



**St. John's University**  
**Environmental Assessment:**  
**Green MOU SemiAnnual Report**  
**January 16, 2014**



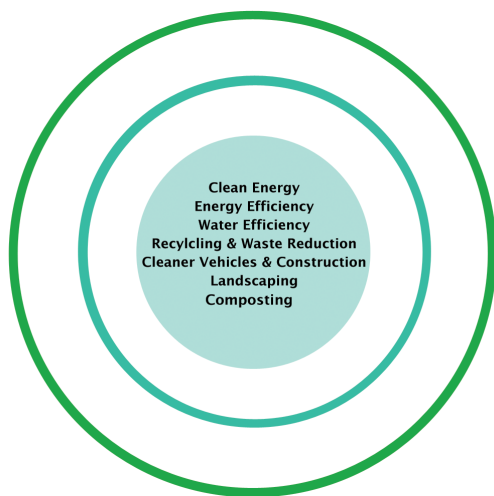
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## Accomplishments

### Reductions of 28,972 MTCO<sub>2</sub>e



## Memorandum of Understanding

On December 5, 2008, St. John's University signed a Memorandum of Understanding (MOU) pledging to become an environmental steward by implementing a number of green initiatives that would reduce its carbon footprint and further improve our planet's environment. This partnership with the United States Environmental Protection Agency (EPA) and St. John's University has resulted in reducing energy, water and solid waste production across campus operations.

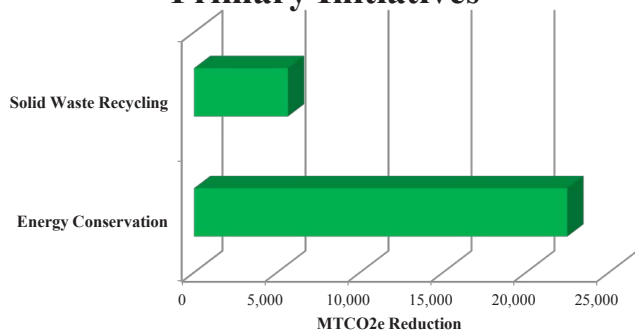
## Reduction in Environmental Footprint

In the last five years, St. John's University has provided ten updates documenting its green initiatives. The EPA has analyzed the submitted information and generated an environmental footprint for the organization. Due to the progressive green efforts of the organization, the university has managed to reduce its carbon footprint by 28,972 MTCO<sub>2</sub>e\* and saved an estimated \$4.3 million in operating expenses.

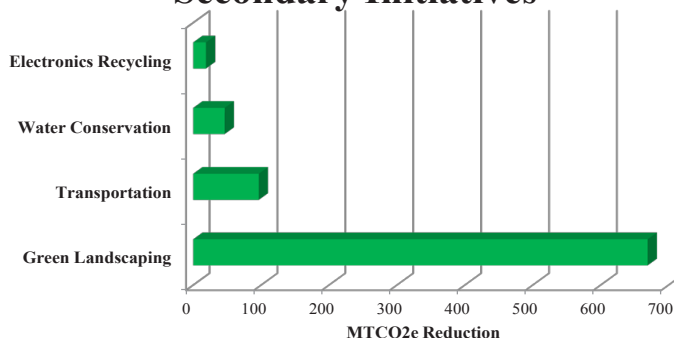
\*Metric Ton Carbon Dioxide Equivalent

| Environmental Metrics       | Total Sector (MTCO <sub>2</sub> e) |
|-----------------------------|------------------------------------|
| Energy Conservation         | 22,486.4                           |
| Water Conservation          | 46.4                               |
| Solid Waste                 | 5,655.2                            |
| Green Landscaping           | 669.3                              |
| Electronics                 | 18.8                               |
| Transportation              | 96.5                               |
| Total (MTCO <sub>2</sub> e) | 28,972.4                           |

### Primary Initiatives



### Secondary Initiatives



## Measurement and Continuous Improvements

EPA uses these environmental conversion models to calculate metric tons of carbon dioxide equivalents:

Greenhouse Gas Equivalencies (GHG) Calculator converts GHG reductions into scenarios that can be easily communicated to the public.

eGRID Version 1.1 (2007) and the EPA Pollution Prevention (P2) GHG Conversion Tool which convert standard metrics for electricity, green energy, fuel use, chemical use, water use, and sustainable materials management into MTCO<sub>2</sub>e.

The EPA WARM Model which helps calculate GHG emission reductions from several different waste management practices, including source reduction, recycling, combustion, composting and landfilling.

The EPA Pollution Prevention (P2) Cost Calculator that estimates cost savings associated with GHG reductions.

Certain environmental data points cannot be converted to MTCO<sub>2</sub>e because scientific models do not currently exist.

As methodologies improve, environmental assessments will be updated to include any new GHG reduction estimates.

## Accomplishments

### Reductions of 28,972 MTCO<sub>2</sub>e



## Greenhouse Gas Equivalencies

What does the reduction of 28,972 MTCO<sub>2</sub>e represent ?

The organization's effort is equivalent to any one of the following:

- Annual greenhouse gas emissions from 6,036 vehicles



- Carbon dioxide emissions from 3,248,027 gallons of gasoline



- Carbon dioxide emissions from 67,378 barrels of oil consumed



- Carbon dioxide emissions from the energy use of 1,447 homes for one year



- Carbon dioxide emissions from 1,207,183 propane tanks used for home barbeques



- Carbon dioxide emissions from gasoline carried by 382 tanker trucks



- Carbon dioxide emissions from burning 124 railcars' worth of coal (nearly 1.9 miles long)





| Environmental Metrics                                       | Dec 2008 MOU | Jun/Dec 2009 Update | Jun/Dec 2010 Update | Jun/Dec 2011 Update | Jun/Dec 2012 Update | Jun 2013 Update  | Dec 2013 Update | Total Conversion (MTCO <sub>2</sub> e) | Cost Savings (Est.) |
|---|--------------|---------------------|---------------------|---------------------|---------------------|------------------|-----------------|--|---------------------|
| <b>Energy Conservation/Energy Star</b>                      |              |                     |                     |                     |                     |                  |                 |  |                     |
| <b>Total Savings (MTCO<sub>2</sub>e)</b>                    |              | <b>834.1</b>        | <b>3,817.4</b>      | <b>7,067.8</b>      | <b>7,161.8</b>      | <b>1,802.7</b>   | <b>1,802.7</b>  | <b>22,486.4</b>                        | <b>\$4,095,501</b>  |
| Miscellaneous Energy Conservation                           |              | 500,000 kwh         | 1,693,000 kwh       | 2,539,520 kwh       | 4,657,969 kwh       | 1,694,104.5 kwh  | 1,694,104.5 kwh | 7,757.3                                | \$1,846,522         |
| Miscellaneous Energy Conservation                           |              |                     |                     |                     | 291,040 therms      | 145,520 therms   | 145,520 therms  | 3,097.1                                | \$380,244           |
| Web Based Energy Competition                                |              |                     | 290,160 kwh         |                     | 37,071 kwh          | (included above) |                 | 198.7                                  | \$47,285            |
| Motors and transformers                                     |              |                     |                     |                     |                     |                  |                 |  |                     |
| Lighting Project Fixtures (Bulbs and Ballast)               |              |                     |                     |                     |                     |                  |                 |  |                     |
| High Temp Hot Water Pipe Replacement                        |              |                     |                     |                     |                     |                  |                 |  |                     |
| HVAC, Chiller & Electrical                                  |              | 330,000 kwh         | 166,670 kwh         | 250,000 kwh         | 125,000 kwh         | (included above) |                 | 529.2                                  | \$125,956           |
| Chiller Gas Savings   |              |                     | 299,000 therms      | 448,500 therms      | 224,250 therms      | (included above) |                 | 5,170.5                                | \$634,796           |
| Bulb Replacement (CFLs, LEDs)                               |              |                     |                     |                     |                     |                  |                 |  |                     |
| Construction of St. John's University Center                |              | 439,655.5 kwh       | 439,655.5 kwh       |                     |                     |                  |                 | 533.8                                  | \$127,060           |
| Construction of St. John's University Center                |              | 11,901 therms       | 11,901 therms       |                     |                     |                  |                 | 126.7                                  | \$15,549            |
| Construction/Operation of D'Angelo Center                   |              |                     | 505,692 kwh         |                     |                     |                  |                 | 307.0                                  | \$73,072            |
| Construction/Operation of D'Angelo Center                   |              |                     | 12,063 therms       |                     |                     |                  |                 | 64.2                                   | \$7,880             |
| Steam Traps / Insulation                                    |              |                     | 25,024 therms       | 37,535 therms       | 18,767.5 therms     | (included above) |                 | 432.7                                  | \$53,127            |
| Water Projects  |              |                     | 16,328 therms       | 24,491 therms       | 12,245.5 therms     | (included above) |                 | 282.3                                  | \$34,664            |
| Boiler Controls   |              |                     |                     | 109,124 therms      | 54,562 therms       | (included above) |                 | 870.9                                  | \$106,928           |
| Lighting Upgrades   |              |                     |                     | 1,452,541 kwh       | 726,270.5 kwh       | (included above) |                 | 1,322.7                                | \$314,838           |
| Pipe Insulation   |              |                     |                     | 41,409 therms       | 20,704.5 therms     | (included above) |                 | 330.5                                  | \$40,576            |
| Fume Hoods / Ventilation                                    |              |                     |                     | 1,023,281 kwh       | 511,640.5 kwh       | (included above) |                 | 931.8                                  | \$221,796           |
| Fume Hoods / Ventilation                                    |              |                     |                     | 66,547 therms       | 33,273.5 therms     | (included above) |                 | 531.1                                  | \$65,208            |
|   |              |                     |                     |                     |                     |                  |                 |  |                     |
| <b>Alternative Energy</b>                                   |              |                     |                     |                     |                     |                  |                 |  |                     |
| <b>Total Savings (MTCO<sub>2</sub>e)</b>                    |              |                     |                     |                     |                     |                  |                 | <b>0.0</b>                             | <b>\$0</b>          |
| On-Site Solar   |              |                     |                     |                     |                     |                  |                 |  |                     |
| On-Site Wind  |              |                     |                     |                     |                     |                  |                 |  |                     |
| On-Site Geothermal  |              |                     |                     |                     |                     |                  |                 |  |                     |
| On-Site Combined Heat and Power                             |              |                     |                     |                     |                     |                  |                 |  |                     |
| Purchase of Green Energy/Green Power                        |              |                     |                     |                     |                     |                  |                 |  |                     |
|   |              |                     |                     |                     |                     |                  |                 |  |                     |
| <b>Water Conservation/WaterSense</b>                        |              |                     |                     |                     |                     |                  |                 |  |                     |
| <b>Total Savings (MTCO<sub>2</sub>e)</b>                    |              |                     | <b>12.6</b>         | <b>11.2</b>         | <b>11.2</b>         | <b>5.6</b>       | <b>5.6</b>      | <b>46.4</b>                            | <b>\$58,152</b>     |
| Miscellaneous Water Conservation                            |              |                     |                     |                     |                     |                  |                 |  |                     |
| Low Flow Devices (3,000)                                    |              |                     | 6,305,025 gal       | 5,610,050 gal       | 5,610,050 gal       | 2,805,025 gal    | 2,805,025 gal   | 46.4                                   | \$58,152            |
| Waterless Urinals   |              |                     |                     |                     |                     |                  |                 |  |                     |
|   |              |                     |                     |                     |                     |                  |                 |  |                     |
| <b>Solid Waste Recycling</b>                                |              |                     |                     |                     |                     |                  |                 |  |                     |
| <b>Total Savings (MTCO<sub>2</sub>e)</b>                    |              | <b>509.7</b>        | <b>1,007.1</b>      | <b>1,221.6</b>      | <b>1,359.3</b>      | <b>886.4</b>     | <b>671.2</b>    | <b>5,655.2</b>                         | <b>\$87,876</b>     |
| Mixed Recyclables (includes WasteWise)                      |              |                     | 2.55 tons           | 260.55 tons         | 258 tons            | 314.87 tons      | 27.7 tons       | 2,418.3                                | \$34,547            |
| Pallets Waste Avoided/Wood Recycled                         |              |                     |                     |                     |                     |                  |                 |  |                     |
| Concrete recycled during Deconstruction                     |              |                     |                     |                     |                     |                  |                 |  |                     |
| Steel Recycled during Reconstruction                        |              |                     |                     |                     |                     |                  |                 |  |                     |
| Recycled C & D Waste (Construction Waste)                   |              |                     |                     |                     |                     |                  |                 |  |                     |
| Cardboard (construction/non-construction/ sharp containers) |              | 79.15 tons          | 178.35 tons         | 99.2 tons           | 88.9 tons           |                  | 88.9 tons       | 1,662.3                                | \$21,380            |
| Mixed Metal (construction/non-construction)                 |              |                     |                     |                     | 30 tons             |                  | 30 tons         | 238.2                                  | \$2,400             |
| Paper, Mixed  |              |                     |                     |                     | 36.5 tons           |                  | 36.5 tons       | 257.0                                  | \$2,920             |



| Environmental Metrics   | Dec 2008 MOU | Jun/Dec 2009 Update | Jun/Dec 2010 Update | Jun/Dec 2011 Update | Jun/Dec 2012 Update | Jun 2013 Update | Dec 2013 Update | Total Conversion (MTCO2e) | Cost Savings (Est.) |
|---|--------------|---------------------|---------------------|---------------------|---------------------|-----------------|-----------------|---------------------------|---------------------|
| Plastic, Mixed (bottles, construction/non-construction, sharp containers) |              |                     |                     |                     | 3.85 tons           |                 |                 | 3.8                       | \$154               |
| Blue Wrap   |              |                     |                     |                     |                     |                 |                 |                           |                     |
| Can / Bottle Recycling  |              |                     |                     |                     |                     |                 |                 |                           |                     |
| Mixed Organics  |              |                     |                     |                     |                     |                 |                 |                           |                     |
| Food Donation (Waste diversion)   |              |                     |                     |                     | 1500 lbs            |                 |                 | 0.2                       | \$30                |
| Biosolids & Food Waste Recycling / Composting                             |              | 1.8 tons            | 5.45 tons           | 12.15 tons          | 25.5 tons           | 23.84 tons      | 17 tons         | 17.2                      | \$3,429             |
| Fluorescent Bulbs   |              |                     |                     |                     |                     |                 |                 |                           |                     |
| Ceiling Tiles Recycled  |              |                     |                     |                     |                     |                 |                 |                           |                     |
| Carpet Recycled   |              |                     |                     |                     |                     |                 |                 |                           |                     |
| Waste Oil Recycled  |              |                     |                     |                     |                     |                 |                 |                           |                     |
| Magazines/ThirdClass Mail   |              | 6.7 tons            | 12.8 tons           | 6.1 tons            |                     |                 |                 | 78.6                      | \$1,024             |
| Newspaper   |              | 1.35 tons           | 4.65 tons           | 3.3 tons            |                     |                 |                 | 25.9                      | \$372               |
| Office Paper  |              | 18.7 tons           | 52.6 tons           | 33.9 tons           |                     |                 |                 | 299.8                     | \$4,208             |
| Textbooks   |              | 4.4 tons            | 6.15 tons           | 1.75 tons           |                     |                 |                 | 38.3                      | \$492               |
| Phonebooks  |              |                     |                     |                     |                     |                 |                 |                           |                     |
| Dimensional Lumber  |              | 24.4 tons           | 35.4 tons           | 11 tons             | 26 tons             |                 | 26 tons         | 302.1                     | \$4,912             |
| Fly Ash   |              | 105.05 tons         | 114.1 tons          | 9.05 tons           |                     |                 |                 | 198.5                     | \$9,128             |
| Aluminum Cans   |              | 1.7 tons            | 2.25 tons           | 0.55 tons           | 3.85 tons           |                 |                 | 74.2                      | \$334               |
| Glass   |              | .85 tons            | 2.05 tons           | 1.2 tons            | 20 tons             |                 |                 | 6.8                       | \$964               |
| HDPE  |              | 5.9 tons            | 18.65 tons          | 12.75 tons          |                     |                 |                 | 32.1                      | \$1,492             |
| LDPE  |              |                     |                     |                     |                     |                 |                 |                           |                     |
| PET   |              |                     |                     |                     |                     |                 |                 |                           |                     |
| Appliances  |              |                     |                     |                     |                     |                 |                 |                           |                     |
| Non-Ferrous Metals  |              |                     |                     |                     |                     |                 |                 |                           |                     |
| Fats, Oils, Grease  |              |                     |                     |                     |                     |                 |                 |                           |                     |
| Water Bottle Filling Stations (plastic saved)                             |              |                     |                     |                     |                     |                 | 2.24 tons       | 2.2                       | \$90                |
|   |              |                     |                     |                     |                     |                 |                 |                           |                     |
| <b>Green Procurement</b>  |              |                     |                     |                     |                     |                 |                 |                           |                     |
| <b>Total Savings (MTCO2e)</b>   |              |                     |                     |                     |                     |                 |                 | <b>0.0</b>                | <b>\$0</b>          |
| Purchase of Materials with Recycled Content                               |              |                     |                     |                     |                     |                 |                 |                           |                     |
| Purchase / Use of Compost Socks   |              |                     |                     |                     |                     |                 |                 |                           |                     |
| Purchase of EPEAT Products  |              |                     |                     |                     |                     |                 |                 |                           |                     |
| Use of Recycled Steel during Construction                                 |              |                     |                     |                     |                     |                 |                 |                           |                     |
| Use of Recycled Iron during Construction                                  |              |                     |                     |                     |                     |                 |                 |                           |                     |
| Use of Recycled Plastic during Construction                               |              |                     |                     |                     |                     |                 |                 |                           |                     |
| Use of Recycled Aluminum during Construction                              |              |                     |                     |                     |                     |                 |                 |                           |                     |
| Use of Recycled Concrete / Asphalt during Construction                    |              |                     |                     |                     |                     |                 |                 |                           |                     |
| Use of Coal Combustion Products   |              |                     |                     |                     |                     |                 |                 |                           |                     |
|   |              |                     |                     |                     |                     |                 |                 |                           |                     |
| <b>Green Landscaping</b>  |              |                     |                     |                     |                     |                 |                 |                           |                     |
| <b>Total Savings (MTCO2e)</b>   |              | <b>59.0</b>         | <b>149.3</b>        | <b>150.2</b>        | <b>157.0</b>        | <b>75.1</b>     | <b>78.5</b>     | <b>669.3</b>              | <b>\$2,040</b>      |
| Green Roofs   |              |                     |                     |                     |                     |                 |                 |                           |                     |
| Porous Pavement   |              |                     |                     |                     |                     |                 |                 |                           |                     |
| Low/no mow area   |              |                     |                     |                     |                     |                 |                 |                           |                     |
| Grass / Green Space   |              | 700 sq ft           | 3000 sq ft          | 3,000 sq ft         | 3,000 sq ft         | 3,000 sq ft     | 3,000 sq ft     | 9.0                       |                     |

| Environmental Metrics                       | Dec 2008 MOU | Jun/Dec 2009 Update | Jun/Dec 2010 Update | Jun/Dec 2011 Update | Jun/Dec 2012 Update | Jun 2013 Update     | Dec 2013 Update     | Total Conversion (MTCO <sub>2</sub> e) | Cost Savings (Est.) |
|---|--------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|--|---------------------|
| Re-use of Collected Stormwater              |              |                     |                     |                     |                     |                     |                     |  |                     |
| On-Site Re-use of Compost / Mulch           |              |                     |                     |                     | 19 tons             |                     | 2 tons              | 4.2                                    | \$840               |
| Moisture Sensing Sprinklers                 |              |                     |                     |                     |                     |                     |                     |  |                     |
| Number / Acres of Trees                     |              | 700 trees           | 1762 trees          | 1762 trees          | 1762 trees          | 1762 trees (1/2 yr) | 1762 trees (1/2 yr) | 650.1                                  |                     |
| Reflective Roof                             |              |                     |                     |                     |                     |                     |                     |  |                     |
| Synthetic Turf                              |              |                     |                     |                     |                     |                     |                     |  |                     |
| Native Plants                               |              |                     |                     |                     |                     |                     |                     |  |                     |
| Leaves Composted                            |              |                     |                     |                     | 15 tons             |                     | 15 tons             | 6.0                                    | \$1,200             |
|   |              |                     |                     |                     |                     |                     |                     |  |                     |
| <b>Electronics/EPEAT</b>                    |              |                     |                     |                     |                     |                     |                     |  |                     |
| <b>Total Savings (MTCO<sub>2</sub>e)</b>    |              |                     | <b>9.4</b>          | <b>9.4</b>          |                     |                     |                     | <b>18.8</b>                            | <b>\$332</b>        |
| Recycling of Electronics                    |              |                     |                     |                     |                     |                     |                     |  |                     |
| Re-Use/Donation of Used Computers           |              |                     | 4.15 tons           | 4.15 tons           |                     |                     |                     | 18.8                                   | \$332               |
| Toner/Ink Recycling and Use of Recycled Ink |              |                     |                     |                     |                     |                     |                     |  |                     |
| Battery Recycling                           |              |                     |                     |                     |                     |                     |                     |  |                     |
|   |              |                     |                     |                     |                     |                     |                     |  |                     |
| <b>Mass Transit</b>                         |              |                     |                     |                     |                     |                     |                     |  |                     |
| <b>Total Savings (MTCO<sub>2</sub>e)</b>    |              |                     |                     |                     |                     |                     |                     |  |                     |
| Miles Avoided                               |              |                     |                     |                     |                     |                     |                     |  |                     |
|   |              |                     |                     |                     |                     |                     |                     |  |                     |
| <b>Transportation</b>                       |              |                     |                     |                     |                     |                     |                     |  |                     |
| <b>Total Savings (MTCO<sub>2</sub>e)</b>    |              | <b>19.3</b>         | <b>19.3</b>         | <b>19.3</b>         | <b>19.3</b>         | <b>9.7</b>          | <b>9.7</b>          | <b>96.5</b>                            | <b>\$40,800</b>     |
| Hybrid Vehicles                             |              | 10                  | 10                  | 10                  | 10                  | 10 cars (1/2 yr)    | 10 cars (1/2 yr)    | 96.5                                   | \$40,800            |
| Electric Vehicles                           |              |                     |                     |                     |                     |                     |                     |  |                     |
| Biodiesel Vehicles                          |              |                     |                     |                     |                     |                     |                     |  |                     |
| Clean Construction Vehicles                 |              |                     |                     |                     |                     |                     |                     |  |                     |
| LNG Vehicles                                |              |                     |                     |                     |                     |                     |                     |  |                     |
| Alternate Fuel Vehicles (Zipcar)            |              |                     |                     |                     |                     |                     |                     |  |                     |
| Smartway Transporters                       |              |                     |                     |                     |                     |                     |                     |  |                     |
| Bike Racks                                  |              |                     |                     |                     |                     |                     |                     |  |                     |
|   |              |                     |                     |                     |                     |                     |                     |  |                     |
| <b>LEED Projects</b>                        |              |                     |                     |                     |                     |                     |                     |  |                     |
| <b>Total Savings (MTCO<sub>2</sub>e)</b>    |              |                     |                     |                     |                     |                     |                     |  |                     |
| Silver - 10%                                |              |                     |                     |                     |                     |                     |                     |  |                     |
| Gold - 17%                                  |              |                     |                     |                     |                     |                     |                     |  |                     |
| Platinum - 20%                              |              |                     |                     |                     |                     |                     |                     |  |                     |
|   |              |                     |                     |                     |                     |                     |                     |  |                     |
| <b>MTCO<sub>2</sub>e Savings</b>            |              |                     |                     |                     |                     |                     |                     |  |                     |
| <b>Total (MTCO<sub>2</sub>e)</b>            |              | <b>1,422.0</b>      | <b>5,015.1</b>      | <b>8,479.5</b>      | <b>8,708.6</b>      | <b>2,779.5</b>      | <b>2,567.7</b>      | <b>28,972.4</b>                        | <b>\$4,284,701</b>  |
| Energy Conservation                         |              | 834.1               | 3,817.4             | 7,067.8             | 7,161.8             | 1,802.7             | 1,802.7             | 22,486.4                               | \$4,095,501         |
| Water Conservation                          |              | 0.0                 | 12.6                | 11.2                | 11.2                | 5.6                 | 5.6                 | 46.4                                   | \$58,152            |
| Solid Waste Recycling                       |              | 509.7               | 1,007.1             | 1,221.6             | 1,359.3             | 886.4               | 671.2               | 5,655.2                                | \$87,876            |
| Green Landscaping                           |              | 59.0                | 149.3               | 150.2               | 157.0               | 75.1                | 78.5                | 669.3                                  | \$2,040             |
| Electronics / EPEAT                         |              | 0.0                 | 9.4                 | 9.4                 | 0.0                 | 0.0                 | 0.0                 | 18.8                                   | \$332               |
| Transportation                              |              | 19.3                | 19.3                | 19.3                | 19.3                | 9.7                 | 9.7                 | 96.5                                   | \$40,800            |





2014

## **St. John's University Additional Green MOU Accomplishments and Cost Savings**

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### ***Food Recovery***

On December 10th, 2013, EPA presented St. John's University with a Food Recovery Challenge Certificate of Achievement for making significant improvements in food recovery.

### ***Sustainability***

St. John's participated in national Campus Sustainability Day, October 24th by putting together a free lecture by NYC DEP on NYC Drinking Water Quality followed by a Big Screen Movie Night on the Great Lawn showing "Tapped", which examines the role of the bottled water industry and its' effects on our health, climate change, pollution, and our reliance on oil.

### ***Initiatives Planned for the Next Six Months***

St. John's has completed its 2013 application and expects to achieve status of Arbor Day Foundation, Tree Campus USA® participant for 2013.

St. John's will participate in EPA's Food Recovery Challenge by continuing to recover as much food waste as possible.

A St. John's webinar is being planned with EPA's Sustainable Materials Management (SMM) Web Academy (formerly the Resource Conservation Challenge, (RCC) series.

Proposed key discussion for the webinar are:

1. EPA's Food Recovery Challenge;
2. Opportunities for composting on University Campus;
3. Food waste composting using O2 Composting (aerated static pile system) and;
4. Why it's important to have and understand the relationships of conventional and biological soil and compost laboratory testing.

St. John's will participate in RecycleMania 2014.

St. John's will participate in the Campus Conservation Nationals 2014.

St. John's will conduct a Student Move-out recycling campaign in May, 2014.

St. John's will install 6 additional water bottle filling stations in high traffic areas.

St. John's will continue screening and spreading compost on the Queens Campus grounds.

St. John's is considering contracting with a design-build firm for a co-generation plant.

St. John's will continue to re-commission and repair HVAC systems.