.com/>.

⁷ Ibid, Reference USA

- **Green Manufacturers Accessible Programs Initiative –**
Recommends initiatives to create streamlined application processes and tailored services to smaller firms that would help companies access these programs and benefit from the government’s investment.

INTRODUCTION

While real estate development has slowed in parts of New York City, Bronx development continues to grow at a record pace. The groundbreaking for the new Yankee Stadium, the Gateway Center at Bronx Terminal Market, and the Hub Retail and Office Center exemplifies the unprecedented rebuilding of the Bronx.

It is estimated that \$3.5 billion will be invested in the Bronx in the next five years.⁸ Significantly, this new development presents a historic opportunity for the Bronx to take the lead in being both pro-growth and pro- environment.

In an effort to seize this historic opportunity, Borough President has sought to make sure that new construction in the Bronx is done in a way that is environmentally responsible. The Borough President has provided nearly \$7 million in recent years in funds for the construction of 8 green buildings with several hundred housing units; including the Mount Hope Community Center, the New Hope building, the Jacob's Place building, the Old Longwood PAL building, the South Bronx Community Corp. Senior Building, the New Destiny Domestic Violence Residence, and the Urban Horizons II buildings.⁹

Additionally, the Borough President has urged the green renovation of buildings. Just last month, he unveiled a green roof on the Bronx County Courthouse building. This green roof reduces air pollution, conserves energy, requires little maintenance and extends the roof’s lifespan.¹⁰

The Borough President has also established the Bronx Initiative for Energy and the Environment to provide low interest loans and grants to Bronx building owners to use energy efficient measures in their properties; including green roofs, boiler retrofits, free energy surveys (Audits), weatherization technology, lighting upgrades and solar/wind technology.

To increase the number of green buildings even more, these following challenges must be addressed: reducing the costs of green products for developers and manufacturers; minimizing the high investment and employee costs of going green for manufacturers; educating manufacturers about financial assistance programs that can reduce their costs; and simplifying the processes for financial assistance programs.

⁸ Fernandez, Tommy. “Boom Cheers South Bronx.” *Crains New York Business*, 16 October 2006.

⁹ Rouse, James – Director of Housing for the Office of the Bronx Borough President. Telephone Interview. October 2006.

¹⁰ Office of the Bronx Borough President. “The Bronx Makes Entire City Green With Envy.” Press Release: September 19, 2006.

BENEFITS OF GREEN BUILDING

The overall US green building materials market was \$21.1 billion in 2005 and will increase to \$21.9 billion by the end of 2006 and \$27.9 billion by 2011. There will be an average annual growth rate of 4.9% over the next five years.¹¹

Energy Efficiency:

While green building may be more costly up front to build, financial savings can be significant over time.

Commercial green buildings benefit significantly from energy savings. Over 20 years, green buildings provide a net benefit of between \$50-\$65 per square foot. Commercial buildings that use green building materials see an average reduction in energy use exceeding 30%.¹² A \$4 investment (per square foot) nets \$46 dollars in health and productivity benefits, \$8.50 in operation and maintenance costs, \$5.80 in energy saving, \$1.20 in emissions savings, and \$0.50 in water savings (per sq. ft.) totaling \$58 (per square foot) over 20 years.¹³ These savings are often achieved through better heating systems, better lighting systems, better weatherization, and the use of solar/ wind technology.

Green roofs are an excellent example of energy savings benefits in green development. While a green roof costs about twice what a regular roof costs, it results in a 30% reduction in energy use for the floor and a 10-15% reduction for the entire building. Green roofs also absorb 50-80% of storm water; the roof absorbs water for its own needs, while gradually draining off the excess. Green roofs also filter the air, lowering ambient air temperature. Projections have shown that if 6% of urban rooftops were covered with green roofs, the urban heat island effect could be lowered by 5-10%. The urban heat island effect refers to 2-10 degree bubble of warmth experienced by metropolitan areas; this heat island can boost rainfall by 28% to areas 20-40 miles downwind of the urban area.¹⁴

Benefits for People

Green products have been used in the construction of many types of structures, including schools and office buildings. In addition to the environmental benefits, green building techniques create a healthier, more pleasant indoor environment that leads to improved human performance. Studies show significant positive effects of green building on health, worker productivity, and student performance.

¹¹ BCC Research, "The US Market for 'Green' Building Materials" (Sept 1, 2006)
<<http://marketresearch.com/product/display.asp?productid=1354472&g=1>>

¹² Greg Kats, Economic Costs and Benefits of Green Building, June 2005

¹³ Green Building by the Numbers. October 30,2006. <<http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1442>>.

¹⁴ http://en.wikipedia.org/wiki/Urban_heat_island accessed October 2006

Schools

A main focus of green building in schools is on daylighting. This process increases the number and size of classroom windows and skylights in order to maximize the amount of daylight filling the classrooms. Studies indicate higher test scores and faster learning rates in schools that use this green building technique rather than in schools built with standard construction methods.

- In the Capistrano Unified School District of Orange County, California, students placed in classrooms with the most daylight showed an increase of up to 26% in their rate of learning;¹⁵
- In the Poudre School District of Fort Collins, Colorado, student tests scores improved by 18% when placed in classrooms with the largest window areas;¹⁶
- Students in the Seattle Public School District of Seattle, Washington in classrooms with the most daylight scored up to 15% higher on standardized tests than those with the least amount of daylight.¹⁷

Office Buildings

Green building in offices improves the health and performance of workers by creating a superior working environment, which in turn raises productivity. Firms that invest in lighting and indoor air quality improvements enjoy a happier, healthier, and more productive work force. These green building techniques can also be applied to retail stores, which experience the economic benefit of a more pleasant environment for their customers. Green building produces human benefits for both healthier workers and happier shoppers.

Businesses typically achieve energy savings in various ways. Energy costs can be contained by installing energy management systems, occupancy sensors, programmable thermostats, and special energy-efficient lighting. Further reductions can be achieved through the use of Energy Star computers, printers, copiers and other office equipment.¹⁸

The economic benefits of green building include lower health care and lost work costs and increased retail sales. Examples are listed as follows:

- In Seattle, the West Bend Mutual Insurance Headquarters found a 16% increase in worker productivity after installing personal temperature and lighting control systems at each workstation.¹⁹
- In a California study of 108 stores, stores that increased daylighting with skylights had 40% higher sales than stores without skylights.²⁰
- In a case study of the International Netherlands Group Bank's 540,000-square-foot headquarters in Amsterdam, researchers found that solar heating and ventilation, cogeneration and waste heat capture, day lit office space and

¹⁵ [Daylighting in Schools](http://www.pge.com/003_save_energy/003c_edu_train/pec/daylight/daylight.shtml). Pacific Gas and Electric. Heschong Mahone Group, 1999. 24 October 2006 <http://www.pge.com/003_save_energy/003c_edu_train/pec/daylight/daylight.shtml>.

¹⁶ [Ibid, Daylighting in Schools](#)

¹⁷ [Ibid, Daylighting in Schools](#)

¹⁸ <http://tinyurl.com/74kg8> accessed October 2006

¹⁹ [Case Study](http://www.johnsoncontrols.com/CG-Cases/cs_WestBend.pdf). Johnson Controls. 24 October 2006. <http://www.johnsoncontrols.com/CG-Cases/cs_WestBend.pdf>.

²⁰ [Sustainability](#). City of Seattle. 24 October 2006. <http://www.seattle.gov/light/conservesustainability/studies/cv5_sb.htm>.

interior cores, and water-efficient landscaping reduced employee absenteeism by 15%.²¹

- Research compiled by Carnegie Mellon for Building Performance found that improved air quality from LEED certified ventilation systems resulted in an 83% decrease in flu symptoms, a 63% decrease in sick building syndrome, and a 72.5 % decrease in asthma symptoms for employees²²

NYC & BRONX MANUFACTURERS

In order to address to feasibility of this report's proposals, it is critical to understand how the industry of building- related manufacturers works in New York City. Currently, only a handful of manufacturers make green products. However, as green development becomes more prevalent, it is critically that we increase the numbers of green manufacturers in New York City.

New York City

There are 7,445 manufacturing firms in New York City and they employ 118,600 employees, more than sectors such as real estate, transportation warehousing, securities and commodity contracts and construction.²³

New York City manufacturers are predominantly located in Manhattan, followed by Queens and Brooklyn. The sector is composed mostly of small businesses. The vast majority of New York City manufacturers, 84%, employ less than twenty-five employees.²⁴ Though the largest firms are capable of generating annual sales in the tens of million of dollars, only 6% of firms employ more than 50 people.²⁵

1,700 New York City firms, or 25% of the city's entire manufacturing sector, manufacture a building-related product. The city's manufacturing base provides a range of products for use in the construction industry. Manufacturers produce everything from glass to floor tiles to furniture.²⁶ A survey of NYC manufacturers showed that the top 5 products manufactured in NYC are metal fabrication (10), interior furnishings (9), woodworking (6), signs (4), and lighting (4).²⁷

New York City manufacturers have stated that 71% of their customers are either "very interested" or "somewhat interested" in green building materials.²⁸ Since 98% of survey respondents make custom products, they are more capable of introducing new products,

²¹ Greener Buildings. October 30,2006.

<http://www.greenerbuildings.com/backgrounders_detail.cfm?UseKeyword=Architecture%20%26%20Design>.

²² Carnegie Mellon University for Building Performance. October 30, 2006. <<http://www.cap-com/ewebeditpro/items/059F7707.pdf>>.

²³ "About NYC Manufacturing." Made in NYC. June 2004. 24 October 2006.

<www.madeinnyc.org/aboutnyc.cfm>.

²⁴ State of New York and the U.S. Bureau of Labor Statistics. Quarterly Census of Employment and Wages. 2005. October 2006.

²⁵ Ibid, State of New York and the U.S. Bureau of Labor Statistics

²⁶ Manufacturing Green: Producing a Sustainable New York. New York Industrial Retention Network. Industrial & Technological Assistance Corporation. June 2006.

²⁷ Ibid, New York Industrial Retention Network and Industrial & Technological Assistance Corporation

²⁸ Ibid, New York Industrial Retention Network and Industrial & Technological Assistance Corporation

like green products.²⁹ 83% of respondents stated they already “produce a product with at least one positive environmental feature”.³⁰

Bronx

431 Bronx manufacturing firms employ 9,071 people, paying significantly more than many of their colleagues in all the other boroughs; the average manufacturer in the Bronx makes \$43,000, a full \$12,000 more than his/her counterparts in the other boroughs.³¹

Manufacturers producing building-related materials account for 183 firms in the Bronx, comprising 42% of Bronx manufacturers. They employ approximately 4,498 people, contributing \$197 million in wage income to the Bronx economy. The 105 Metal, chemical and plastic firms account for almost 3,100 jobs, with another 700 emanating from the 47 firms responsible for wood and furniture manufacturing.³² The remaining jobs come from 31 firms manufacturing electrical parts, minerals and leather.

Building-related manufacturers in the Bronx come in a multitude of shapes and sizes, but their collective impact is undeniable. Utilizing an estimated 5.5 million of square feet of space, these manufacturers generate \$2.318 billion in average annual sales³³. The average firm has 20,000 square feet of space, with average annual sales of \$2.75 million.³⁴ The high end of the market is concentrated primarily around five firms. These firms generate over \$350 million in sales and are located in average spaces exceeding 50,000 square feet.³⁵

The Bronx manufacturing sector is primarily centered near Port Morris and Hunts Point. The employees of manufacturers are predominantly minorities; 50% are Latino, and 15% are Black.³⁶ Of the 1,405 manufacturing workers living within a half-mile of Port Morris, 58% are Latino.³⁷

EXAMPLES OF BRONX GREEN MANUFACTURING FIRMS

Miller/Blaker is located in the Port Morris area and builds highly customized, green woodwork products; including cabinets, lobbies, and other detailed woodwork items. Most recently, they completed an \$8 million project on the Hearst Building; other projects have included the restoration of Central Synagogue and work on Columbia University’s President’s house. Annual business exceeds \$25 million, which is quite large for the green field. The production shop employs about 100 people, with thirty administrative staffers in the office.³⁸ Miller/Blaker entered the green field as a result of

²⁹ Ibid, New York Industrial Retention Network and Industrial & Technological Assistance Corporatio

³⁰ Ibid, New York Industrial Retention Network and Industrial & Technological Assistance Corporatio

³¹ Ibid, New York Industrial Retention Network and Industrial & Technological Assistance Corporatio

³² State of New York and the U.S. Bureau of Labor Statistics. Quarterly Census of Employment and Wages. 2005. October 2006.

³³ Reference USA. 2006. October 2006. <www.referenceusa.com/>.

³⁴ Ibid, Reference USA

³⁵ Ibid

³⁶ Census 2000. Transportation Planning Package, Via Department of City Planning. October 2006.

³⁷ Ibid, Census 2000

³⁸ Interview with Gene McCaffrey, Miller/ Blaker, October 16, 2006

identifying a rising demand for green products. To build knowledge of their products, they offer architects seminars on building green.³⁹

On a smaller scale, Hendrickson Custom Cabinetry, is located in the Mott Haven and focuses primarily on green renovations. They offer developers, architects and contractors the option to make their buildings environmentally friendly. Hendrickson has grown from four employees to fourteen; by the end of the year, they expect to hire an additional three workers. All of their employees are Bronx residents and their company's revenue has tripled in the past three years.⁴⁰

CONCERNS

According to a recent survey, almost a third of New York manufacturers (29%) stated that costs and financing were a challenge when introducing new green products, and 42% said they were interested in financial incentives.⁴¹ Manufacturers in New York City face a number of challenges that limit their ability to generate green-friendly products. These following challenges must be addressed: reducing the costs of green products for developers and manufacturers; minimizing the high investment and employee costs of going green for manufacturers; educating manufacturers about financial assistance programs that can reduce their costs; and simplifying the processes for financial assistance programs.

Addressing the Price Difference

Green building products often cost more to buy and make than regular products. As a result, green manufacturers are faced with the dilemma whether developers will buy their products.⁴² For example, water-based polyurethane, which emits fewer fumes when coating wood floors, can cost up to \$65. In contrast, the oil-based polyurethane costs only \$35.⁴³ A study of a green building built by the Battery Park City Authority found that green products were 2.5%-9% more expensive per square foot than typical residential construction.⁴⁴ Given this price difference for green products, it is critical that developers be given financial incentives to purchase green products.

Dealing with the High Costs of New Equipment and Employees

Manufacturers struggle to tap into the green markets with new products without disrupting existing business operations.⁴⁵ Before entering the green market, manufacturers need do extensive research and development, followed by significant investments in equipment and staff to operate the new machinery. Many manufacturers lack the financial resources pay for these investments.⁴⁶ Manufacturers need more

³⁹ Ibid, Gene McCaffrey

⁴⁰ Ibid, Gene McCaffrey

⁴¹ Ibid, New York Industrial Retention Network and Industrial & Technological Assistance Corporation

⁴² Ibid, New York Industrial Retention Network and Industrial & Technological Assistance Corporation

⁴³ Interview with Paul Novack, Environmental Construction Outfitters of New York, October 23, 2006

⁴⁴ <http://envirovaluation.org/index.php?m=200401>, accessed October 31, 2006

⁴⁵ Ibid, New York Industrial Retention Network and Industrial & Technological Assistance Corporation

⁴⁶ Ibid, New York Industrial Retention Network and Industrial & Technological Assistance Corporation

financial assistance to create an infrastructure that supports innovation and rapid change to meet customer demands for green products.⁴⁷

Providing Access to Financial Programs

Most building-related manufacturers in New York City are small companies. As a result, they often lack highly developed accounting systems or accounting staff who view the responsibilities beyond basic bookkeeping purposes. 84% of all New York City manufacturing firms employ less than 25 people and consequently are unable to provide the necessary human capital to competently search currently available government financial assistance programs through New York City and New York State⁴⁸. While there are consultants or outside accountants that specialize in helping companies access these programs, companies often times can't afford them. As would be expected, many manufacturers aren't able to apply for these financial assistance programs for which they may or may not be eligible.

The application process presents another obstacle. It becomes too time consuming and ultimately unappealing to companies. A growing necessity for developers is for research and development assistance to educate them and "enable them to experiment with new materials."⁴⁹ These small manufacturers need easier access to financial assistance.

These deterrents push manufacturers away from producing green and affect the rest of the green market. With less green manufacturing, fewer construction and renovation projects can incorporate green products.

EXISTING GOVERNMENT EFFORTS

Both New York State and New York City have taken efforts to encourage manufacturers to produce green-friendly goods.

The New York City Council allocated \$242,000 in the last budget to support two green initiatives. \$150,000 was earmarked to provide manufacturing firms assistance with marketing, technology and workforce training. \$92,000 was also allocated towards promoting the green manufacturing industry.

The Council also passed Local Law 86 to take effect on January 1, 2007, requiring all buildings with construction costs exceeding \$2 million dollars in city funding to incorporate green materials into their design.⁵⁰ This law requires any new construction or major rehabilitation on an existing building to achieve a special level of environmental ranking.⁵¹ For projects exceeding \$12 million or more but less than \$30 million, the project must be designed and constructed to reduce energy by a minimum of 20%; the

⁴⁷ Ibid, New York Industrial Retention Network and Industrial & Technological Assistance Corporation

⁴⁸ Ibid, New York Industrial Retention Network and Industrial and Technology Assistance Corporation

⁴⁹ Ibid, New York Industrial Retention Network and Industrial & Technological Assistance Corporation

⁵⁰ New York City Department of Design & Construction. [Local Law 86/2005 Resources](http://www.nyc.gov/html/ddc/html/ddcgreen/ll86.html). October 2006. <<http://www.nyc.gov/html/ddc/html/ddcgreen/ll86.html>>.

⁵¹ Ibid, NYC Department of Design & Construction

successful execution of these projects is overseen by the Department of Design and Construction.⁵²

The New York City Department of Design and Construction has an annual construction budget of \$1 billion. Created in 1995 by Local Law 77, DDC manages much of the city's capital construction, which includes police and fire stations, cultural institutions and libraries, courts and correctional facilities. In 1997, DDC established the Office of Sustainable Design to identify and implement cost-effective ways to enhance DDC's green practices.⁵³

This September, Mayor Bloomberg announced the creation of the Office of Long-Term Planning and Sustainability. This new office will: undertake an inventory of greenhouse gas emissions for the city, establish a sustainability advisory board, and establish a partnership with Columbia's Earth Institute.⁵⁴

On a state level, many legislative ideas to address green building and manufacturing have been introduced and passed. In 1975 the New York State Legislature created the New York State Energy Research and Development Authority (NYSERDA) to help create economically beneficial and environmentally friendly programs. Out of this corporation came its Energy Efficiency Services Program. This program works with over 500 businesses, schools, and municipalities to identify existing technologies and equipment to reduce their energy costs.⁵⁵ The Energy Efficiency Service Program offers financial and technical assistance to businesses, municipalities, and residents who use green methods and materials. This program also creates a system of tax credits and initiatives through The New York Energy Smart Loan Fund program.⁵⁶

The state has also created the Green Building Tax Credit, available to those who build with environmentally sound materials and meet certain energy goals. \$7.50 per square foot may be claimed for exterior work against their state taxes, with an additional claim of \$3.50 per square foot for interior work. To qualify, the builder must be certified by a licensed architect or engineer, and meet the specific building requirements such as material selections that are being used, waste disposal and water use, indoor air quality, and requirements for energy use.

RECOMMENDED PROPOSALS:

Surveys have indicated that almost all manufacturers will make green products, if given enough incentive and assistance. The question is whether how many of them would be willing to make a commitment to change, requiring time and investment and learning new things. These factors, of course, depend on the market demand and the amount of assistance available to them. Borough President proposes partnering with economic and

³⁹ Ibid, NYC Department of Design & Construction

⁵³ Laurie Kerr, NYC DDC, "New York City Green Building Programs"

⁵⁴ <http://tinyurl.com/r3to4> accessed October 2006

⁵⁵ New York State Energy Research and Development Authority. [Green Building Services](#). October 2006.

<http://www.nyserda.org/programs/green_buildings/>.

⁵⁶ Ibid, New York State Energy Research and Development Authority

environmental organizations to analyze the feasibility of increasing market demand and educational assistance for manufacturers. The proposed study, should include, but limited to following initiatives.

- **Green Manufacturing Sales Tax Exemption-** Developers purchasing these materials would not have to pay sales tax, similar to what is done with the clothing sales tax exemption in New York City. The possible benefit of the sales tax exemption is that a developer would buy green items from a local manufacturer, because the product is cost competitive and local, both of which are desirable features.
- **Green Manufacturing Tax Credit-** This proposal would provide for tax credits up to 29% for green manufacturing businesses that create new jobs and make new investments in production, property and equipment. In Rhode Island, a similar tax credit for investment in commercial property businesses, estimated at \$145.47 million, generated a total of \$795.25 million in economic activity. They found that each \$1 of state tax credit investment is leveraging \$5.47 in total economic output. Additionally, the program generated \$179.4 million in additional property tax revenue and \$42.14 million in sales and income tax revenue.⁵⁷
- **Green Manufacturing Educational Resource Initiative-** This report recommends adopting initiatives to address these issues by (1) properly marketing these incentives directly to the manufacturers and (2) creating a resource in a readily accessible medium that provides information about financial incentives. This first method can be accomplished through "sponsor" tables at events held by the local economic development organizations, since they are doing outreach to manufacturers on a regular basis anyway. The creation of an online database could accomplish the second method. The database could be organized so that companies can easily track incentives specific to their projects. It would be categorized according to the size of the project, its location, and its purpose.
- **Green Manufacturing Accesible Programs Initiative -** This report urges initiatives to provide clearer guidelines with streamlined application processes that are tailored to smaller firms will help companies access these programs and benefit from the government's investment. One recommended way is to streamline the application process is via new technology like the Adobe LifeCycle program. It can accelerate the process of submitting application forms by up to 50% while increasing productivity without having to add any additional staff⁵⁸. This can lead to an expedited application process for those applying for financial incentives⁵⁹. Those pursuing financial incentives would be able to complete PDF forms online and then email the forms to coworkers

⁵⁷ <http://www.growsmartri.com/tax.html>, accessed October 31, 2006

⁵⁸ Adobe, "Adobe Case Study: U.S. Green Building Council" (2006)

<http://www.adobe.com/cfusion/showcase/index.cfm?event=casestudydetail&casestudyid=101178&loc=en_us>

⁵⁹ Ibid.

for additional input⁶⁰. Another method in streamlining the application process could involve differentiating the review procedure for small and large projects. Small, and only small, projects could be self-certified so that resources can be directed to larger projects⁶¹. Certification for large building projects usually takes 2 years or more to become certified⁶². Allocated more resources from small projects to large-scale projects would expedite the process⁶³.

CONCLUSION

The story of the Bronx is changing. Out of the tough times of the previous decades the Bronx has emerged as the quintessential all-American comeback story. Today, The Bronx and its economy is truly booming. Over the next five years, it is estimated that over \$3.5 billion will be invested in both large and small development projects.⁶⁴ There is now unique opportunity to merge economic growth with environmentally friendly building practices. We must make green development not only good for the environment, but good for the wallet.

We can no longer ignore the responsibility of pursuing environmentally sustainable development. As we continue to grow our cities, we must understand that economic viability and environmentally friendly are not mutual exclusive. We must create a set of conditions in which future generations will enjoy cities that are both economically strong and environmentally sound. Understandably, it is not easy being green, but in today's world it is necessary.

⁶⁰ Ibid.

⁶¹ New York City Chapter Housing Task Force, "Ten Steps to Create More Affordable Housing in New York City" American Institute of Architects (2003) <<http://aiany.org/committees/Housing/Statements/housingcode.pdf>>

⁶² Ibid.

⁶³ Ibid.

⁶⁴ Ibid, Crains New York Business

OFFICE OF THE BRONX BOROUGH PRESIDENT
Adolfo Carrion

PREPARED BY:

Noah A. Franklin
Director of Policy and Legislation

Anne Fenton
Communications Director

Ronnie Sykes
Press Secretary

Mike Murphy
Deputy Press Secretary

Carey A. Greenberg-Berger
Policy Adviser

Robert Castellanete
Legislative Assistant

Romeo N. Ymalay, III
Coro Fellow

Jose Roman
Scott Solomon
Jamie D'Amico
Ian Clarke Salter
Alex Lanuto
Chanelle Hyde
Policy Staff