

# Oak Park River Forest Sustainability Plan

**PlantGreen**

The Environmental Sustainability Plan  
for Oak Park and River Forest

June 2011



Prepared for:

Prepared by:



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# INTRODUCTION

## Origins of the Project

PlanItGreen: The Environmental Sustainability Plan for Oak Park and River Forest is a project designed to develop and implement an environmental sustainability plan for two communities: Oak Park, IL and River Forest, IL. They are neighboring suburbs of Chicago and share some common institutions, such as a high school, a community foundation, and a local newspaper. Oak Park is the 25<sup>th</sup> largest municipality in Illinois with a population of 51,878 and a median household income of \$77,913. River Forest has a population of 11,635 and a median household income of \$89,284. River Forest is the home of two universities, Dominican and Concordia, while Oak Park attracts visitors from all over to visit the homes of Frank Lloyd Wright, the world renowned Unity Temple, and the home of Ernest Hemingway.

In 2008, the Oak Park River Forest (OPRF) Community Foundation conducted a community visioning exercise with business, government, non-profit organization and individual leaders for a new program called *Communityworks*. *Communityworks* was established by the Grand Victoria Foundation as a challenge grant to build the capacity of community foundations around the State of Illinois to support their efforts to be the catalyst for community engagement to create vibrant and livable communities. As part of its broad goal of building a sustainable Oak Park and River Forest, the OPRF *Communityworks* leadership group identified 87 community aspirations and then narrowed them down to three priority areas — Success for All Youth, Leadership Development and Environmental Sustainability. (See Addendum A for a listing of the *Communityworks* Advisory Board members). The OPRF Community Foundation then funded work to move each priority area forward.

In order to advance environmental sustainability, the OPRF Community Foundation created a sub-committee of its *Communityworks* Advisory Board to create a path forward. They issued an RFP and funded a three-step process:

- Phase 1 is the development of baseline environmental sustainability metrics for Oak Park and River Forest by the Center for Neighborhood Technology during the period of May through December 2010.
- Phase 2 is the creation of a draft sustainability plan that lays out goals, targets and strategies for each environmental sustainability area. Phase 2 occurred between August and December 2010.
- Phase 3 is the finalization of the plan focusing on obtaining commitments and building the infrastructure needed to implement the plan. This draft plan is the culmination of the work in Phase 1 and Phase 2 of the process. Phase 3 occurred between January and June 2011.

Seven Generations Ahead (SGA), an Oak Park-based non-profit organization focused on environmental sustainability within the Chicago metro area and Midwest, and the Delta Institute, a Chicago-based non-profit working on the transformation to the green economy in the Great Lakes Region, were contracted as a team to implement Phase 2 and Phase 3 of the work plan.

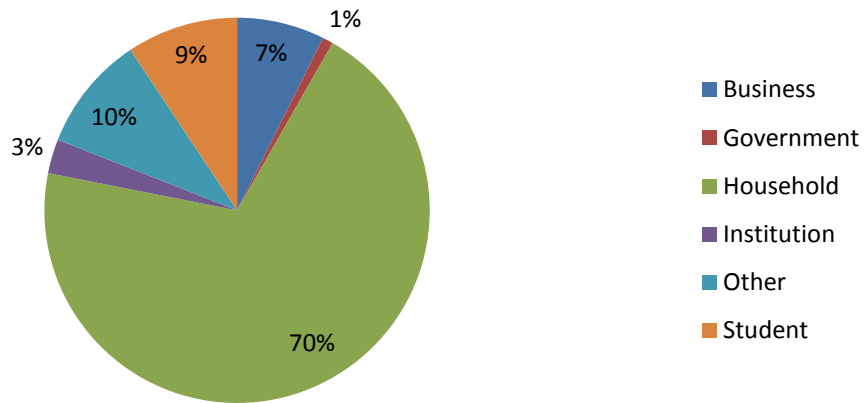
## Community Engagement Process

The SGA/Delta Team (the Team) structured a community planning process with many avenues for community participation. First, the Team asked the environmental sustainability sub-committee of the Community*works* Advisory Board to serve as a Core Team to help guide the overall process, interpret the results and support the outreach effort by hosting events in their institutions and their homes, forwarding information to their e-mail lists and participating in PlanItGreen meetings and forums. (See Addendum 2 for a list of the members of the PlanItGreen Core Team).

A PlanItGreen survey was developed and promoted widely to obtain input from a large variety of community stakeholders—residents, students, businesses and institutions and government. The survey identified 10 environmental sustainability topic areas and asked respondents to rate their overall importance to the community. The ten topic areas are: (1) community development, (2) education, (3) energy, (4) green economy, (5) green purchasing, (6) local food, (7) open space, (8) transportation, (9) waste and (10) water. Respondents were then asked to rank specific strategies related to each topic area. Finally they were asked to write in their ideas for strategies and any additional thoughts and comments. The survey was publicized through e-mails; local television and print media; postcards and flyers distributed at the farmers market, rapid transit stations and community gatherings; a contest among the PTOs at community schools; and door-to-door in some business districts.

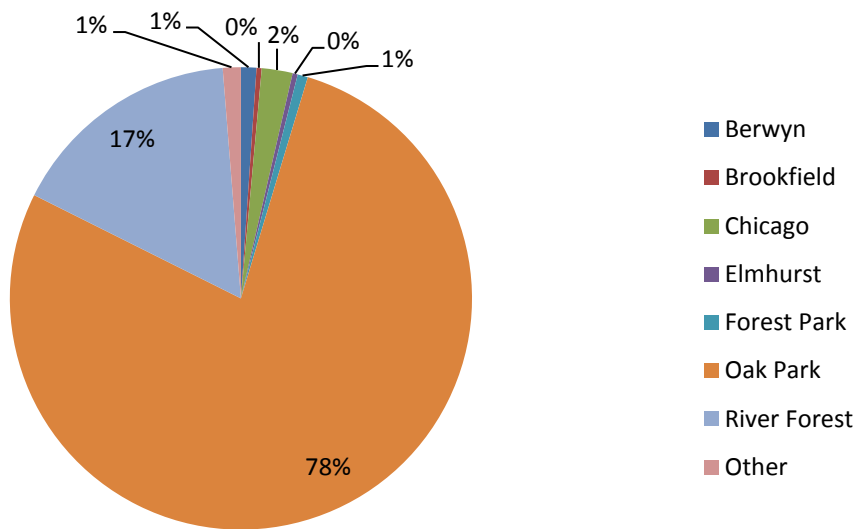
Charts 1, 2 and 3 below show the respondents' type, residency and age. Nine hundred surveys, including 47 pages of written comments, were completed during the period of September through December 2010.

### Chart 1- Respondent Type

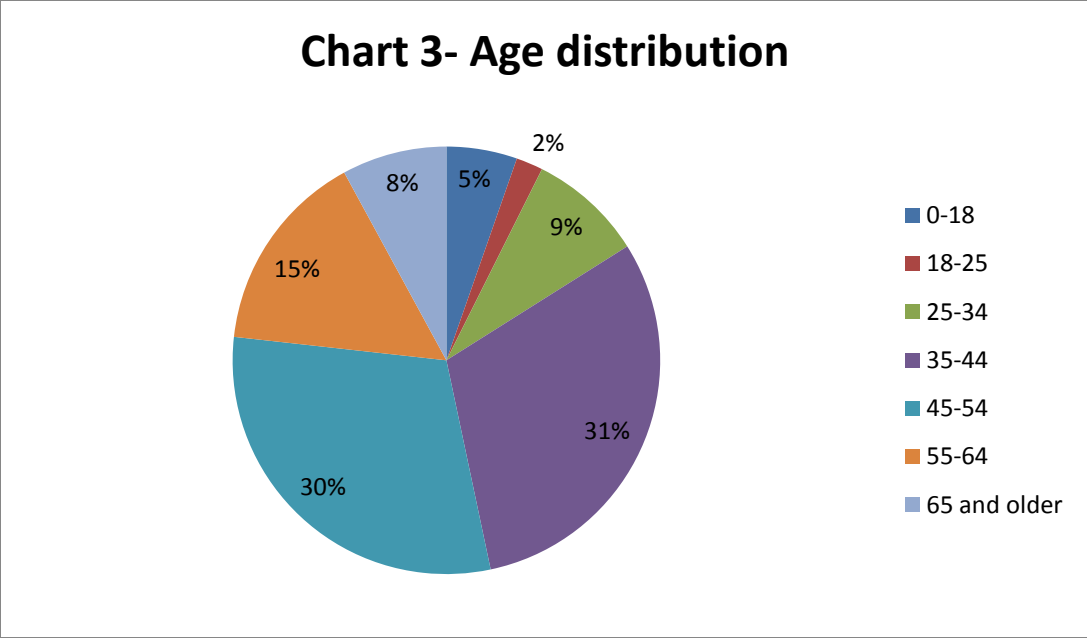


Source: PlanItGreen Survey, December 2010

### Chart 2- Residency of Survey Takers



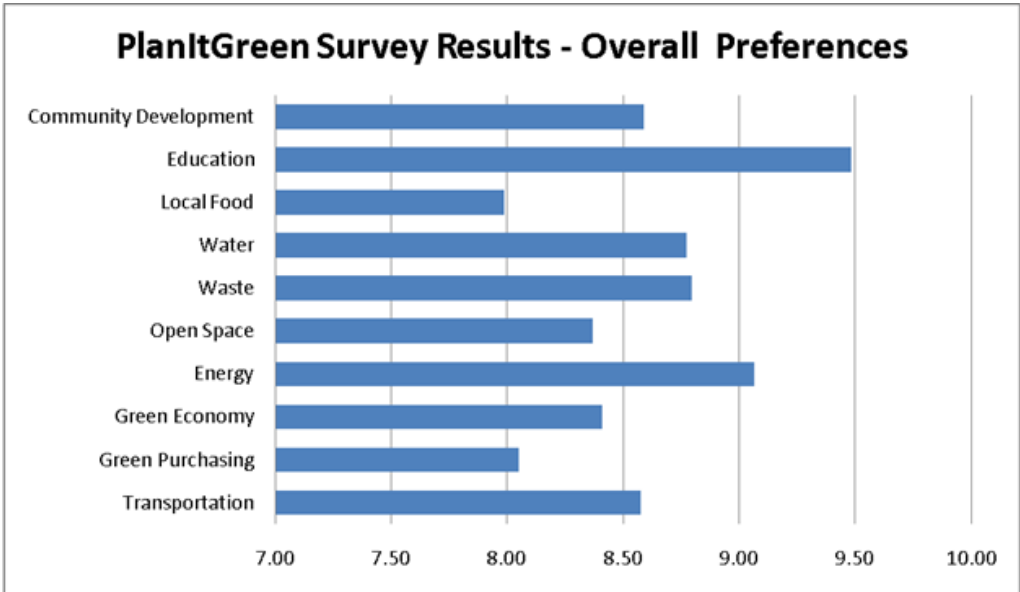
Source: PlanItGreen Survey, December 2010



Source: PlanItGreen Survey, December 2010

The results of the survey are shown in Graph 1 and Table 1 on the next page.

Graph 1 depicts the overall topic area priorities of the respondents. All 10 topic areas were ranked as “very important” scoring between 8 and 9.5 on a scale of 1 to 10.



Source: PlanItGreen Survey, December 2010

Table 1 shows the top ten strategy preferences of respondents regardless of topic area, ranked in order of popularity. Three of the top 10 strategies are Energy-related. Recycling and Green Purchasing each had two related strategies in the top 10. Green Economy, Water and Education each had one related strategy in the top 10.

### PlanItGreen Survey Results – Top Ten Strategies

- |     |   |
|-----|---|
| 1.  | Home energy efficiency and weatherization information and education ( <i>Energy</i> )   |
| 2.  | Improved recycling ( <i>Recycling</i> )   |
| 3.  | Home energy efficiency and weatherization retrofit incentives ( <i>Energy</i> )   |
| 4.  | Access to green products and services ( <i>Green Purchasing</i> )   |
| 5.  | E-waste recycling (e.g. computers and cell phones) ( <i>Recycling</i> )   |
| 6.  | Assess the potential to reuse vacant or underutilized commercial and industrial property for new green uses ( <i>Green Economic Development</i> ) |
| 7.  | Commercial and industrial energy efficiency retrofit incentives ( <i>Energy</i> )   |
| 8.  | Information and education about green products and services for consumers ( <i>Green Purchasing</i> )   |
| 9.  | Planting of native grasses to decrease stormwater flow ( <i>Water</i> )   |
| 10. | Incorporation of sustainability practices into mainstream community events/festivals ( <i>Education</i> )   |

Source: PlanItGreen Survey, December 2010

On November 4, 2010, PlanItGreen hosted a Community-wide Forum to educate the public about PlanItGreen and to get community input about the goals and targets that should be included in the Plan under each topic area.

The Community-wide Forum was publicized to all survey respondents, to the e-mail list and to the general public. Over 100 people attended the Community-wide Forum and participated in nine breakout sessions organized by topic area. Green Purchasing was combined with Green Economy at the Community-wide Forum and in subsequent meetings because of the overlapping content and interest parties.

After the Community-wide Forum, the Core Team met to help refine the goals and targets in preparation for small group Topic Area Meetings. These meetings were held for each topic area to flesh out strategies to achieve the goals and targets. A total of 115 people participated in the nine topic area meetings, representing a mix of community residents, institutional leaders and content technical experts in each area. Participants in the topic area meetings received materials summarizing the results of the baseline metrics analysis, survey and community forum.

By the end of the three and a half month community involvement process in December 2010, 110 businesses, associations, institutions, and community organizations had signed on as supporters of the process endorsing it to their members; nearly 900 people had completed the PlanItGreen Survey; and over 500 community residents and stakeholders had attended presentations, meetings, and community-wide forums. (See Addendum 3 for a list of supporting organizations.)

## Draft Plan Revision, January-June 2011

After completing the Draft Plan the first week of January, 2011, the SGA/Delta team continued to work with Topic Area participants, institutional leaders, and technical experts to refine goals, targets, and strategies. Larger regional plans and state policies were reviewed in an attempt to create alignment between the OPRF Plan and regional/state goals. The Team vetted the plan widely to get revision suggestions as well as to begin piecing together ideas and commitments related to an implementation structure and the organizations that would implement specific plan strategies. Some of the PlanItGreen Plan Review Forums included:

- Building Owners and Managers Association Lunch Forum (15 building owners)
- Interfaith Green Network Forum (65 members from 17 congregations)
- Dominican University Forum on Local Food and Waste Strategies (50 students and faculty)
- OPRF Chamber of Commerce and OPDC Forum (25 businesses)
- Southeast Oak Park Community Organization Forum (25 residents)
- River Forest Service Club Forum (35 members)
- Oak Park Environmental Sustainability Commission Forum (8 members)
- Three River Forest Coffee Forums on Energy, Waste, and Education (35 residents)
- Joint Staff Forum with the Village of Oak Park and River Forest Staff Members (35 staff members)
- Oak Park Plan Commission Forum (6 commission members)
- Community-wide Forum (35 residents)
- OP and RF Operations and Facilities Managers Forum (10 members)
- Village of River Forest Board of Trustees Meeting (elected board members and 25 residents in attendance)
- Institution Executive Meetings (Park District of Oak Park, Oak Park Rush Hospital, West Suburban Medical Center)

In addition to receiving plan revision suggestions and implementation commitments, the Team worked on securing formal adoption or endorsement of the Plan by major institutions in both communities, including two village governments, three public school districts, two hospitals, two universities, two park districts, two public libraries, and two townships. The Final Plan before you was officially released on June 23, 2011 at a special Community*works* and PlanItGreen Plan Release Event.

## GLOBAL TRENDS

Sustainability efforts are taking hold at the community level in the United States and throughout the world. There are community initiatives and programs targeted to increase efficiency, encourage competitiveness, decrease waste and encourage sustainability. The US Conference of Mayors has 1,044 mayors signed onto the US Conference of Mayors' Climate Protection Agreement, which aligns with the Kyoto protocol. ICLEI (International Council for Local Environmental Initiatives) – the sustainability resource group for local government – has over 1,200 members globally with 600 members in the US and growing. ICLEI just released their pilot program STAR Communities which is a national, consensus-based framework for gauging the sustainability and livability of US communities. Efforts like STAR Communities have started to include benchmarking and identification of metrics within the sustainability process to measure progress of strategy implementation. The PlanItGreen plan includes baseline metrics in four of the strategy areas: Energy, Transportation, Water, and Waste. The complete report on the Baseline Metrics can be found in Addendum 5 of the plan.

### Green House Gas Emissions

There has been much research and analysis that has identified greenhouse gas emissions as a primary factor contributing to climate change. Climate change is an issue that is affecting communities around the globe. Greater energy efficiency, alternative energy, better transportation options and new technologies hold promise for reducing greenhouse gases and adapting to the effects of climate change. The Intergovernmental Panel for Climate Change has identified global warming and shifts in weather patterns as real risks facing U.S. communities, with projected continued impacts on natural habitat and ecosystems, biodiversity, human health, agriculture and economic development.

### Alternative Sources of Energy

With carbon identified as one of the leading greenhouse gases, finding alternatives to oil and coal has been recognized as a necessary strategy to combat climate change. Renewable energy sources such as wind, solar and geothermal are all technologies that are now implemented and continuously improved in communities throughout the US. Many communities see economic development opportunities related to the development of renewable energy. Alternative sources of energy can benefit community health through the reduction of air pollutants that are a byproduct of oil and coal and help mitigate the steady increase of asthma related illnesses occurring in communities throughout the nation.

## Access to Clean Water

Water is forecasted as the next global crisis area as clean water sources diminish and water becomes higher in demand. Water is required as a basic human need, and also is critical for commercial and economic development. With nations and communities across the globe now facing serious water shortages and vying for access to fresh water sources across continents, careful stewardship of our collective water supply and its quality will continue to be important issues that we will need to address at all levels of government.

## Access to Food

While basic access to food among people with limited resources has been the focus of conversation around food for decades, more people across the country are now concerned with the quality of our food, how it is raised and a variety of issues related to how far it is transported. Growing interest in organic and local food has generated attention on policies, programs and business development that create greater access to fresh and healthy foods to ensure resident health. The conversation at both federal and local levels about food has included topics such as our nation's obesity and diabetes epidemics; local economic development opportunities; watershed and human health concerns related to chemical agricultural inputs; greenhouse gas emissions related to extensive food travel; access for all people to affordable, fresh, healthy and tasty food from farmers we know; and food safety and national security.

## Regional Efforts

Over the past decade there have been several regional and local efforts in Northeastern Illinois for creating more sustainable communities. Clean Air Counts was a campaign started in 1999 and focused on emission reduction for increased air quality in the region. Strategies for the campaign were created for residents, businesses and municipalities to increase energy efficiency, reduce VOC's and enhance transportation options. In 2008, CMAP, the Chicago Metropolitan Agency for Planning, surveyed all municipalities and government agencies in the region for their participation in 25 "green practices." The survey yielded a report that inventoried what practices communities had already implemented and what practices they wanted to implement in the future.

The Chicago Metropolitan Agency for Planning released the long-range plan for Northeastern Illinois in October 2010. GO TO 2040 is the comprehensive regional plan to help the seven counties and 284 communities in the CMAP region plan together for sustainable prosperity through mid-century and beyond. GO TO 2040 features many community sustainability related initiatives including:

- Manage and Conserve Water and Energy Resources
- Expand and Improve Parks and Open Space

- Promote Sustainable Local Food
- Invest Strategically in Transportation
- Increase Commitment to Public Transit

CMAP is currently offering technical assistance for communities to develop plans and implement sustainability related initiatives with a focus on comprehensive planning.

In 2008, the Northeastern Illinois Regional Water Supply Planning Group was formed to look at water usage and water demand in the region. Through the RWSPG, research was completed in 2008 to look at demand scenarios for the region. In 2009, Water 2050 was developed to plan for water demand and supply. The plan is intended to ensure the availability of clean water for household, commercial, and other users through mid-century. It was commissioned by the Illinois Department of Natural Resources to address population and economic growth that could lead to water shortages in the region.

In 2009, the City of Chicago created the Chicago Climate Action Plan. The City pulled together groups of experts both local and national to review and recommend solutions to the future climate change threats to Chicago. The plan has strategies in five areas and there are implementation opportunities for residents, businesses and the City. The strategy areas are:

- Energy Efficient Buildings
- Clean & Renewable Energy Sources
- Improved Transportation Options
- Reduced Waste & Industrial Pollution
- Adaptation

PlanItGreen reviewed the strategies in all of these regional plans to understand where Oak Park and River Forest could align with them. The one strategy area that PlanItGreen does not address is adaption. Adaptation may be included in the future for PlanItGreen, but was not included in the current iteration.

## GUIDING PRINCIPLES

Guiding principles were developed to provide a foundation that the plan builds on. The guiding principles ensure that the plan developed has consistency, accountability and a strong focus on implementation.

1. **Community Involvement**
  - Involve all key sectors in implementing the plan and achieving its goals: residents, businesses, institutions and government.
2. **Environmental Stewardship**
  - Reduce the environmental footprint of OPRF to a level that will have meaningful impact.
3. **Fiscal Responsibility**
  - Resources are scarce so we should undertake the activities with high benefits for the cost. PlanItGreen will facilitate acquisition of and use of resources across communities and institutions.
4. **Communication**
  - Communication about progress being made and participation opportunities will occur regularly during implementation.
5. **Long-term Outlook**
  - Plan should have a 10 year timeframe for implementation with short, medium, and long term recommendations.
6. **Effective Implementation**
  - The Plan will be developed in a way that measures progress over time taking advantage of the baseline metrics established. Plan will be implemented through projects, incentives, policies and regulations.
  - Priorities will be selected and institutions will be recruited to collaborate in their implementation.

# THE CORE PLAN

## I. EDUCATION

Education is the one topic area universally identified as a key component of each of the other sustainability topic areas in this plan. However, two primary strategy focus areas were identified for the Education topic area in addition to the education strategies incorporated throughout the plan. These strategies include: schools and curriculum (kindergarten through university) and general education for the community at large. The broad vision articulated in surveys and forums speaks to making OPRF the “green destination” in the Chicago metro area and fostering “sister city” relationships that enable communities to learn from and educate each other.

Some of the key factors discussed in implementing successful education strategies include:

- Developing a bottom-up approach that gets children and youth to learn about green practices.
- Making “going green” fun, exciting, and creative.
- Combining bottom-up and top-down approaches through education and discussions with top educational leaders.
- Connecting to every day residents through mainstream community events, communications vehicles, and institutions.

### Goals and Strategies

**Goal #1:** Each school in OPRF integrates sustainability into curriculum.

**Metric:** Number of sustainability programs/curriculum activities in schools and number of student participants.

Strategies:
1. Conduct zero-waste educational and operational activities that increase recycling, eliminate waste sources, and increase composting.
2. Implement a comprehensive farm to school program that builds school gardens, connects gardens to curriculum, and offers other farm to school program activities.

3. Incorporate sustainability curriculum across topic areas (energy, waste, water, food, transportation, etc.) in schools through:
<ul style="list-style-type: none"> <li>• Producing a curriculum guide that helps teachers implement sustainability lessons, activities, and projects.</li> <li>• Linking sustainability with math and other core curriculum subject areas.</li> <li>• Reviewing the curriculum that exists and demonstrating ways to incorporate sustainability.</li> <li>• Providing training that offers curriculum tools and resources to make it easy for educators to incorporate sustainability into their lessons and features a video that targets teachers and focuses on curriculum strategies and activities.</li> <li>• Creating a sustainability curriculum task force and educating and engaging superintendents/directors regarding ways they can foster support for sustainability education within their districts and institutions.</li> <li>• Incorporate gardening as part of the physical education/health curriculum.</li> </ul>
4. Implement events, activities, after school clubs, etc. that promote walking and biking to school, make walking and biking fun, and celebrate kids, colorful bikes and unique designs. OPRF "Bike the Drive."

**Goal #2:** Sustainable choices by residents, stakeholders, and visitors to OPRF become commonplace.

**Metric:** Number of events, outreach activities, surveys, etc. by churches, non-profits, businesses, and community institutions that promote sustainable choices.  
Note: Changed behavior will be reflected in other topic area metrics.

<b>Strategies:</b>
1. Work with all community event producers to train them on producing zero waste and eco-friendly community events and festivals.
2. Create "Village Tours" that highlight model green homes, green businesses, green technology, and that use green transportation (Greenline Wheels, I-GO, public transit, etc.).
3. Develop a community sustainability education website with tons of tools, resources, and strategies.
4. Provide targeted education and strategy support for local businesses that emphasizes the "how to" and the economic value of green strategies.
5. Create one community education campaign focus every year that promotes a particular strategy or topic area (rain barrels; composting; etc.).
6. Create community video segments on water conservation, transportation, energy efficiency, etc. that target kids and adults, highlight strategies that can be applied at home and in the workplace, and promote OPRF as a green destination.
7. Develop a green block party kit that is distributed to every block that applies for a block party permit.
8. Offer formal adult education courses on sustainability through existing adult education venues.

- |  |
|--|
| 9. Engage local, regional, and state agencies in PlanItGreen to ensure effective implementation (e.g. planning, utilities, transit agencies, water reclamation districts, solid waste agencies, forest preserve and park districts, public health agencies). |
|--|

## Resources and Funding Sources

- [National Farm to School Network](#): Resources and funding opportunities for connecting schools with farms and educational resources for healthy food and other environmental education opportunities.
- [Melinda Gray Ardia Environmental Foundation](#): Foundation that funds environmental curriculum development.
- [EElinked](#): Network of environmental educators with a variety of environmental education resources.
- [IL Zero Waste Schools Program](#): State funding opportunities for waste reduction in schools.
- [IDOT Bicycling Information](#): Information about Illinois Department of Transportation educational resources, programs and funding related to bicycling.
- [Zero Waste Event Planning Kit](#): Free kit for planning zero-waste events.
- [Creative Change](#): Sustainability education non-profit with a wide array of resources for both youth and adult sustainability education.
- [GreenIllinois.Gov](#): Comprehensive listing of green resources and funding opportunities offered by the State of Illinois.

## II. ENERGY

Energy ranked as the second highest community concern in the survey results and had the most strategies (three) ranked among the ten most important strategies. The Energy goals, metrics and strategies outline below include two main approaches. The consensus expressed in the survey and community forums is that PlanItGreen should first reduce consumption and increase energy efficiency in the commercial, institutional and residential buildings of OPRF. After that, it should encourage the use of renewable sources of energy. Efficiency comes first because wasting energy should be discouraged whether it is fossil fuels or renewables. These two approaches are reflected in the first two Energy goals. The third goal was added to tie the implementation of the first two goals and the strategies that support them back to the larger goal of reducing greenhouse gas emissions.

The 10-year 30% reduction target for energy consumption in buildings established in Goal #1 mirrors the goal established in the Chicago Climate Action Plan, while Goal #2's 25% targeted increase in renewable energy use mirrors the State of Illinois Renewable Energy Portfolio Standard, but seeks to accomplish it by 2020 rather than 2024. This more aggressive goal seems possible because of the recent approval of Oak Park's ballot initiative to enable the community as a whole to negotiate a power purchase agreement for the community with providers that have competitive prices and high proportions of renewable energy in their portfolio. The greenhouse gas emission reduction target in Goal #3 mirrors both the Chicago Climate Action Plan and the goals set by the Kyoto Protocol.

### Goals and Metrics

**Goal #1:** Increase energy efficiency to reduce energy consumption in all buildings and homes in the community an average of 3% per year for a total of 30% over 10 years.

**Metric:** Reduction in total kilowatt-hour (KwH) and Therm usage in buildings and homes.

Strategies:
1. Establish a one-stop shop that also has a robust online presence and regular public promotions that educates the public about energy efficiency, including the most cost effective options, resources, incentives, aggregation opportunities, qualified contractors, products, operations and maintenance requirements, and success stories.
2. Access existing and develop new incentives and financing tools for residents and small businesses to encourage energy efficiency and renewable energy investments.

3. Update energy codes to require greater energy efficiency and zoning codes to support distributed renewable energy production. Codes should encourage projects that go beyond the new standards.
4. Add energy efficiency metrics to the Multiple Listing Service and require energy audits of buildings before sale.
5. Create campaigns for key audiences that promote a culture of sharing information and measurement over time and to encourage voluntary certifications such as a green home, green block, green vehicle, green business, etc., with stickers, publicity, etc. Perhaps there should be a “Biggest Loser” contest each year to recognize the most improved. Success stories need to be shared to motivate others.
6. Identify public source funding to establish a funding pool for business energy efficiency and renewable energy installations within specific business corridors.
7. Take advantage of tools and resources available on a regional or countywide basis that support these goal and strategies.
8. Proactively implement 300 free energy audits annually for residential homeowners. <ul style="list-style-type: none"> <li>• Provide general recommendations for priority strategies.</li> <li>• Seek funding to purchase energy audit equipment.</li> <li>• Finance labor costs through permit fees for renovation projects.</li> </ul>
9. Provide real estate transfer tax percentage reduction for homes that demonstrate a certain percentage of energy efficiency increase. Indicate lower transfer tax in the Multiple Listing Service.
10. Require owners of multi-family properties to disclose information on energy consumption and per unit energy cost to potential tenants.
11. Ensure condominium and multi-family access to energy efficiency programs, including free energy audits and educational programming with retrofit payback or access regional energy efficiency loan fund and market directly to OP and RF residents and business owners.
12. Develop a revolving loan fund for energy efficiency and renewable energy retrofits in residences and small businesses with loan payback coinciding with retrofit payback.

**Goal #2:** Increase renewable energy procurement for use in buildings and homes an average of 2.5% per year for a total of 25% over 10 years.

**Metric:** Percentage of kilowatt-hour (KwH) and Therm usage in buildings and homes that comes from renewable sources.

<b>Strategies:</b>
1. Access existing and develop new incentives and financing tools for residents and small businesses to encourage energy efficiency and renewable energy investments. (R)
2. Update energy codes to require greater energy efficiency and zoning codes to support distributed renewable energy production. Codes should encourage projects that go beyond the new standards. (R)
3. Aggregate the purchasing power of small businesses and homeowners to reduce the cost and increase the green components in their buildings.

4. Create campaigns for key audiences that promote a culture of sharing information and measurement over time and to encourage voluntary certifications such as a green home, green block, green vehicle, green business, etc., with stickers, publicity, etc. Perhaps there should be a “Biggest Loser” contest each year to recognize the most improved. Success stories need to be shared to motivate others. (R)
5. Identify public source funding to establish a funding pool for business energy efficiency and renewable energy installations within specific business corridors. (R)
6. Encourage and support energy-related businesses that increase efficiency and encourage cost effective renewable energy use. (R)
7. Take advantage of tools and resources available on a regional or countywide basis that support these goal and strategies. (R)
8. Develop a revolving loan fund for energy efficiency and renewable energy retrofits in residences and small businesses with loan payback coinciding with retrofit payback. (R)

**Goal #3:** Reduce greenhouse gas emissions due to energy use in buildings and homes an average of 3% per year for a total of 30% over 10 years.

**Metric:** Greenhouse gas emission reduction due to increased energy efficiency and use of renewable energy.

<b>Strategies:</b>
1. Establish a one-stop shop that also has a robust online presence and regular public promotions that educates the public about energy efficiency, including the most cost effective options, resources, incentives, aggregation opportunities, qualified contractors, products, operations and maintenance requirements, and success stories.(R)
2. Access existing and develop new incentives and financing tools for residents and small businesses to encourage energy efficiency and renewable energy investments. (R)
3. Update energy codes to require greater energy efficiency and zoning codes to support distributed renewable energy production. Codes should encourage projects that go beyond the new standards. (R)
4. Aggregate the purchasing power of small businesses and homeowners to reduce the cost and increase the green components in their buildings. (R)
5. Add energy efficiency metrics to the Multiple Listing Service and require energy audits of buildings before sale. (R)
6. Support the implementation of Oak Park’s initiative to aggregate energy purchasing within the community for bid to providers with competitive prices and significant renewable energy sources. (R)
7. Create campaigns for key audiences that promote a culture of sharing information and measurement over time and to encourage voluntary certifications such as a green home, green block, green vehicle, green business, etc., with stickers, publicity, etc. Perhaps there should be a “Biggest Loser” contest each year to recognize the most improved. Success stories need to be shared to motivate others. (R)

8. Encourage and support energy-related businesses that increase efficiency and encourage cost effective renewable energy use. (R)
9. Take advantage of tools and resources available on a regional or countywide basis that support these goal and strategies. (R)
10. Proactively implement 300 free energy audits annually for residential homeowners. (R) <ul style="list-style-type: none"> <li>• Provide general recommendations for priority strategies.</li> <li>• Seek funding to purchase energy audit equipment.</li> <li>• Finance labor costs through permit fees for renovation projects.</li> </ul>
11. Provide real estate transfer tax percentage reduction for homes that demonstrate a certain percentage of energy efficiency increase. Indicate lower transfer tax in the Multiple Listing Service. (R)
12. Require owners of multi-family properties to disclose information on energy consumption and per unit energy cost to potential tenants. (R)
13. Ensure condominium and multi-family access to energy efficiency programs, including free energy audits and educational programming with retrofit payback or access regional energy efficiency loan fund and market directly to OP and RF residents and business owners. (R)
14. Develop a revolving loan fund for energy efficiency and renewable energy retrofits in residences and small businesses with loan payback coinciding with retrofit payback. (R)

## Resources and Funding Sources

- [Energy Savers](#): Comprehensive website of resources around energy use, energy efficiency and renewable energy.
- [Illinois Clean Energy Foundation](#): Funding organization that provides grants for energy efficiency and renewable energy projects in Illinois.
- [IL Energy Efficiency Grants](#): Grants from the state of Illinois for energy efficiency projects.
- [IL Renewable Energy Grants](#): Grants from the state of Illinois for renewable energy projects.
- [Building Energy Codes Program](#): Department of Energy website with resources and information around building energy codes.
- [Cook County Energy Efficiency Program](#): Free energy audits and funding and loans for energy efficiency projects through Cook County.
- [ICLEI](#): Non-profit with a variety of tools and resources for local governments interested in reducing greenhouse gas emissions.

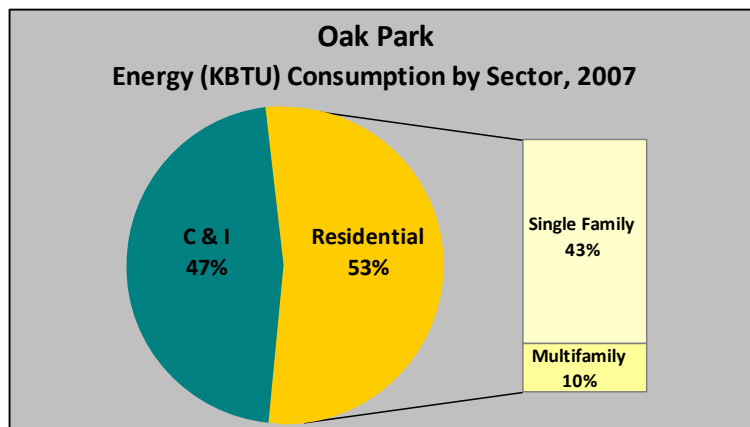
## Baseline Metrics

### Oak Park

Total energy consumption includes 2007 village-wide electricity and natural consumption. Total energy consumption is measured in KBTU (Kilo British Thermal Unit). Electricity (kWh) and natural gas (therms) are converted into KBTU, which allows for comparison between electricity and natural gas consumption.

The table to the right is a summary of 2007 total energy (electricity and natural gas) consumption in Oak Park measured in KBTU, analyzed by the residential sector and the commercial/industrial (C & I) sector. In 2007, Oak Park consumed a total of 4.6 billion KBTU.

Oak Park Total Energy Consumption, 2007	
	Total KBTU
Residential	2,437,626,759
C & I	2,204,905,272
Total	4,642,532,030



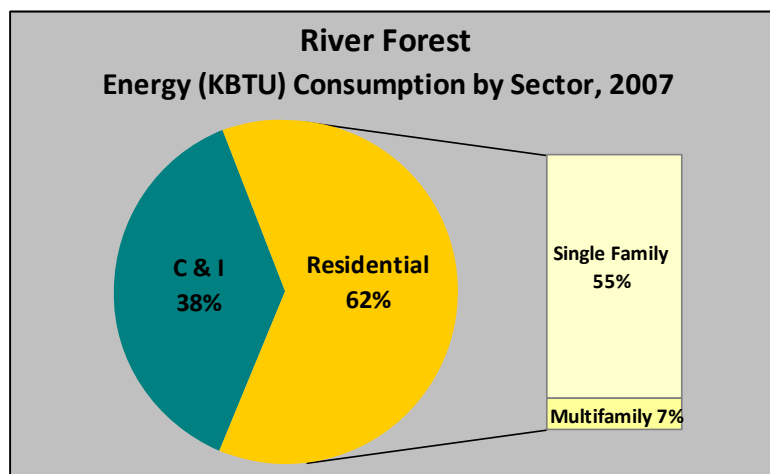
The figure to the left illustrates that 53 percent of energy consumed in buildings in 2007 occurred in the residential sector, with the remaining 47 percent consumed in the commercial/industrial sector. Furthermore, of the 53 percent of energy consumed in the residential sector, 43 percent was consumed in the single family sector and 10 percent in the multifamily sector.

## River Forest

Total energy consumption includes 2007 village wide electricity and natural consumption in buildings including outdoor lighting. Total energy consumption is measured in KBTU. Electricity (kWh) and natural gas (therms) are converted into KBTU to provide the same measurement, which allows for comparison between electricity and natural gas consumption.

This table is a summary of 2007 total energy (electricity and natural gas) consumption in River Forest measured in KBTU, analyzed by the residential sector and the commercial/industrial (C & I) sector. In 2007, River Forest consumed a total of 1.2 billion KBTU.

River Forest Total Energy Consumption, 2007	
	Total KBTU
Residential	765,327,632
C & I	461,432,885
Total	1,226,760,517



This figure illustrates that 62 percent of energy consumed in buildings occurred in the residential sector, with the remaining 38 percent consumed in the commercial/industrial (C & I) sector. Residential energy consumption is further analyzed; of the 62 percent, 55 percent was consumed in the single family sector and 7 percent in the multifamily sector.

### III. WASTE

As sustainability advocates begin to reframe the concept of “waste” and think more in terms of “resource recovery” for new production, Illinois is still dealing with many issues related to traditional land filling. Northern Illinois, in particular, is already exporting waste to neighboring states due to landfill capacity limits. At the same time, taxpayers across the state have spent more than \$55 million in the past decade to clean up 33 improperly closed landfills which have caused contaminated drinking water, surface water runoff pollution, odors from methane production, and exposure to hazardous materials. Establishing new landfills as a long-term strategy is problematic due to pollution, increasing landfill siting and maintenance costs, inadequate post-landfill closing accountability, lack of available land, and the lack of interest among Chicago metro area residents to live near sites.

Excessive waste also contributes to global warming. The mixing of “organics” (food residuals, yard waste, etc.) with traditional waste at landfills generates an immediate combustion of methane, a greenhouse gas that scientists assert is over 100 times more potent in the short-term than CO<sub>2</sub> – making food residual diversion a key global warming mitigation strategy in the near term.

In Oak Park and River Forest, residential single-family recycling has led the way to achieving landfill diversion rates of 38%. However, there is much room for improving multi-family and commercial recycling. Food scrap composting and construction debris reuse offer strong opportunities for reaching still higher landfill diversion rates, and are now being implemented in many cities across the country.

#### Goals and Metrics

**Goal #1:** Increase community-wide residential waste diversion from landfills to 50% by 2015 and to 62% by 2020 and increase commercial and multi-family waste diversion by goal targets TBD based on new baseline metric data. (Current residential diversion rate is 38%)

**Metric:** Percentage of total waste volume diverted from landfill. (Note: Goal targets will be set for specific waste categories, including construction debris, yard waste, food scraps, and recycling.)

<b>Strategies:</b>
1. Recycling – Multi-family Units <ul style="list-style-type: none"><li>• Ensure both villages have municipal ordinances requiring all multi-family units to recycle.</li><li>• Change dumpster size for multi-family units: Multi-family units should have to switch</li></ul>

	<p>dumpster sizes so that the landfill collection containers are smaller and the recycling collection containers are bigger. This change was offered for single-family residences and has proved effective.</p> <ul style="list-style-type: none"> <li>• Improve education of residents: Place a recycling bin in a public space near the mailboxes.</li> <li>• Educate landlords: At the required licensing panel, emphasize the cost difference between garbage and recycling (e.g., residential garbage is \$6 and recycling is \$2.50, so recycling is 60% less expensive).</li> <li>• Institute an ordinance requiring recycling containers in every public space that has a garbage or “landfill” receptacle.</li> <li>• Implement a program that provides recycling containers next to “landfill” containers in every public space (owned by taxing bodies within villages) and in every commercial space.</li> </ul>
2.	<p>Diversion of Construction Debris</p> <ul style="list-style-type: none"> <li>• Institute municipal ordinances requiring all contractors to divert 50% of construction debris from all projects from landfills as part of licensing in OPRF.</li> <li>• Provide educational resources on construction debris recycling options.</li> <li>• Develop a Building Reuse Material Resource Center.</li> </ul>
3.	<p>Composting</p> <ul style="list-style-type: none"> <li>• Encourage backyard composting through education and a free bin program that incorporates a composting volunteer corps that helps residents to do backyard composting.</li> <li>• Implement a pilot curbside food scrap collection/composting program within selected OPRF neighborhoods and seek funding for hard costs, education, and marketing.</li> <li>• Seek funding for equipment, training, and other costs to jump-start a commercial composting initiative among OPRF food-related businesses.</li> </ul>
4.	<p>General</p> <ul style="list-style-type: none"> <li>• Change the word garbage to landfill for all public receptacles, wording, and signage. (Context: Portland reports that this had the single biggest impact on changing the mindset of people to encourage recycling and reducing.)</li> <li>• Provide PlanItGreen stickers and listings for homes, businesses, etc. that meet waste reduction targets. Examples include: <ul style="list-style-type: none"> <li>○ Multi-unit buildings: Multiple Listing Service includes “this building recycles.”</li> <li>○ Single-family residential: Green sticker for houses recycling and composting.</li> <li>○ Commercial: Green sticker for businesses having a waste audit done and achieving landfill diversion targets.</li> </ul> </li> <li>• Develop and implement comprehensive strategies for meeting landfill diversion targets with key institutions and showcase them as models (e.g., West Suburban, Dominican, and District 97).</li> <li>• Implement Zero-Waste Schools Program in every school within OPRF.</li> <li>• Create an event guide and provide technical assistance and training to incorporate zero-waste strategies into every event.</li> <li>• Develop a central collection facility for all non-curbside waste that is open year round.</li> <li>• Eliminate trash receptacles at public park areas.</li> </ul>

- Collect data on multi-family and commercial waste and publish that data to ensure targets are being met.
- Target fast food chains, coffee shops, and restaurants for recycling.
- Investigate consolidated waste pickup and explore opportunities for implementation.

**Goal #2:** Decrease overall waste generated by 1% annually.

**Metric:** Total volume of waste generated.

**Strategies:**

1. Diversion of Construction Debris (R)
  - Develop a Building Reuse Material Resource Center.
2. Composting (R)
  - Encourage backyard composting through education and a free bin program that incorporates a composting volunteer corps that helps residents to do backyard composting.
  - Implement a pilot curbside food scrap collection/composting program within selected OPRF neighborhoods and seek funding for hard costs, education, and marketing.
  - Seek funding for equipment, training, and other costs to jump-start a commercial composting initiative among OPRF food-related businesses.
  - Conduct cost/benefit analysis of commercial food scrap collection and hauling service.
3. General
  - Change the word garbage to landfill for all public receptacles, wording, and signage. (Context: Portland reports that this had the single biggest impact on changing the mindset of people to encourage recycling and reducing.) (R)
  - Provide PlanItGreen stickers and listings for homes, businesses, etc. that meet waste reduction targets. Examples include: (R)
    - Multi-unit buildings: Multiple Listing Service to include “this building recycles.”
    - Single-family residential: Green sticker for houses recycling and composting.
    - Commercial: Green sticker for businesses having a waste audit done and achieving landfill diversion targets.
  - Develop and implement comprehensive strategies for meeting landfill diversion targets with key institutions and showcase them as models (e.g., West Suburban, Dominican, and District 97). (R)
  - Implement Zero-Waste Schools Program in every school within OPRF. (R)
  - Create an event guide and provide technical assistance and training to incorporate zero-waste strategies into every event. (R)
  - Eliminate trash receptacles at public park areas. (R)
  - Target key waste streams and conduct assessments of the feasibility of instituting village ordinances to eliminate use of certain products (e.g. styrofoam, plastic bags/bottles).
  - Pursue further knowledge of waste issues. (R)

## Resources and Funding Sources

- [Illinois Recycling Grants Program](#): State of Illinois funding for recycling projects.
- [Illinois Recycling Association](#): Membership association for recyclers in Illinois.
- [Building Materials Reuse Association](#): Non-profit with information and resources around building deconstruction.
- [Food Scrap Composting Revitalization & Advancement Program](#): State of Illinois funding for composting projects.
- [IL Zero Waste Schools Program](#): State funding opportunities for waste reduction in schools.

## Baseline Metrics

### Oak Park

Municipal Solid Waste (MSW) typically refers to waste collection controlled by elected local officials and generally includes waste generated in residents' homes and work places in municipalities. However, in Oak Park, trash, recycling, and yard waste collection service is provided exclusively for residential buildings with five or fewer units; therefore, this collection identifies Oak Park's MSW. Waste Management, Oak Park's contracted hauler, provides a 96-gallon trash container at \$18.20 per month and 64-gallon trash containers at \$15.34 per month. Refuse and recycling costs are included in monthly water bills.

Larger multi-family and commercial/industrial building collection service is contracted independently by each building owner. Currently, there is no standardization or enforcement of reporting waste collection data for these buildings. Therefore, the data presented below is incomplete: it does not represent a comprehensive picture of village-wide solid waste collection. Rather, it only reports on residential buildings up to five units. This is an area that Oak Park may want to explore in order to have a complete understanding of existing conditions to effectively and efficiently target strategies to reduce waste and increase recycling participation.

In 2009, Oak Park Municipal Solid Waste (MSW) totaled 17,964 tons, which includes refuse, recycling, and yard waste. Although total recycling collected decreased from 2007 and 2008, the total diversion rate of 38 percent in 2009 increased due to a decrease in

refuse collection and an increase in yard waste collection. "Diversion rate" refers to the percentage of waste diverted from traditional disposal such as landfills. Oak Park's recycling collection data includes 12,365 household units included in the municipal contract, as well as public litter baskets and special events collected by Public Works.

Oak Park Municipal Solid Waste					
YEAR	Tons				Diversion Rates
	Refuse	Recycling	Yard waste	Total	
2007	13,391	6,222	1,170	20,783	36%
2008	12,243	5,927	1,281	19,451	37%
2009	11,025	5,446	1,223	17,694	38%

## River Forest

Municipal Solid Waste (MSW) typically refers to waste collection operated and controlled by elected local officials and generally includes the waste generated in residents' homes and work places in municipalities. However, in River Forest, trash, recycling, and yard waste collection service is provided exclusively for residential buildings with three or fewer units; therefore, this collection identifies River Forest's MSW. The village's recycling program provides each resident with two 18-gallon recycling bins.

Although River Forest ordinance requires that all multi-family buildings receive recycling services, the larger multi-family and commercial/industrial building collection service is contracted independently by each building owner. Currently, there is no standardization or enforcement of reporting waste collection data for these buildings. Therefore, the data presented below is incomplete: it does not represent a comprehensive picture of village-wide solid waste collection. Rather, it only reports on residential buildings up to three units. This is an area that River Forest may want to explore in order to have a complete understanding of existing conditions to effectively and efficiently target strategies to reduce waste and increase recycling participation.

In 2009, River Forest Municipal Solid Waste (MSW) totaled 4,309 tons, which includes refuse, recycling, and yard waste. Collection of refuse, recycling, and yard waste decreased from 2008 to 2009, including the total diversion rate. "Diversion rate" refers to the percentage of waste diverted from traditional disposal such as landfills.

River Forest Municipal Solid Waste					
YEAR	Tons				Diversion Rates
	Refuse	Recycling	Yard waste	Total	
2007	2,955	1,598	314	4,867	39%
2008	2,962	1,621	321	4,904	40%
2009	2,723	1,293	293	4,309	37%

Note: The information is as reported by River Forest's current solid waste collection and disposal contractor. The Village makes no warranty as to the accuracy of this information

## IV. WATER

For many Chicago metro area residents, being situated next to Lake Michigan and the other Great Lakes has created a sense of security about our water supply and a lack of urgency around the need to use water wisely. The use of water from Lake Michigan by the state of Illinois is regulated by a 1967 Supreme Court decision limiting the 40-year average water diversion from the watershed to 3,200 cubic feet/second (cfs). This includes water pumped from the Lake for water supply as well as stormwater runoff that no longer flows into the Lake due to the reversal of the Chicago and Calumet rivers – all of which is tracked by the US Army Corps of Engineers. In 2007, the most recent year for which data is available, the 40-year average water diversion from Lake Michigan was 3,171 cfs. This average has been falling in recent years, but the addition of water demand from communities currently reliant on dwindling aquifer supplies and increased stormwater runoff could reverse that trend. As aquifer-based water supplies drop, evaporation from rising air temperatures increases, and demand for fresh water grows both regionally and globally, pressure on our precious water resources will continue to mount.

Water ranked as the fourth highest community concern in the survey results and had one strategy ranked among the ten most important strategies. Water strategies identified in the survey and community forums focused mainly on stormwater management, but water conservation and water quality were considered as well. The strategies and community conversations underscore the great potential that both communities have for becoming models for education, stormwater management, rainwater harvesting, and building codes that allow for the use of rain and grey water.

### Goals and Metrics

**Goal #1:** Reduce overall community potable water consumption.

**Metric:** Total volume of potable water consumed. Note: Target TBD.

Strategies:	
1. Residential Water Conservation	<ul style="list-style-type: none"><li>• Increase incentives and education regarding the use of water efficient toilets, faucets and showerheads for single-family, multi-family, commercial, and institutional units.</li><li>• Educate residents about water pricing and implement pilot smart water meter project.</li><li>• Create a Water Conservation Certificate Program for homeowners.</li></ul>
2. Lawns/Residential Runoff	<ul style="list-style-type: none"><li>• Implement an educational program/video that promotes native landscapes and water sipping lawns.</li><li>• Promote water efficient lawns via “green garden tours” and provide education and resources for people to implement water efficient lawn strategies.</li></ul>

<ul style="list-style-type: none"> <li>• Improve information on water bills (show average consumption, provide tips).</li> <li>• Change billing structure to incentivize reductions (stormwater fees, seasonal rates, etc.).</li> <li>• Create a Conservation Certification for lawn care companies/landscapers or require certification through existing outside certifying agency (like WaterSense).</li> </ul>
<p>3. Education</p> <ul style="list-style-type: none"> <li>• Create educational materials/video/program that promotes the importance of the water cycle, the limited resource of the Great Lakes, water infrastructure, and strategies for conserving water and protecting water quality. Create a multi-pronged outreach strategy to target the various audiences, and make sure that children, specifically, are reached with some of the education.</li> <li>• Create a pool of resources, information, and experts that residents/stakeholders can easily access.</li> <li>• Provide demonstration projects for strategy and technology implementation.</li> </ul>
<p>4. Municipal</p> <ul style="list-style-type: none"> <li>• Incorporate water conservation and stormwater runoff reduction technologies into all public projects (and incent private projects) and showcase technologies (natives in right-of-ways, permeable paving, green alleys) through demo projects, case studies, and other activities and events.</li> <li>• Review and change existing codes in accordance with new Illinois state codes that are being considered to allow for increased water conservation and reuse (waterless urinals, greywater systems).</li> <li>• Promote and finance comprehensive water audits that check for system leaks and review opportunities for the incorporation of water saving technologies.</li> <li>• Increase rates to reflect the true cost of water and institute an increasing rate structure to fund and provide incentives for leak detection and other water conservation efforts.</li> <li>• Support efforts to change state policy to allow rainwater collection and use and grey water collection and use.</li> <li>• Create a comprehensive water plan through the CMAP technical assistance program.</li> <li>• Develop a benchmarking system so homeowners and businesses can see how they compare to their neighbors.</li> </ul>

**Goal #2:** Reduce stormwater runoff.

**Metric:** Total volume of stormwater runoff as measured by cubic gallons of waste water going to treatment plant. Note: Will investigate access to this data.

**Metric:** Square footage of permeable surfaces; # of downspout disconnects from sewer system. Note: Will determine project capacity to aggregate this data.

<p><b>Strategies:</b></p>
<p>1. Residential Water Conservation (R)</p> <ul style="list-style-type: none"> <li>• Educate residents about water pricing and implement pilot smart water meter project.</li> <li>• Create a Water Conservation Certificate Program for homeowners.</li> </ul>

2. Lawns/Residential Runoff	<ul style="list-style-type: none"> <li>• Implement an educational program/video that promotes native landscapes and water sipping lawns. (R)</li> <li>• Promote water efficient lawns via “green garden tours” and provide education and resources for people to implement water efficient lawn strategies. (R)</li> <li>• Improve information on water bills (show average consumption, provide tips). (R)</li> <li>• Change billing structure to incentivize reductions (stormwater fees, seasonal rates, etc.). (R)</li> <li>• Create a Conservation Certification for lawn care companies/landscapers. (R)</li> <li>• Develop a Green Alley contest that solicits designs for village alleys that are aesthetically inviting and supply green infrastructure solutions for stormwater infiltration while still providing access for service vehicles.</li> <li>• Evaluate the pros and cons of a downspout disconnect program and explore program implementation.</li> </ul>
3. Education (R)	<ul style="list-style-type: none"> <li>• Create educational materials/video/program that promotes the importance of the water cycle, the limited resource of the Great Lakes, water infrastructure, and strategies for conserving water and protecting water quality. Create a multi-pronged outreach strategy to target the various audiences, and make sure that children, specifically, are reached with some of the education.</li> <li>• Create a pool of resources, information, and experts that residents/stakeholders can easily access.</li> <li>• Provide demonstration projects for strategy and technology implementation.</li> </ul>
4. Municipal (R)	<ul style="list-style-type: none"> <li>• Incorporate water conservation and stormwater runoff reduction technologies into all public projects (and incent private projects) and showcase technologies (natives in right-of-ways, permeable paving, green alleys) through demo projects, case studies, and other activities and events.</li> <li>• Increase rates to reflect the true cost of water and institute an increasing rate structure to fund and provide incentives for leak detection and other water conservation efforts.</li> <li>• Support efforts to change state policy to allow rainwater collection and use and grey water collection and use.</li> <li>• Create a comprehensive water plan through the CMAP technical assistance program.</li> </ul>

**Goal #3:** Educate about and communicate the need for water management, water conservation and water quality to residents, businesses and municipalities.

<b>Strategies:</b>
1. Residential Water Conservation (R) <ul style="list-style-type: none"> <li>• Increase incentives and education regarding the use of water efficient toilets, faucets and showerheads for single-family, multi-family, commercial, and institutional units.</li> <li>• Educate residents about water pricing and implement pilot smart water meter project.</li> </ul>

2. Lawns/Residential Runoff (R)	<ul style="list-style-type: none"> <li>• Implement an educational program/video that promotes native landscapes and water sipping lawns.</li> <li>• Promote water efficient lawns via “green garden tours” and provide education and resources for people to implement water efficient lawn strategies.</li> <li>• Improve information on water bills (show average consumption, provide tips).</li> <li>• Develop a Green Alley contest that solicits designs for village alleys that are aesthetically inviting and supply green infrastructure solutions for stormwater infiltration while still providing access for service vehicles.</li> </ul>
3. Water Quality	<ul style="list-style-type: none"> <li>• Develop educational materials/video about water contaminants that enter the sewer system (pharmaceuticals, salt, fertilizers, pesticides, etc.), the problems and costs they create, and residential/commercial strategies for protecting the quality of our water.</li> </ul>
4. Education (R)	<ul style="list-style-type: none"> <li>• Create educational materials/video/program that promotes the importance of the water cycle, the limited resource of the Great Lakes, water infrastructure, and strategies for conserving water and protecting water quality. Create a multi-pronged outreach strategy to target the various audiences, and make sure that children, specifically, are reached with some of the education.</li> <li>• Create a pool of resources, information, and experts that residents/stakeholders can easily access.</li> <li>• Provide demonstration projects for strategy and technology implementation.</li> </ul>

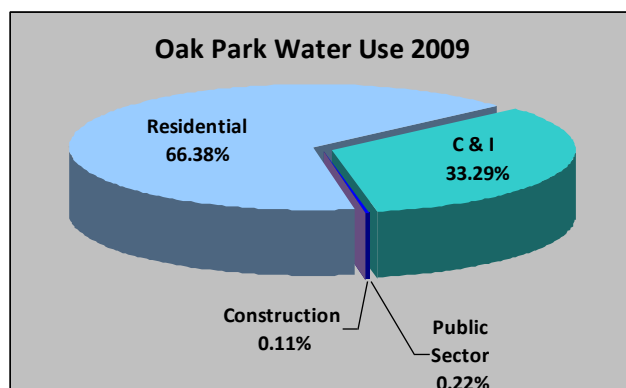
## Resources and Funding Sources

- [WaterSense](#): EPA program with information and resources about water efficiency.
- [Lawn Talk](#): Lawn care information for northern Illinois, including resources for outdoor water efficiency.
- [Alliance for Water Efficiency](#): Website with comprehensive information about water efficiency.
- [HarvestH<sub>2</sub>O.com](#): Rainwater harvesting resources.
- [Gray Water Policy Center](#): Greywater harvesting and policy information resources.
- [IL DCEO Utility Rate Studies](#): Free technical assistance for utility rate studies for local units of government in Illinois.
- [EPA Watershed Funding Programs](#): EPA grant funding around watersheds.
- [American Water Works Association](#): A non-profit with a wide variety of resources around safe water, including [free water audit software](#) for water utilities.

## Baseline Metrics

### Oak Park

Oak Park Water Use and Cost		
User	2009	
	Usage (1,000 gallons)	Cost
Residential	1,118,725	\$4,754,581
Commercial/Industrial	561,005	\$2,384,271
Public Sector	3,650	\$4,855
Construction	1,825	\$8,815
<b>Total</b>	<b>1,685,205</b>	<b>\$7,152,522</b>



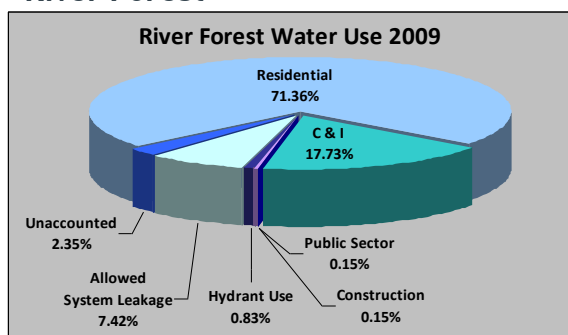
The Village of Oak Park records water use by four categories, as listed in the water use and cost table above. The residential sector consumed the largest percentage of water by a significant amount, typical for a community's water consumption. The lowest water consumption occurred in the construction sector.

Water charges (per 1,000 gallons) vary for each sector. For 2009, Oak Park water charges were \$4.25 per 1,000 gallons for the residential and commercial/industrial sector; \$1.33 per 1,000 gallons for the public sector, and \$4.83 per 1,000 gallons for the construction sector. Due to the difference in charges, although the construction sector consumed less water than the public sector, the total water costs in 2009 for the construction sector were higher.

Oak Park Average Household Water Use, 2009		
Total Residential Use	Average Annual Water Use per Household	Average Daily Water Use per Household
Gallons		
1,118,725,000	51,377	141

At the residential level, in 2009 the average household in Oak Park consumed 141 gallons daily, totally 51,377 gallons annually.

### River Forest



The Village of River Forest records water use by seven categories, as listed in the water use and cost table below. The residential sector consumed the largest percentage of water by a significant amount, typical in community's water consumption. The lowest water consumers were the public sector and construction.

River Forest Water Use and Cost						
User	2007		2008		2009	
	Usage (1,000 gallons)	Cost	Usage (1,000 gallons)	Cost	Usage (1,000 gallons)	Cost
Residential	391,645	\$1,476,502	374,490	\$1,576,603	343,830	\$1,591,933
Commercial/Industrial	95,995	\$361,901	108,040	\$454,848	85,410	\$395,448
Public Sector	730	\$2,752	730	\$3,073	730	\$3,380
Construction	730	\$2,752	730	\$3,073	730	\$3,380
Hydrant Use	5,110	\$19,265	5,110	\$21,513	4,015	\$18,589
Allowed system leakage	35,405	\$133,477	36,135	\$152,128	35,770	\$165,615
Unaccounted	91,250	\$344,013	46,720	\$196,691	11,315	\$52,388
<b>Total</b>	<b>620,865</b>	<b>\$2,340,661</b>	<b>571,955</b>	<b>\$2,407,931</b>	<b>481,800</b>	<b>\$2,230,734</b>

As shown, total water consumption decreased from 2007 to 2009, particularly for unaccounted water usage - potentially a result of improved system operations and/or maintenance. However, although consumption decreased village-wide, total water costs increased due to an increase in water charges per 1,000 gallons: \$3.77 in 2007, \$4.21 in 2008, and \$4.63 in 2009. Water charges are equal for each sector.

At the residential level, in 2009 the average household in River Forest consumed 239 gallons daily, totally 87,211 gallons annually.

River Forest Average Household Water Use, 2009		
Total Residential Use	Average Annual Water Use per Household	Average Daily Water Use per Household
Gallons		
343,830,000	87,211	239

## V. COMMUNITY DEVELOPMENT

Community Development and Zoning create the urban fabric that makes both villages distinct. Each village has unique character, historic buildings and diverse neighborhoods that require thoughtful planning and a unified vision to ensure long-lasting community character. In communities with a rich tradition of Frank Lloyd Wright and other architectural treasures, the sustainability plan can help shape that vision through a lens of sustainable development that adds value to the villages while preserving historical integrity and character. Broad strategies for community development and zoning center around developing clear and consistent sustainable development criteria, updating local codes and educating practitioners about the updated standards which will foster unified sustainable development and zoning practices.

### Goals and Metrics

**Goal #1:** Create a Community Development Values and Core Principles Plan and Sustainable Development Criteria based on conservation values and desirable community characteristics.

**Metric:** Development of plan and criteria (no metric goal established).

Strategies:
1. Ensure master plans are up-to-date and create sustainability criteria to match master plans of village to ensure consistency.
2. Develop a Sustainable Development: <ul style="list-style-type: none"><li>• Criteria</li><li>• Playbook</li><li>• Educational resources</li></ul>
3. Engage developer community, elected officials, and community at large in creating sustainable development criteria.
4. Involve Oak Park Regional Housing Center and Oak Park Board of Realtors on developing criteria for sustainable development.

**Goal #2:** Review and amend local codes and ordinances.

**Metric:** Amended local codes and ordinances.

Strategies:
1. Ensure master plans are up-to-date and create sustainability criteria to match master plans of village to ensure consistency. (R)

2. Develop a Sustainable Development: (R)
<ul style="list-style-type: none"> <li>• Criteria</li> <li>• Playbook</li> <li>• Educational resources</li> </ul>
3. Engage developer community, elected officials, and community at large in creating sustainable development criteria. (R)
4. Generate extensive list of compensating benefits for all Planned Unit Developments that meet sustainable development criteria.

**Goal #3:** Promote community development that adheres to the sustainability criteria, supports the guiding principles and implements the strategies of the plan.

**Metric:** Development guidelines are developed and adopted by both municipalities.

<b>Strategies:</b>
1. Do assessments to determine feasibility of geothermal and combined heat and power (cogeneration) in key OPRF locations.
2. Provide education to developers and contractors on white roofs, geothermal, building orientation, solar access, etc.
3. Create a suite of sustainable development bonuses related to transit-oriented development and green development
4. Balance parking spaces with retail/residential dense development.
5. Enhance VOP/VRF staff capacity to guide and educate developers and provide technical assistance.
6. Expedite permitting process for projects meeting sustainable development criteria.
7. Conduct an assessment of transit-oriented development (TOD) opportunities in OPRF and provide incentives for TOD such as parking requirement reductions, height/density increases, and others.
8. Provide tool kits, loan fund (OPDC), and other incentives tied to standards.

## Resources and Funding Sources

- [CMAP Local Technical Assistance](#): Planning technical assistance opportunities for local governments in the CMAP region.
- [Green Building Funding Opportunities](#): Variety of green building funding opportunities.
- [USGBC](#): Green building training and education resources.
- [HUD – TOD Website](#): Listing of resources and funding opportunities around transit-oriented-development.
- [Reconnecting America](#): Non-profit working around transportation in communities with a transit-oriented-development resource center.

## VI. TRANSPORTATION

Transportation remains our nation's and our region's second largest contributor of greenhouse gas (GHG) emissions next to building-related energy consumption. Transportation analysts across the country concur that the three key strategy areas for reducing transportation-related emissions include: (1) reducing vehicle miles traveled; (2) developing and using low-emission alternative fuels; and (3) developing and using alternative vehicles that reduce or eliminate GHG emissions. The Chicago Climate Action Plan (CCAP), our region's most significant municipal plan for combating climate change, has set a stake in the ground for reducing GHG emissions at 30% by 2020 in accordance with goals established by the Kyoto Protocol. Goal targets set forth in the Oak Park and River Forest Environmental Sustainability Plan reflect these regional targets as well as transit ridership data from Metra and the CTA.

Some of the key CCAP strategies for combating transportation-related GHG emissions have surfaced as key strategies for OPRF, including providing transit incentives, promoting transit-oriented development and "complete streets" (streets designed to facilitate use by all modes of transportation), making walking and biking easier, promoting car sharing, and increasing the efficiency of municipal fleet vehicles. Strategies specifically related to the incorporation of alternative fuels are absent from the recommendations in the plan to date, while most strategies focus on alternative green transit modes.

Key factors for alternative transit mode use named by participants in surveys and forum meetings that are addressed within these strategies include:

- Ease of connection to public transit.
- Perception (safe; easy; great thing to do as an OPRF resident).
- Inexpensive.
- Education about public transit options and access.
- Facilities (bike racks; bike shelters; changing/shower stations).

### Goals and Metrics

**Goal #1:** Decrease vehicle miles traveled (VMT) by automobile.

**Metric:** Total VMT by automobile by OPRF community. Target 30% by 2020 or 3% annually.

Strategies:
1. Biking <ul style="list-style-type: none"><li>• Develop a phase-by-phase timeline/resource strategy for implementing the Oak Park</li></ul>

<p>2008 Bike Plan.</p> <ul style="list-style-type: none"> <li>• Develop a specific bike plan for K-12 schools and universities.</li> <li>• Create a full-service biking facility at a key downtown Oak Park location for people to safely lock bikes, have bikes serviced, etc.</li> <li>• Implement more bike lanes that connect directly to public transit.</li> <li>• Reduce speed limits around schools and parks to create feeling of bicycle safety.</li> <li>• Integrate complete streets infrastructure and design features, including bike lanes, into all new street developments.</li> </ul>
<p>2. Educate OPRF communities about bike safety and bike usage.</p> <ul style="list-style-type: none"> <li>• Incorporate alternative transportation modes education into Drivers Ed Programs (biking, walking, car sharing, public transit, carpooling, etc.), including education about how to drive in collaboration with pedestrian and bike transit.</li> <li>• Educate bike riders about bike safety, communication, and rules of the road through school programs, VOP TV6, OP FYI, community workshops, and other mainstream communications vehicles.</li> <li>• Implement bike safety classes for students.</li> <li>• Replicate Lincoln School RF classes/program that requires students to pass a test before they are allowed to ride their bike to school.</li> </ul>
<p>3. Public Transit</p> <ul style="list-style-type: none"> <li>• Make public transit more palatable to both communities.</li> <li>• Provide sufficient parking near transit stops to encourage greater use of public transit.</li> <li>• Create a shuttle service to the train stations to support transit use.</li> <li>• Provide bus/transit shelters.</li> <li>• Provide sheltered bike racks.</li> <li>• Offer transit incentives.</li> <li>• Promote OPRF as transit-friendly communities, and address perceptions of public transit and safety to help make public transit “cool.”</li> <li>• Target specific “short trip” opportunities that involve multiple individual car trips (e.g., dropping off kids to school, shopping for groceries) and provide alternative transit modes, such as electric buses that work circular routes to drop off kids.</li> <li>• Educate people through mainstream communications vehicles about the benefits of using mass transit (change in lifestyle/philosophy).</li> <li>• Promote North Avenue Metra stops.</li> <li>• Engage transportation agencies in a meaningful fashion for long-term improvement.</li> </ul>
<p>4. Walking</p> <ul style="list-style-type: none"> <li>• Develop a “walk to school” education program to get more kids and parents to walk to school, promote and model walking as a core element of OPRF as livable communities.</li> <li>• Incorporate transit-oriented development strategies into comprehensive OPRF planning.</li> <li>• Incorporate complete streets design features and lighting that facilitates walking in all streetscape development.</li> </ul>

**Goal #2:** Decrease overall GHG emissions from transportation.

**Metric:** Total volume of GHG emissions generated from transportation. Target 30% by 2020, or 3% annually.

<b>Strategies:</b>	
1. Biking (R)	<ul style="list-style-type: none"> <li>• Develop a phase-by-phase timeline/resource strategy for implementing the Oak Park 2008 Bike Plan.</li> <li>• Develop a specific bike plan for K-12 schools and universities.</li> <li>• Create a full-service biking facility at a key downtown Oak Park location for people to safely lock bikes, have bikes serviced, etc.</li> <li>• Implement more bike lanes that connect directly to public transit.</li> <li>• Reduce speed limits around schools and parks to create feeling of bicycle safety.</li> <li>• Integrate complete streets infrastructure and design features, including bike lanes, into all new street developments.</li> </ul>
2. Educate OPRF communities about bike safety and bike usage. (R)	<ul style="list-style-type: none"> <li>• Incorporate alternative transportation modes education into Drivers Ed Programs (biking, walking, car sharing, public transit, carpooling, etc.), including education about how to drive in collaboration with pedestrian and bike transit.</li> <li>• Educate bike riders about bike safety, communication, and rules of the road through school programs, VOP TV6, OP FYI, community workshops, and other mainstream communications vehicles.</li> <li>• Implement bike safety classes for students.</li> <li>• Replicate Lincoln School RF classes/program that requires students to pass a test before they are allowed to ride their bike to school.</li> </ul>
3. Public Transit (R)	<ul style="list-style-type: none"> <li>• Make public transit more palatable to both communities.</li> <li>• Provide sufficient parking near transit stops to encourage greater use of public transit.</li> <li>• Create a shuttle service to the train stations to support transit use.</li> <li>• Provide bus/transit shelters.</li> <li>• Provide sheltered bike racks.</li> <li>• Offer transit incentives.</li> <li>• Promote OPRF as transit-friendly communities, and address perceptions of public transit and safety to help make public transit “cool.”</li> <li>• Target specific “short trip” opportunities that involve multiple individual car trips (e.g., dropping off kids to school, shopping for groceries) and provide alternative transit modes, such as electric buses that work circular routes to drop off kids.</li> <li>• Educate people through mainstream communications vehicles about the benefits of using mass transit (change in lifestyle/philosophy).</li> <li>• Promote North Avenue Metra stops.</li> <li>• Engage transportation agencies in a meaningful fashion for long-term improvement.</li> </ul>
4. Walking (R)	<ul style="list-style-type: none"> <li>• Develop a “walk to school” education program to get more kids and parents to walk to</li> </ul>

<p>school, promote and model walking as a core element of OPRF as livable communities.</p> <ul style="list-style-type: none"> <li>• Incorporate transit-oriented development strategies into comprehensive OPRF planning.</li> <li>• Incorporate complete streets design features and lighting that facilitates walking in all streetscape development.</li> </ul>
<p>5. Alternative Vehicles</p> <ul style="list-style-type: none"> <li>• Conduct cost-benefit analysis for electric car infrastructure needs.</li> <li>• Establish “pay as you pollute” higher vehicle sticker fees for people who have less fuel-efficient cars.</li> <li>• Increase promotion of car sharing and car pooling options.</li> </ul>
<p>6. Deciding on Strategy Priorities</p> <ul style="list-style-type: none"> <li>• Conduct research that outlines key strategies and their “bang for the buck.”</li> <li>• Biking - GHG emissions savings</li> <li>• Walking - GHG emissions savings</li> <li>• Electric Cars - GHG emissions savings</li> <li>• Increased Public Transit - GHG emissions savings</li> <li>• Eco-friendly Fuels - GHG emissions savings</li> <li>• Alternative Vehicles - GHG emissions savings</li> <li>• Alternative fuels - GHG emissions savings</li> </ul>

**Goal #3:** Increase use of public transit and alternative transport modes by 3% annually.

**Metric:** Annual public transit ridership and reported use of alternative non-greenhouse gas emitting transportation modes through surveys.

Strategies:
<p>1. Biking (R)</p> <ul style="list-style-type: none"> <li>• Develop a phase-by-phase timeline/resource strategy for implementing the Oak Park 2008 Bike Plan.</li> <li>• Develop a specific bike plan for K-12 schools and universities.</li> <li>• Create a full-service biking facility at a key downtown Oak Park location for people to safely lock bikes, have bikes serviced, etc.</li> <li>• Implement more bike lanes that connect directly to public transit.</li> <li>• Reduce speed limits around schools and parks to create feeling of bicycle safety.</li> <li>• Integrate complete streets infrastructure and design features, including bike lanes, into all new street developments.</li> </ul>
<p>2. Educate OPRF communities about bike safety and bike usage. (R)</p> <ul style="list-style-type: none"> <li>• Incorporate alternative transportation modes education into Drivers Ed Programs (biking, walking, car sharing, public transit, carpooling, etc.), including education about how to drive in collaboration with pedestrian and bike transit.</li> <li>• Educate bike riders about bike safety, communication, and rules of the road through school programs, VOP TV6, OP FYI, community workshops, and other mainstream communications vehicles.</li> <li>• Implement bike safety classes for students.</li> </ul>

<ul style="list-style-type: none"> <li>• Replicate Lincoln School RF classes/program that requires students to pass a test before they are allowed to ride their bike to school.</li> </ul>
<p>3. Public Transit (R)</p> <ul style="list-style-type: none"> <li>• Make public transit more palatable to both communities.</li> <li>• Provide sufficient parking near transit stops to encourage greater use of public transit.</li> <li>• Create a shuttle service to the train stations to support transit use.</li> <li>• Provide bus/transit shelters.</li> <li>• Provide sheltered bike racks.</li> <li>• Offer transit incentives.</li> <li>• Promote OPRF as transit-friendly communities, and address perceptions of public transit and safety to help make public transit “cool.”</li> <li>• Target specific “short trip” opportunities that involve multiple individual car trips (e.g., dropping off kids to school, shopping for groceries) and provide alternative transit modes, such as electric buses that work circular routes to drop off kids.</li> <li>• Educate people through mainstream communications vehicles about the benefits of using mass transit (change in lifestyle/philosophy).</li> <li>• Promote North Avenue Metra stops.</li> <li>• Engage transportation agencies in a meaningful fashion for long-term improvement.</li> </ul>
<p>4. Walking (R)</p> <ul style="list-style-type: none"> <li>• Develop a “walk to school” education program to get more kids and parents to walk to school, promote and model walking as a core element of OPRF as livable communities.</li> <li>• Incorporate transit-oriented development strategies into comprehensive OPRF planning.</li> <li>• Incorporate complete streets design features and lighting that facilitates walking in all streetscape development.</li> </ul>
<p>5. Alternative Vehicles (R)</p> <ul style="list-style-type: none"> <li>• Conduct cost-benefit analysis for electric car infrastructure needs.</li> <li>• Establish “pay as you pollute” higher vehicle sticker fees for people who have less fuel-efficient cars.</li> <li>• Increase promotion of car sharing and car pooling options.</li> </ul>

## Resources and Funding Sources

- [Active Transportation Alliance](#): Walking and biking programs and resources for schools and communities.
- [IDOT Bicycling Information](#): Information about Illinois Department of Transportation educational resources, programs and funding related to bicycling.
- [League of American Bicyclists](#): Resources for bikers and biking.
- [National Complete Streets Coalition](#): Information and resources on complete streets.
- [HUD – TOD Website](#): Listing of resources and funding opportunities around transit-oriented development.
- [Reconnecting America](#): Non-profit working around transportation in communities with a transit-oriented development resource center.

## Baseline Metrics

### Oak Park

Typically, transportation accounts for the second largest use of energy buildings. For this report, Vehicle Miles Traveled (VMT) was tabulated from travel statistics provided by the Illinois Department of Transportation (IDOT) and scaled to Oak Park based on IL EPA odometer data and population.

All on-road travel on Oak Park roads accounted for approximately 357 million miles in 2007, which captures trips only within municipal boundaries. Further analysis shows, the average household in Oak Park drove 13,076 miles, totaling approximately 285 million miles for all Oak Park households.

Oak Park Vehicle Miles Traveled, 2007			
All On-Road VMT	Household VMT	# of HH	VMT per HH
357,468,138	284,739,866	21,775	13,076

### River Forest

Typically, transportation accounts for the second largest use of energy after buildings. For this report, Vehicle Miles Traveled (VMT) was tabulated from travel statistics provided by the Illinois Department of Transportation (IDOT) and scaled to River Forest based on IL EPA odometer data and population.

All on-road travel on River Forest roads accounted for approximately 73 million miles in 2007 which captures trips only within municipal boundaries. Further analysis shows, the average household in River Forest drove 14,727 miles, totaling approximately 58 million miles for all River Forest households.

River Forest Vehicle Miles Traveled, 2007			
All On-Road VMT	Household VMT	# of HH	VMT per HH
72,892,756	58,062,444	3,943	14,727

## VII. GREEN ECONOMIC DEVELOPMENT

While many sustainability plans do not contain goals related to green economic development, PlanItGreen does because OPRF stakeholders see that new economic opportunities are embedded in their goals and believe they should be captured for the benefit of the community. PlanItGreen is further solidifying OPRF as a leader in environmental sustainability in the region. As an early adopter, OPRF has the opportunity to be a magnet for green businesses that serve customers from many of the surrounding communities.

In addition to capturing the benefits of the growing green economy, businesses must be involved in the effort to reduce OPRF's environmental footprint and achieve the goals of PlanItGreen. The Baseline Metrics report, for example, indicates that half of the electric energy used is currently consumed by commercial and industrial users. PlanItGreen's energy goals cannot be met without the full participation of the business community. Broad strategy areas established through the process include greening individual existing businesses, establishing green business corridors aligned with business association districts, and attracting new businesses that focus on green technology, products, services, and operations.

### Goals and Metrics

**Goal #1:** Become a model of the green economy by developing a critical mass of green businesses in OPRF, including greening the existing business base and supporting the creation of new green businesses so that 50% of OPRF businesses are green or in the process of greening by 2020.

**Metric:** Number of certified green businesses and/or number of businesses implementing key sustainability measures, such as energy efficiency, waste recycling and reuse, offering green products or services, purchasing from green suppliers, etc. (Target currently not established, annual % increase TBD.)

#### Strategies:

1. Create a shared definition of "green" and "healthy" products and services to define green purchases.
  - Develop a green business certification for OPRF (or use existing model) to define what a green business is.
  - Expedite Village permit process for green-certified businesses.
  - Dedicate parking spaces for green businesses.
  - Recognize being on the path to green if green certification is a strategy.
  - Publicize green businesses to the public.

<p>2. Develop and implement a green business association.</p> <ul style="list-style-type: none"> <li>• Host events and educational workshops through new association and existing organizations such as Chamber business after hours.</li> <li>• Use a model OPRF business as the platform for success and ask a representative of this business to talk with other sectors on how they can succeed through sustainability.</li> <li>• Find expertise to fill in the gaps of the above presentation and use an existing business as an example of how to green – go through a business with a training group and show where, from an operational and functional standpoint, an existing business can become more sustainable and help save costs.</li> <li>• Cross share ideas like LEADS business club.</li> <li>• Draw which business receives consultant walk-through as an incentive.</li> <li>• Design and implement a website that: (a) catalogs OPRF sustainable businesses, (b) provides in-depth case studies, (c) lists contacts for businesses to use when looking for sustainable and affordable supplies, services, etc., (d) contains a menu of choices including education, financing, and incentives; and (e) includes webinars as workshops. Choose organization to be a consistent content manager. Distribute stickers for sustainable businesses to display in doors or windows depicting different colors for different levels of sustainability.</li> </ul>
<p>3. Develop new and use existing financing tools such as TIF or federal/state funds to green existing businesses and to provide financial resources such as loan guarantees needed by new green businesses.</p>
<p>4. Establish one or more green business districts or corridors in OPRF by greening existing districts and/or redeveloping blighted areas with appropriate green retail, commercial or industrial uses.</p>
<p>5. Develop an overall purchasing policy that allows for purchasing not based on lowest price and that encourages green product procurement.</p>

**Goal #2:** Function as the go-to green economy magnet that attracts green purchasing dollars from OPRF and surrounding communities.

**Metric:** Increase spending on green products and services (instead of “green spend”) each year at OPRF businesses. (annual % increase TBD)

<b>Strategies:</b>
<p>1. Create a shared definition of “green” and “healthy” products and services to define green purchases. (R)</p> <ul style="list-style-type: none"> <li>• Develop a green business certification for OPRF (or use existing model) to define what a green business is.</li> <li>• Expedite Village permit process for green-certified businesses.</li> <li>• Dedicate parking spaces for green businesses.</li> <li>• Recognize being on the path to green if green certification is a strategy.</li> <li>• Publicize green businesses to the public.</li> </ul>

<p>2. Develop and implement a green business association. (R)</p> <ul style="list-style-type: none"> <li>• Host events and educational workshops through new association and existing organizations such as Chamber business after hours.</li> <li>• Use a model OPRF business as the platform for success and ask a representative of this business to talk with other sectors on how they can succeed through sustainability.</li> <li>• Find expertise to fill in the gaps of the above presentation and use an existing business as an example of how to green – go through business with training group and show where from an operational and functional standpoint an existing business can become more sustainable and help save costs.</li> <li>• Cross share ideas like LEADS business club.</li> <li>• Draw which business receives consultant walk-through as an incentive.</li> <li>• Design and implement a website that: (a) catalogs OPRF sustainable businesses, (b) provides in-depth case studies, (c) lists contacts for businesses to use when looking for sustainable and affordable supplies, services, etc., (d) contains a menu of choices including education, financing, and incentives; and (e) includes webinars as workshops. Choose organization to be a consistent content manager.</li> <li>• Distribute stickers for sustainable businesses to display in doors or windows depicting different colors for different levels of sustainability.</li> </ul>
<p>3. Develop new and use existing financing tools such as TIF or federal/state funds to green existing businesses and to provide financial resources such as loan guarantees needed by new green businesses. (R)</p>
<p>4. Establish one or more green business districts or corridors in OPRF by greening existing districts and/or redeveloping blighted areas with appropriate green retail, commercial or industrial uses. (R)</p>
<p>5. Create a consumer awareness campaign to build demand for green products and services.</p>

**Goal #3:** Pilot models of interdependency (such as shared renewable energy systems, cooperative financing models or green purchasing networks) among OPRF businesses that decrease their environmental footprints and increase their sustainability.

**Metric:** Number of participating businesses, % reduction in baseline metrics such as non-renewable energy used. (# of businesses TBD based on green business criteria development and assessment of current number of existing green businesses; % reduction in baseline metrics will correspond to specific topic area goal targets.)

<b>Strategies:</b>
<p>4. Participate in Buying Better, a buying co-op for businesses to facilitate green purchasing and reduce the price.</p> <ul style="list-style-type: none"> <li>• Facilitate the purchasing of biodegradable carry-out containers.</li> <li>• Explore the potential of Village ordinances getting rid of styrofoam containers.</li> <li>• Offer other products and services.</li> </ul>

- |  |
|--|
| 5. Establish a Green Co-Op capitalized by OPRF residents and stakeholders purchasing shares to devise new aggregation models such as shared energy, transportation or grant writers. |
| 6. Choose one or two products and create a purchasing collaboration between the two villages.  |

## Resources and Funding Sources

1. Environmentally preferable purchasing examples: [Buying Better](#), [National Green Pages](#), [Federal Environmentally Preferable Purchasing](#), [International Green Purchasing Network](#)
- Green business certification examples: [Green Business Network](#), [Illinois Green Business Association](#)
- [IL Department of Commerce and Economic Opportunity Grants](#): Funding opportunities for businesses.
- [Acción USA Green Business Resources](#): Resources for small businesses interested in going green, including loans for greening and energy efficiency projects.
- [Greening Advisor](#): Information from the National Resources Defense Council for small businesses interesting in going green.

## VIII. OPEN SPACE AND ECOSYSTEM PRESERVATION

Oak Park and River Forest do not have great amounts of open space to contend with, and the strategies in this plan focus on incorporating green infrastructure improvements into existing spaces and new developments that enhance nature’s services to our community. Recent community conversation around parks has centered on decisions related to athletic play space enhancement and the preservation of quiet, natural settings, and many community comments we received recognize the need for both and advocate a healthy balance. The strategies in this section focus on preserving and enhancing the natural “park and forest” ambiances and services that reflect our communities’ names, while making both communities very desirable places to live, work, and play.

### Goals and Metrics

**Goal #1:** Contribute to greater ecosystem services (aesthetics, air, water, healthy soil, habitat wildlife).

**Metric:** Percentage of space that provides ecosystem services in relation to total community space. Note: Target TBD.

**Metric:** Number of projects (ex-native plantings, trees, gardens, and green roofs) that provide healthy ecosystem services.

<b>Strategies:</b>
1. Assess long-term tree cover planning (tree spacing issues).
2. Incorporate green infrastructure into new construction and any retrofit ground work (e.g., native landscaping, green roofs, porous surfaces, swales).
3. Connect existing open spaces through greenways – conduct a study and develop a plan.
4. Establish historic preservation guidelines and an ordinance to preserve trees on public and private land.
5. Develop tree corridors, parkways and native plant corridors as a part of overall corridor development strategy.

**Goal #2:** Enhance existing open spaces and ecosystems.

**Metric:** Volume of toxics used on existing land in OPRF (salt, synthetic chemical fertilizers, pesticides, herbicides).

Strategies:
1. Create institutional policies around procurement that reduce/prohibit use of toxics and incorporate use of eco-safe alternatives.
2. Develop best practices guides, resources, tools for use of eco-safe materials and products, or access and distribute existing materials through workshops and training programs.
3. Enhance our communities' Urban Forests.

**Goal #3:** Create more community and relationships through the use of open space.

**Metric:** Community use of open space.

Strategies:
1. Organize and train people to build raise beds within communities.
2. Create ecosystem policy for each community institution.
3. Develop community institutions as models for green practices in open space.
4. Broaden education and information access through the Internet, a Sustainability Center, and educational workshops.

## Resources and Funding Sources

- [Illinois Green Infrastructure Program for Stormwater Management](#): State grants to local government units for green infrastructure projects for stormwater management.
- [Model Historic Preservation Ordinance](#): Model historic preservation ordinance meeting the Illinois State Historic Preservations Office's requirements.
- [Tree Ordinance](#): Resources for developing a tree preservation ordinance.
- [Alliance for Community Trees' Grant List](#): A variety of funding opportunities, not only for trees but for green infrastructure generally.
- [Raised Bed Gardening Tips](#): Tips for building and using raised beds for gardening.
- [Alliance for a Toxic-Free Future](#): A New York-based nonprofit with resources around toxics elimination.
- [National Trails Training Partnership Funding Library](#): Funding resources around trails and greenways.

## IX. FOOD

With a robust Farmers' Market, a recently developed community garden, numerous school-based and private residence gardens, and multiple CSA hubs scattered throughout the communities, OPRF residents have much to build from regarding access to local, sustainable, and healthy food. Institutional procurement remains a big challenge, and comprehensive strategies for increasing institutional local, sustainable food procurement have yet to emerge. Key themes raised by forum participants for promoting local, sustainable, and healthy food include:

- Paying attention to building healthy soil.
- Bringing together the vast community resources around this topic area and building upon their knowledge, programming, and expertise.
- Assessing barriers and developing solutions that enable our largest institutions (hospitals, universities, schools) to access more local, sustainable, and healthy food.
- Building local, sustainable, and healthy food deeply into the fabric of our communities.

### Goals and Metrics

**Goal #1:** Use more public, private and institutional land in OPRF to grow more food, including for those in need.

**Metric:** Volume of square footage dedicated to growing high-quality food (organic, healthy, and sustainably raised) for local consumption.

**Metric:** Volume of food grown within both communities.

**Metric:** Volume of food grown or donated (food rescues from grocery stores or other sources) that serves people in need.

<b>Strategies:</b>
1. Build a project within an OPRF-based organization to support school gardens and provide resources, tools, and workshops for building and maintaining school gardens.
2. Build a garden at Dominican University that becomes the foundation for programming and education.
3. Build a central hub Food and Growing Center that incorporates: <ul style="list-style-type: none"><li>• Outside garden</li><li>• Greenhouse and indoor aquaponics system</li></ul>

- Cooking facilities and classes for residents and low-income nonresidents on healthy eating, cooking on a budget, etc.
- Canning, jarring, and value-added production
- Youth entrepreneurship development
- Chicken coops
- Bee hives
- Goats and milk and cheese production
- Sale of produced goods from the hub

**Goal #2:** Increase availability of local/regional food year round.

**Metric:** Percentage of local food procured by institutions.

**Metric:** Percentage of local food procured by individuals via farmer's markets, CSAs, and other local food outlets.

**Metric:** Number of new local food-related businesses.

**Strategies:**

1. Conduct an assessment that lists the barriers for accessing more local, sustainably raised food, and develop a pilot project to increase local food access with metrics related to volume increases.
2. Change pricing and thought structure around school food that sees the cafeteria and school meals as extensions of the classroom and uses school budget and National School Lunch dollars to create a robust healthy and local food school meals program that is linked to educational objectives.
3. Build a central hub Food and Growing Center that incorporates: (R)
  - Outside garden
  - Indoor aquaponics
  - Cooking facilities and classes for residents and low-income nonresidents on healthy eating, cooking on a budget, etc.
  - Canning, jarring, and value-added production
  - Youth entrepreneurship development
  - Chicken coops
  - Bee hives
  - Goats and milk and cheese production
  - Sale of produced goods from the hub
4. Develop a long-term plan for increasing healthy and local, sustainable food access for Dominican University.
5. Incorporate healthy eating and farm-to-school curriculum at every school.
6. Develop a "green seal" certification specifically for restaurants that incorporates local, sustainable, and healthy food criteria.

**Goal #3:** Build healthy soil.

**Metric:** Acres/volume of compost mitigated soil.

<b>Strategies:</b>	
<b>1.</b>	Provide community educational programming designed to change our culture around building healthy soils and eating healthy food, and incorporate a hotline and web-based resources for soil testing, soil remediation, gardening, composting, food preserving, accessing local food, etc.
<b>2.</b>	Design and implement healthy soil building project within our communities that incorporates soil testing, soil remediation, and planning to convert urban “brownfields” into usable spaces.
<b>3.</b>	Develop course at Dominican focused on healthy eating, food systems, soil, nutrition, growing, etc.

## Resources and Funding Sources

- [Grants for Gardens](#): Annie’s grants to schools and non-profits for community gardens.
- [Youth Garden Grants Program](#): The National Gardening Association’s grant program for child-centered garden projects.
- [Good Food For All](#): Resources for local food and agriculture throughout the Chicagoland region, including a grants database.
- [Sustainable Table](#): A variety of resources around local, sustainable food, including valuable educational resources.
- [National Farm to School Network](#): Resources and funding opportunities for connecting schools with farms and educational resources for healthy food and other environmental education opportunities.
- [Do-It-Yourself Aquaponics](#): Information on establishing small-scale aquaponics.
- [Green Restaurant Association](#): A non-profit with information and resources for restaurants interested in going green.
- [USDA Childhood Obesity Prevention Grant Program](#): Federal funding opportunity for research, education, or extension project that will help to reduce the prevalence of overweight and obesity among children.
- [USDA Community Food Projects Grant Program](#): Federal funding opportunity for food projects that help to promote self-sufficiency of low-income communities.
- [Robert Wood Johnson Foundation](#): Grantmaker with a childhood obesity program area.
- [Kresge Foundation](#): Grantmaker with program areas in health and environment.
- [W. K. Kellogg Foundation](#): Grantmaker with a healthy kids program area.
- [Chicago Community Trust](#): Grantmaker administering a wide variety of Chicago-area funding opportunities.

## ADDENDUM 1: COMMUNITY WORKS ADVISORY BOARD MEMBERS

Tom Barwin  
Dr. Donna Carroll  
Dr. Constance Collins  
Gary Cuneen  
Lisa DeVivo  
Steve Gutierrez  
Dr. Thomas Hagerman  
Mike Kelly  
Sophia Lloyd  
Boyd McDowell  
Dr. Shirley Morgenthaler  
Jan Pate  
Ed Petrick  
David Pope  
Roberta Raymond  
John Rigas  
Diana Rosenbrock  
Mary Jo Schuler  
Nancy Waichler  
Dr. Attila Weninger  
John F. S. Williams

## ADDENDUM 2: PlanItGreen CORE TEAM

Shari Brown, Seven Generations Ahead  
Beth Burdin, Park District of Oak Park Green Advisory Council  
Keary Cragan, River Forest Elementary District 90 PTO; US EPA  
Sue Crothers, River Forest Resident  
Gary Cuneen, Seven Generations Ahead  
Donna Ducharme, Delta Institute  
Cindy Gapinski, Seven Generations Ahead  
John Houseal, Village of River Forest  
Alejandra Ibanez, OPRF Community Foundation  
Kindy Kruller, Delta Institute  
Sophia Lloyd, OPRF Community Foundation  
Amy McCormick, Dominican University  
KC Poulos, Village of Oak Park Sustainability Department  
Robin Sheerer, Oak Park Power of 10  
Rich Shoum, Village of Oak Park Environment and Energy Citizen's Advisory Commission  
Ed Solan, Oak Park Residence Corporation  
Sally Stovall, Interfaith Green Network  
Michelle Vanderlaan, Oak Park Elementary District 97 PTO Council; OPRF Community Foundation  
Nicolette Vandermeer, Oak Park Development Corporation

## ADDENDUM 3: SUPPORTING ORGANIZATIONS

a5 Inc  
Alcuin Montessori School  
Alumni Association of OPRF High School  
Architecture and Conservation, P.C.  
Art Gecko  
Beye Elementary School  
Beyond Properties Realty  
Click Properties  
Community Bank Oak Park River Forest  
Compass Eye Care  
D90 Green For Good Committee  
Delta Institute  
Derby Lite, LLC  
District 100  
Dominican University  
Dominican University Brennan School of Business  
Dominican University Center for Global Peace Through Commerce  
Downtown Oak Park Association  
East Avenue Book Club  
Energy Audits of Chicagoland  
Euclid Avenue United Methodist Church  
Expressions Graphics  
Fair Oaks Presbyterian  
Farther Foundation  
First United Church of Oak Park  
First United Methodist Church of Oak Park  
Fitness Formula Club  
Flavor City Studios  
Four Thick Walls  
GAPScore, Inc  
Good Heart Work Smart Foundation  
Good Shepherd Lutheran Church  
Grace Episcopal  
Grace Lutheran Church  
Grace Lutheran Church School  
Green Blocks  
Green Community Connections Forum

Green Energy Improvement  
Green Home Experts  
Green Sanctuary Committee of Unity Temple Unitarian Universalist Congregation  
Greening Advisory Committee - Park District of Oak Park  
Greenline Wheels  
Harrison Works Art Gallery  
Holmes Zero Waste Team  
Illinois Recycling Association  
Interfaith Green Network  
Interfaith Green Network  
It's A Sign  
Julian Middle School  
Keystone Triangle Neighborhood Association  
League of Women Voters of Oak Park and River Forest  
Lincoln Elementary PTO  
Lumpkin Family Foundation  
Marion Street Cheese Market  
Nevin Hedlund Architects  
North Avenue Business Association  
Oak Park Apartments.com  
Oak Park Art League  
Oak Park Arts Council  
Oak Park Arts District Business Association  
Oak Park Conservatory  
Oak Park Development Corporation  
Oak Park Energy Initiative  
Oak Park Friends Meeting  
Oak Park Housing Authority  
Oak Park Residence Corporation  
Oak Park River Forest Community Foundation  
Oak Park River Forest Youth Football League  
Oak Park Youth Baseball Softball  
Osage, Inc.  
Park District of Oak Park  
Pilgrim Community Nursing School  
Pilgrim Congregational Church  
Q4 Consulting  
Rave Wines  
River Forest Pediatrics  
River Forest Public Library  
Roosevelt Middle School PTO

Root-Riot Urban Garden Network  
Sahagian & Associates, Inc.  
Semiramus Studio  
Seven Generations Ahead  
South East Oak Park Community Organization  
Squash Blossoms  
St. Christopher Episcopal  
St. Giles Catholic Church  
St. Luke's Parish  
St. Luke's Parish School  
Sugarcup Trading  
The Buzz Café  
The Kinderhook Tap  
The Madison Street Business Association  
The Power of Ten  
The Printing Store  
The Tennis and Fitness Center  
The Village Greener  
Urban Sprout Garden Design  
Val's halla Records  
Village of Oak Park  
Village of River Forest  
West Cook YMCA  
West Suburban Medical Center  
Whittier PTO Green Team  
Whole Foods Market of River Forest  
Willard Elementary School PTO  
Wonder Works, a Children's Museum in Oak Park

## ADDENDUM 4: SUMMARY OF CURRENT OPRF COMMUNITY SUSTAINABILITY ACTIVITIES

The institutions of Oak Park and River Forest are critical to the successful implementation of PlanItGreen: The Environmental Sustainability Plan for Oak Park and River Forest. The level of their engagement will be a key measure of success for the plan and its implementation. All of the community institutions in Oak Park and River Forest have initiated some level of planning and implementation around sustainability over the past several years, with some more advanced than others.

The Summary of Current OPRF Community Sustainability Activities is designed to give readers a sense of the activities that have already been implemented to date, as well as activities that are in process of being implemented. Having this overview will ideally help sharpen the strategies proposed in the previous PlanItGreen sections as we go through the revision process of the Plan between January and June 2011, and generate a Final Plan that builds upon the great strides that have already been taken by institutional leaders in both communities.

The institutions included in the final summary will ultimately include Oak Park and River Forest Village governments, park districts, libraries, school districts and large individual private schools, universities, faith-based congregation networks, business associations, hospitals, and community organizations. The current list assembled to date is incomplete, and will be added to in the coming weeks. While some initiatives may go unrecorded in this summary, our intention is to provide enough of a snapshot to inform future planning and implementation decisions related to PlanItGreen.

### Oak Park

#### Park District of Oak Park

1. Installed hundreds of additional trees and shrubs in our parks with recent improvements at Longfellow, Fox, Maple, Euclid Square, Field, Randolph Tot Lot, Rehm and Wenonah Tot Lot.
2. Installed permeable poured-in-place rubberized surfacing at Field, Longfellow, Fox, Randolph Tot Lot and Wenonah Tot Lot.
3. With the recent improvements at Maple Park, we used the new practice of root aeration for trees that have roots grown under concrete or asphalt. We are proposing it also for the 2011 improvements at Taylor Park.

4. Installed cisterns at the Conservatory.
5. Installed permeable decomposed granite in acceptable areas such as our dog parks at Ridgeland Common and Maple Park, and we also installed it around the WWI Memorial in Scoville Park.
6. Installed a high efficiency motor and variable speed drive on the pool filter at Rehm.
7. Installed a more energy efficient boiler system in Cheney Mansion.
8. Created the Greening Advisory Committee to assist us in creating policy, implementing sustainable practices and getting the word out there.
9. Installed more recycling receptacles at our facilities such as the 218 Madison Office, Conservatory, core Centers, and both pools.
10. Sought opportunities to purchase flex-fuel vehicles through the State of Illinois Purchasing Program.
11. Installed a new more energy efficient boiler system in the Pleasant Home.
12. Use environmentally friendly cleaning products, as listed on the State of Illinois Green Cleaning Schools Guidelines.
13. Conducted energy audits at Andersen and Longfellow Centers.
14. Installed 1.5 gallon restrictors on all pool showers at Ridgeland Common and Rehm Pool.
15. Purchased an automatic pool vacuum which reduces the dumping of pool water, chemical use, and gas use to heat up the water.
16. Purchased a battery powered ice edger, reducing gas usage and emissions.
17. In 2010, conducted a prairie planting prescribed burn at Lindberg Park.
18. Encouraged people to ride their bikes to our summer events.
19. Worked with TOPS to have a green friendly swim meet over Father Day weekend.

20. Created an Environmental Policy which includes a tree management policy.
21. Created a Green Team to recruit citizen volunteers as park stewards.
22. Created online (paperless) registration for programs/classes.
23. Moved to online only employment applications for thousands of annual applications.
24. Required reusable water bottles for all summer camps.
25. Renovated the Conservatory's two historic glass greenhouses with high efficiency heat distribution systems and automated heat blanket/sun screen to hold in heat in winter and shade from sun in summer.
26. Created summer camps that get children outside and active every day.
27. Installed permeable pavers along walkway at Carroll Park.
28. Lead abatement of steel and wood fencing at Cheney Mansion.
29. Lead abatement of all five growing and display rooms at the Conservatory.

### **Park District of Oak Park Proposed Activities**

1. The boiler systems at Fox, Longfellow and Stevenson Centers and the Conservatory will be replaced with a more energy efficient systems.
2. In the process of putting all our tennis courts lights on a timer relay system.
3. Install energy efficient sport light fixtures at Stevenson and Ridgeland Common.
4. Install more energy efficient boilers at Longfellow, Fox Stevenson, Barrie and Field Centers. Current boilers are from the 1960's.
5. In coordination with the Village, possibly develop a community recycling site where citizens could drop off various materials to be recycled (i.e., computers, paint, etc.).

6. We plan to do another prairie planting prescribed burn at Lindberg Park in 2011 and will conduct other prescribed burns at Austin Gardens, Field and Barrie Parks.
7. Install more rain barrels at our facilities.
8. Implement the “Take in, Take out” program for sport affiliate groups that use our facilities. Sport affiliate groups would be responsible for collecting and taking any disposable or recyclable materials with them after their event that they brought in before their event

### **Oak Park Elementary School District 97**

1. The majority of washroom paper products were converted to a Green Seal certified standards in the 00-01 school year. Since that time, all other washroom paper products that do not have a Green Seal certification are 100% recycled.
2. Where practical, all waste-can liners have had majority-recycled content since the 99-00 school year. The current recycled content of all waste liners is 100%.
3. The first chemicals conversions to Green Seal certified standards was during the 04-05 school year and was largely completed as of the beginning of this school year. With the exception of floor finish, heavy duty floor cleaner and special use items (drain cleaner and insecticides) remain to be converted and green alternatives are being tested.
4. All long-tube and u-bent fluorescent bulbs purchased have met low-mercury ECO standards since the 99-00 school year. During the summer of 08, all T-12 fluorescent light bulbs have been replaced with high-efficiency T-8 fluorescent light bulbs.
5. Compact fluorescent bulbs have been available for regular use to replace incandescent bulbs since the 01-02 school year.
6. Starting in the 03-04 school year, only HEPA vacuums have been purchased to improve the air quality within the buildings.
7. Starting at the beginning of this school year, regular in-service training sessions have been provided to the custodians in “Green” cleaning methods. The most recent training session included “Green” methods of disinfection for the MRSA Staph bacteria.

8. More intense attempts to recycle waste have been implemented. Since the 02-03 school year, all textbooks have been disposed of through recycling and, as of the 06-07 school year, all tech waste has been recycled.
9. During the 07-08 school year, half of the Ice Melter that the district uses has been shifted to a "Green" alternative. Currently, it is only available in 50lb+ bags so it was not distributed to the schools but kept for use in the truck mounted spreader. As the heavier bags were found to increase the occurrence of work place back injuries, the "Green" alternative will not be distributed until it is available in lighter -25lb bags.
10. In the summer of 08, the district completed its "Green" conversion and currently exceeds the minimum standards of the Green Clean Schools Act.
11. Implemented Zero Waste Schools Program in majority of schools, which generated increased recycling, food scrap composting, and waste source reduction.

### **OPRF High School Current Sustainability Activities**

1. Replaced old steam boilers with 6 new energy efficient boilers in 2005/2006.
2. Added 2 hot water boilers to South end of building to reduce hot water heating cost from exiting boilers 2010.
3. Replacing leaking hot and cold water pipes in basement to save on water loss 2011-2012.
4. Added air chambers to vestibules to reduce heat loss.
5. Replaced exterior windows in new building with high E window to reduce heat loss 2005.
6. Replaced roof and added insulation value to reduce heat loss 2004-2005
7. Adding VFD`s and digital controls to new HVAC units. 2009 – 2014.
8. Added mandatory recycling for all construction projects from outside firms to specifications 2009.

9. Increased the amount of recycling to garbage ration by 50% 2009.
10. Worked with environmental club on a campus garden to raise vegetable for local families 2011.
11. Conversion of T-12 lights to T-8 and new ballast to reduce electrical consumption. Also adding occupancy sensors to classrooms and offices 2010.
12. Updated building automation controls to reduce running heat and AC when rooms are not occupied 2009.
13. Increase Bike racks around the School to encourage increase bike usage 2010.
14. Adopted Board policy for energy code 2011.
15. Going Paperless for payroll, Purchasing, time-off request, time keeping, Board packets, other notices to community and staff, netbooks for instructional materials and other reductions in paper.
16. Green containers for food service.
17. Recycle products in field turf.
18. Received Green award from Johnson Diversey for Custodial "Green Cleaning" in 2007.
19. Began organic chemical usage on sports fields in 2007.
20. Added green machine to Chiller plant to eliminate chemical use in water in 2009. This reduces the water usages and chemical usage.
21. Added Reverse osmosis to Boiler plant to reduce chemical usage in Boilers. This also reduces water usage by eliminating unnecessary blow down of boilers.

## **Village of Oak Park**

1. Earning platinum designation from Clean Air Counts and the Metropolitan Mayors Caucus.
2. Signing the U.S. Conference of Mayors' Climate Protection Agreement.

3. Being an Illinois Green Fleets community by maintaining one of the region's largest alternative-fuel municipal vehicle pools.
4. Creating and hosting annual Green Fleets Expo at Public Works Center, where government fleet managers could see and test the latest in alternative fuel vehicles.
5. Hosting a GreenTown Conference, which brought more than 200 officials to Oak Park to discuss ways to make communities more eco-effective.
6. Construction of a green Public Works Center, the first in Illinois to seek and earn gold certification from the Leadership in Energy and Environmental Design (LEED) program of the U.S. Green Building Council.
7. Creating a multi-modal station in the central downtown area that links mass transit systems.
8. Purchasing Energy Star equipment for all municipal offices.
9. Conducting an energy audit at Village Hall and creating an implementation plan for retrofits.
10. Sponsoring a gasoline-powered lawn care equipment exchange.
11. Maintaining native plantings in commercial planters and landscaped areas.
12. Adopting seasonal leaf blower restrictions.
13. Using public education to encourage residents to reduce pollution on Ozone Action Days.
14. Sponsoring *car-free* Sundays, where families leave their cars at home to walk and bicycle.
15. Creating *Idling Gets You Nowhere* education campaign to encourage school bus drivers, residents and businesses owners to turn off their vehicle engines to save fuel and reduce harmful emissions.
16. Adopting policies to use low volatile organic compound (VOC) paints and cleaning products in public buildings.

17. Sponsoring regular community paint exchanges that recycles and properly disposes of paint.
18. Encouraging water conservation by promoting rain barrel programs and joining the USEPA WaterSense program.
19. Participating in programs that support the anti-litter goals of Keep America Beautiful, Keep Illinois Beautiful and Keep Oak Park Beautiful.
20. Creating and sponsoring the Worm Ambassador's Program, which encourages schools to adopt vermicomposting – the use of worms to create a rich, organic mulch.
21. Amending Village code to permit backyard composting.
22. Researching, developing and implementing a bicycling plan that includes identifying safe bike routes, marking streets with bike lanes, increasing the number of bike racks at transportation hubs and encouraging residents to bike to work, school and shopping.
23. Converting traffic signals and emergency vehicle lighting systems to efficient LED.
24. Installing energy efficient induction and solar-powered streetlights in select areas.
25. Identifying and applying for federal, state and local funding opportunities to support sustainability projects, including funding for solar panels on The Avenue public parking garage.
26. Adopting the International Energy Conservation Code.
27. Hosting EarthFest at the Public Works Center in honor of the 40th anniversary of Earth Day, featuring over 30 local businesses offering a variety of eco-minded goods and services.
28. Coordinating a 350.org march and rally with the Oak Park and River Forest High School Environmental Club to raise awareness of the earth's dangerous carbon dioxide content.

29. Installing 350 signs throughout the Village to raise public awareness of the importance of reducing carbon dioxide levels in the atmosphere to reverse climate change.
30. Coordinating an urban gardening information movement that is working toward creating a community vegetable garden.
31. Participating in Commonwealth Edison' Smart Meter Pilot Program that installed nearly 27,000 electric meters that will allow building owners to track their electric use.
32. Testing LED, induction and other energy efficiency technology for streetlights.
33. Installing new water meters that detect leaks and provide other water conservation tools.
34. Using digital (paperless) repair orders, accessible by computer.
35. Recycling used oils and antifreeze.
36. Creating a bicycle fleet for village employees made possible by unclaimed bikes from the Oak Park Police Department's impound.
37. Training mechanics for bike repairs.
38. Installing pollution-slashing filters and ventilation systems on diesel trucks.
39. Organizing "Green Fleet" expos in 2009 and 2010 which showcased alternative fuel vehicles available for government fleets.

### **Village of Oak Park Activities in Progress**

1. Addition of 95 KW solar PV array at the Avenue parking garage.
2. Lighting Retrofit and automation at Village Hall.
3. Facilitated start of Root Riot, an urban garden organization with gardens on Madison Street and in the Austin Neighborhood.

4. Offering a retrofit ramp-up style program for 2-4 flat owners which will allow them access to \$10,000 in grant and revolving loan funds for energy efficiency and other upgrades and improvements.
5. Staff has recommended to the Board that Oak Park put a community aggregation referendum on April's ballot to allow the village to facilitate aggregating residential and small commercial electric accounts and go out to bid for a cleaner, cheaper power supply.
6. Organizing the second annual EarthFest for May 2011 to showcase local eco-minded businesses and organizations.
7. Passed an ordinance allowing for free parking and village stickers for electric vehicles for a two-year period starting January 2011.

## River Forest

### **Dominican University**

1. Installation of Permeable Pavers
  - Provide natural drainage on campus.
  - Better water management: Reduces water sent to municipal storm sewer system by over 3.6 million gallons per year.
  - Engineered systems of stone, filter fabric and topping to cleanse the water as it percolates into the ground naturally.
  - Able to preserve mature trees and aid growth of new by providing water at roots.
2. Retrofit of Ventilation System
  - 1931 system altered to air condition building.
  - Provides better air movement and increased comfort.
  - Reduces the amount of air conditioning required.
  - Allowed removal of inefficient window air conditioners in Lewis Hall.
3. Bioswale
  - Able to contour around mature trees.
  - Consists of native plants.
4. Campus Irrigation
  - Use circa 1920s cistern and new well/pump system.
  - Also used for Parmer Hall's air conditioning system.

- Reduces potable water purchased by 4-6 million gallons per year.
5. Energy Management System
    - Building Automation System for controls.
    - Occupancy sensors.
    - Solar powered lights.
    - Borrowed lighting.
    - Day lighting.
    - Heat recovery.
    - Purchased Energy Efficient Boilers (saves 100,000 therms per year).
  6. Lighting Fixtures Upgrade
    - Energy efficient lighting installed.
    - Saves 148,000 watts per year.
  7. Parmer Hall Construction
    - Followed LEED (Leadership in Energy and Environmental Design) criteria in design and construction.
    - Used 27% recycled content.
    - Bought 73% of material locally.
- Replanted more caliper of trees than removed during construction.
8. Utilization of Materials Management
    - Salvage and reuse materials.
    - Practice green cleaning.
    - Use rapidly renewable wood for construction.
  9. Parking Garage
    - Hybrid and electric parking in parking garage.
    - Day lighting (light levels automatically dim if natural light levels are high).

## **River Forest District 90**

1. Established Green4Good, a District Level group of parents in district administrators working toward making district 90 Greener.  
<http://www.district90.org/subsite/dist/page/green-team-1385>
2. Switched to a milk vendor that provides rBGH-free milk for entire district
3. All PTO and District communications have been switched to electronic.

4. Established an electronic community bulletin board- paper flyers for outside organizations no longer go home in "Thursday folders".
5. Green4Good Gazette (environmental newsletter) is published quarterly and sent to all district90 families.
6. Quarterly G4G presentations to School board.
7. Established Recycling fact sheets and Zero Waste Events guides for school events.
8. Performed waste audits at all three schools.
9. Upgraded to larger recycling dumpsters with Roy Strom Waste Hauling contract to improve commingled single-stream recycling at all buildings.
10. 100% schools are composting their food scraps from lunch (1st district in cooks county)
11. Switched out bottled water for water coolers & biodegradable cups for Friday Fun Lunches.
12. Instituted Bulk purchasing for biodegradable food service supplies for fun lunches.
13. PTOs purchased reusable tablecloths for school events.
14. Organic vegetable garden planted at Willard.
15. Designed Summer school Gardening Class curriculum for District.
16. Designed composting curriculum/presentation for all Middle School Science Classes.
17. Published "20 Things Kids in River Forest Can Do to Help the Planet" book with Willard 1st grader's art.
18. Established student green teams at elementary schools.
19. Rolled out community-wide "All Heads In Helmets" program for bicycle safety.

20. Partnered with Public Library to share composter at Roosevelt Middle School.
21. Upgraded lighting through Illinois DCEO grants and performed Energy Audits at all three schools.
22. Renovations at all three schools include water efficient and energy efficient & other green features.
23. Earth week activities at all three schools have been coordinated to collect for Nike Reuse a shoe program and jeans collection for upcycling at Oak-Leyden Developmental Services Job Training Program.
24. Annual collection of coats & boots & books for reuse at the Children's Clinic in Oak Park.

## ADDENDUM 5: BASELINE METRIC DATA

Provided by Center for Neighborhood Technology

### Introduction

The Baseline Metric Data for the Village of Oak Park and the Village River Forest includes Energy Use, Transportation, Solid Waste, Water Use, Emissions, and Air Quality. Currently, there are no standardized methods for municipalities to collect, report, and store data. Therefore, the data gathered and analyzed for this Baseline Metric Study varies for certain sections for Oak Park and River Forest. For this reason, the data for each village is reported separately in this study.

### Oak Park Energy Use

All energy use data for the Village of Oak Park includes energy consumed in buildings, including outdoor lighting associated with the building. The majority of all energy consumption in the United States occurs in buildings; therefore, the analysis of building energy use is essential in developing strategies to reduce energy consumption and cost.

All of the following energy use data involved examining premise level data from ComEd and Nicor.

**Total Energy Consumption.** Total energy consumption includes 2007 village-wide electricity and natural consumption. Total energy consumption is measured in KBTU (Kilo British Thermal Unit). Electricity (kWh) and natural gas (therms) are converted into KBTU, which allows for comparison between electricity and natural gas consumption.

The table to the right is a summary of 2007 total energy (electricity and natural gas) consumption in Oak Park measured in KBTU, analyzed by the residential sector and the commercial/industrial (C & I) sector. In 2007, Oak Park consumed a total of 4.6 billion KBTU.

Oak Park Total Energy Consumption, 2007	
	Total KBTU
Residential	2,437,626,759
C & I	2,204,905,272
Total	4,642,532,030

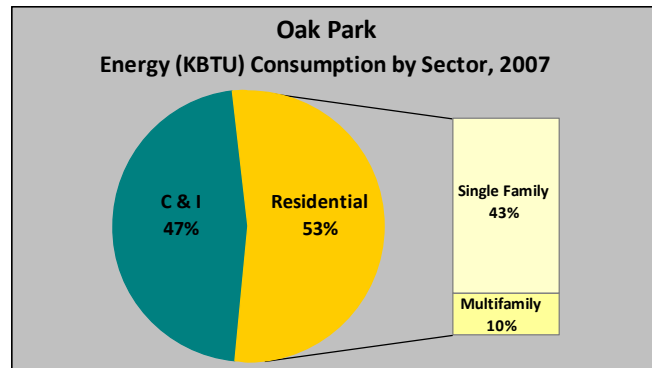
The figure below illustrates that 53 percent of energy consumed in buildings occurred in the residential sector, with the remaining 47 percent consumed in the commercial/industrial sector. Residential energy consumption is further analyzed; of the 53 percent, 43 percent was consumed in the single family sector and 10 percent in the multifamily sector.

## Oak Park Electricity Consumption

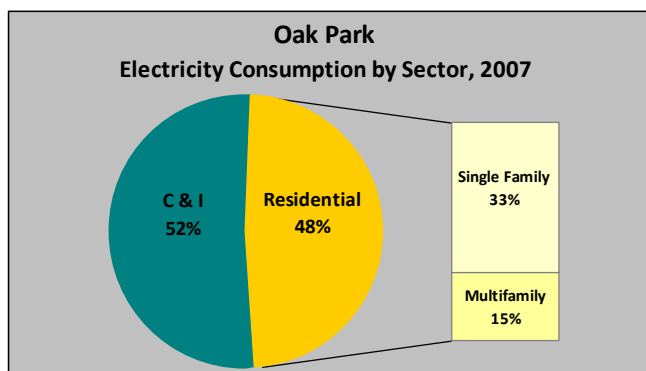
Electricity is measured in kilowatt hours (kWh). Electricity consumption in both the residential and commercial/industrial (C & I) sectors is currently increasing nationwide.

Growth in consumer electronics and information technology equipment, as well as an increase in home size and air conditioning use are prominent reasons for consumption increases in the residential sector. In the C & I sector, increasing consumption is driven by telecommunication and network equipment; along with specialized technologies such as medical imaging advancements.

In 2007, Oak Park consumed 353 million kWh, of which 48 percent was consumed in the residential sector and 52 percent in the commercial/industrial sector. Of the 48 percent consumed by the residential sector, 33 percent was consumed in the single family sector and 15 percent in the multifamily sector.



Oak Park Electricity Consumption, 2007	
	kWh
Residential	169,993,151
C & I	183,707,687
Total	353,700,838



The table to the left examines the average annual electricity consumption by unit for both the residential and commercial/industrial sector. Various factors affect electricity consumption; some include square footage, the presence and efficiency of air conditioning, efficiency of lighting, appliances and systems, and individual behavior.

In 2007, households in Oak Park consumed an average of 7,807 kWh and paid an average of \$840 for electricity consumption. Whereas, commercial & industrial customers consumed an average of 67,814 kWh and paid an average of \$6,008 for electricity consumption. It is important to remember particularly in reference to the commercial &

industrial sector, that consumption and cost per unit is an average; size, function, and activities vary greatly between commercial/industrial customers.

<b>Oak Park Electricity Consumption &amp; Cost by Unit, 2007</b>			
	<b># of Units*</b>	<b>Annual Average kWh per Unit</b>	<b>Average Annual \$ per Unit</b>
<b>Residential</b>	21,775	7,807	\$840
<b>C &amp; I</b>	2,709	67,814	\$6,008

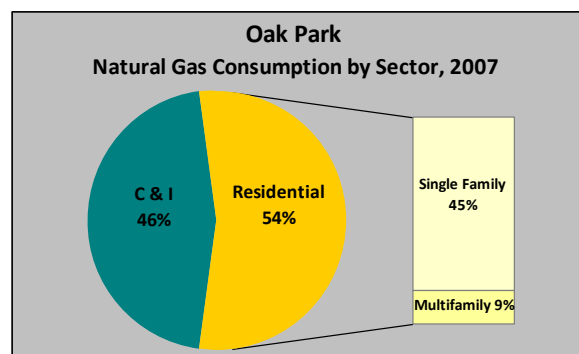
\*Residential # of Units = # of Households; C & I # of Units = Accounts

Natural gas is measured in therms. In Northern Illinois, natural gas is the primary space heating fuel. In addition to space heating, natural gas is commonly used for hot water heaters, clothes dryers, and cooking in the residential sector. However, natural gas consumption has been decreasing slightly over time in both the residential and commercial/industrial sectors as homes and buildings become more efficient and de-industrialization occurs.

In 2007, Oak Park consumed 34 million therms, of which 54 percent was consumed in the residential sector and 46 percent in the commercial/industrial sector.

<b>Oak Park Natural Gas Consumption, 2007</b>	
	<b>Therms</b>
<b>Residential</b>	18,576,101
<b>C &amp; I</b>	15,780,946
<b>Total</b>	34,357,048

Of the 54 percent consumed by the residential sector, 45 percent was consumed in the single family sector and 9 percent in the multifamily sector.



The table to the left examines the average annual electricity consumption by unit for both the residential and the commercial/industrial sector. Factors that can affect natural gas usage include building size, building age, building envelope efficiencies, efficiency of the furnace, boiler and water heater, as well as building operations and maintenance.

In 2007, households in Oak Park consumed an average of 853 therms and paid an average of \$757 for natural gas consumption. While commercial & industrial customers consumed an average of 8,328 therms and paid an average of \$7,084 for natural gas consumption. It is important to remember particularly in reference to the commercial &

industrial sector, that consumption and cost per unit is an average; size, function, and activities vary greatly between commercial/industrial customers.

Oak Park Natural Gas Consumption & Cost by Unit, 2007			
	# of Units*	Annual Average therms per Unit	Average Annual \$ per Unit
Residential	21,775	853	\$757
C & I	2,709	8,328	\$7,084

\*Residential # of Units = Households; C & I # of Units = Accounts

## Oak Park Municipal Facilities, Energy Use Intensity (EUI)

This section examines energy consumption in Oak Park municipal buildings. These include:

1. Oak Park Village Hall
2. Oak Park Public Works Center
3. Dole Learning Center
4. Main Fire Station
5. North Fire Station
6. South Fire Station
7. Holley Court Parking Garage

Through analysis of 2007 energy consumption data and facility square footage, the energy use intensity (EUI) of each building can be calculated; EUI is measured in KBTU per square foot per year. This metric normalizes energy usage by size of building metric to enable comparison of how energy is consumed on a square foot basis.

Reviewing EUIs of municipal buildings can help identify those with the largest energy consumption per square foot to target for retrofits and energy efficiency measures. The lower the EUI, the less energy is being used per square foot. However, EUIs are relative to the function of the building. Therefore, one should not compare EUIs of municipal buildings with different functions, but rather compare to types of similar buildings with similar functions. For example, the EUI of the Water Treatment Plant is expected to be high (400s) given its function. In contrast, EUI of 150 for an office building is high.

Another important value of EUIs is comparing EUIs of the same building from year to year. This comparison helps measure the success of any implemented energy efficiency measures. Understanding and measuring EUIs can be a starting point to flag potential issues, target buildings for more in-depth audits, then identifying and implementing strategies for improving energy efficiency based on those audits.

## Oak Park Village Hall

Facility Details	
Address	123 Madison St. Oak Park, IL 60302
Square Footage	73,000
Activities	Main municipal building which houses all municipal departments except Public Works and Fire Department. Facility is heavily used by the public. All Village Board meetings take place at the Village Hall.

Energy Data, 2007		
	Energy Consumption	EUI
Electricity	TBD	TBD
Natural Gas	TBD	TBD
Total	TBD	TBD

## Oak Park Public Works Center

Oak Park opened a new Public Works Center in late 2007, which is certified gold green building by LEED (Leadership in Energy and Environmental Design). It was the first Illinois public works facility to received LEED certification. However, due to the Center's recent construction, energy data is unavailable for 2007; therefore, for the Center 2008 data has been analyzed.

Facility Details	
Address	201 South Boulevard Oak Park, IL 60302
Square Footage	155,000
Activities	All Public Works operations, including Engineering; Public Works Administration; Forestry; Water & Sewer Services; Street Services; Building Maintenance; and Fleet Services. Fleet Division maintains the Village's entire fleet including fire, police, all Public Works, and some Park District vehicles.
Systems/Equipment	Entire building is electric. The only things that use natural gas are the CNG station (compressed natural gas station used for bi-fuel Cavaliers) and clothes dryer in the lower level of the building.

Energy Data, 2008		
	Energy Consumption	EUI
Electricity	3,170,292 kWh	69.79
Natural Gas	1,366 therms	0.88
Total	10,953,622 KBTU	70.67

## Dole Learning Center

Facility Details	
Address	255 Augusta Boulevard Oak Park, IL 60302
Square Footage	19,700
Hours of Operation	Monday - Friday, 8:30am to 12:30pm Saturday, 8:00 to 11:00 am
Activities	Houses one of Oak Park's public library and the Park District Office. The Center is also used by the public and the Park District holds classes including fitness and recreation.

Energy Data, 2007		
	Energy Consumption	EUI
Electricity	TBD	TBD
Natural Gas	10,919 therms	55.43
Total	TBD	TBD

## Main Fire Station

Facility Details	
Address	100 North Euclid Avenue Oak Park, IL 60301
Activities	Fire Station Activities

Energy Data, 2007		
	Energy Consumption	EUI
Electricity	4,166 kWh	Need Square Footage
Natural Gas	4,036 therms	
Total	417,857 KBTU	

## North Fire Station

Facility Details	
Address	212 Augusta Boulevard Oak Park, IL 60302
Activities	Fire Station Activities

Energy Data, 2007		
	Energy Consumption	EUI
Electricity	38,324 kWh	Need Square Footage
Natural Gas	3,266 therms	
Total	457,379 KBTU	

## South Fire Station

Facility Details	
Address	900 South East Ave Oak Park, IL 60304
Activities	Fire Station Activities

Energy Data, 2007		
	Energy Consumption	EUI
Electricity	62,580 kWh	Need Square Footage
Natural Gas	4,826 therms	
Total	696,167 KBTU	

## Holley Court Park Garage

Facility Details	
Address	1125 Ontario Court Oak Park, IL 60302
Activities	Public Parking Facility

Energy Data, 2007		
	Energy Consumption	EUI
Electricity	17,955 kWh	Need Square Footage
Natural Gas	433 therms	
Total	104,577 KBTU	

## Oak Park Energy Consumption for Selected Buildings

This section includes energy consumption data for selected buildings that are considered to be some of the larger consuming facilities in Oak Park. This data can be used as a benchmark to help measure progress in reducing energy consumption and costs for any implementation of energy efficiency strategies.

### Oak Park Library, Main Branch

834 Lake Street Oak Park, IL 60301

Energy Consumption Data		
	2007	2008
Electricity (kWh)	2,339,320	2,277,262
Natural Gas (therms)	34,883	44,578
Total (KBTU)	11,470,067	12,227,823

### Oak Park Library, Maze Branch

845 Gunderson Avenue Oak Park, IL 60304

Energy Consumption Data		
	2007	2008
Electricity (kWh)	162,900	211,140
Natural Gas (therms)	2,909	3,910
Total (KBTU)	846,665	1,111,418

### School District 97

Includes 8 elementary schools and 2 middle schools

Energy Consumption Data		
	2007	2008
Electricity (kWh)		
Natural Gas (therms)		
Total (KBTU)		

## Oak Park River Forest High School

201 North Scoville Avenue Oak Park, IL 60302

Energy Consumption Data				
	Buildings		Stadium	
	2007	2008	2007	2008
Electricity (kWh)	6,461,997	6,183,436	TBD	TBD
Natural Gas (therms)	405,250	431,161	24,083	24,649
Total (KBTU)	62,573,383	64,214,015	TBD	TBD

## West Suburban Medical Center

845 3 Erie Court Oak Park, IL 60302

Energy Consumption Data		
	2007	2008
Electricity (kWh)	14,495,144	14,985,367
Natural Gas (therms)	952,683	771,573
Total (KBTU)	144,725,739	128,287,410

## Oak Park Transportation

There are various components of transportation that can be analyzed within a municipality. For this study, data is presented for vehicles miles traveled (VMT) and the municipal fleet and fuel use.

**Vehicles Miles Traveled.** Typically, transportation accounts for the second largest use of energy buildings. For this report, Vehicle Miles Traveled (VMT) was tabulated from travel statistics provided by the Illinois Department of Transportation (IDOT) and scaled to Oak Park based on IL EPA odometer data and population. All on-road travel on Oak Park roads accounted for approximately 357 million miles in 2007, which captures trips only within municipal boundaries. Further analysis shows, the average household in Oak Park drove 13,076 miles, totaling approximately 285 million miles for all Oak Park households.

Oak Park Vehicle Miles Traveled, 2007			
All On-Road VMT	Household VMT	# of HH	VMT per HH
357,468,138	284,739,866	21,775	13,076

**Municipal Fleet and Fuel Inventory.** The Village of Oak Park provided the following information for 2009 municipal fleet and fuel. Currently, Oak Park has a total of 250 vehicles and equipment, categories between smaller, less fuel consuming vehicles (passenger vehicles/light trucks) and higher consuming vehicles (large trucks/equipment).

Oak Park Municipal Fleet Inventory, 2009		
Types of Vehicle	Number	Details
Passenger Vehicles and Light Trucks	165	Includes: 4 hybrids, 2 police Segways 2 electric golf carts (parking facilities)
Large trucks and Equipment	85	—

Oak Park Municipal Fuel Purchases in Gallons, 2009	
Unleaded	Diesel
120,246	40,095

In 2009, Oak Park purchased 120,246 gallons of unleaded fuel and 40,095 gallons of diesel fuel for the village's municipal vehicles.

## Oak Park Solid Waste

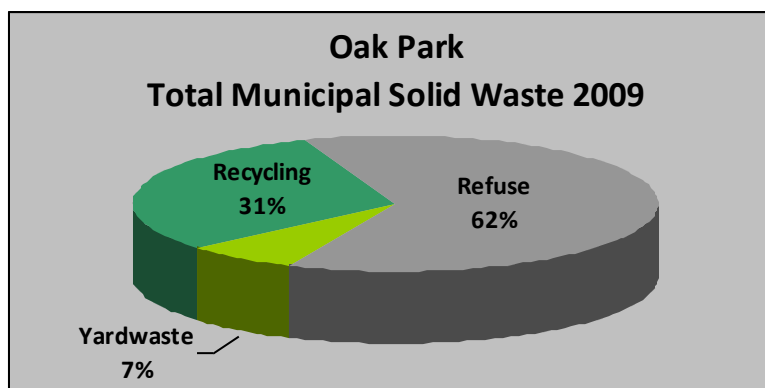
Municipal Solid Waste (MSW) is defined as the waste generated in resident's homes and work places in a municipalities. However, this typically refers to waste collection operated and controlled by elected local officials. In Oak Park, trash, recycling, and yard waste collection service is provided for all residential buildings up to five units; therefore, this collection identifies Oak Park's MSW. Waste Management, Oak Park's contracted hauler, provides a 96-gallon trash container at \$18.20 per month and 64-gallon trash containers at \$15.34 per month. Refuse and recycling costs are included in monthly water bills.

Larger multifamily buildings and commercial/industrial building collection service is contracted independently by each building owner. Currently, there is no standardization or enforcement of reporting waste collection data for these buildings. Therefore, the data presented below is incomplete; it does not represent a comprehensive picture of village-wide solid waste collection. It only reports on residential buildings up to five units. This is an area that Oak Park may want to explore in order to have a complete understanding of existing conditions in order to effectively and efficiently target strategies to reduce waste and increase recycling participation.

In 2009, Oak Park Municipal Solid Waste (MSW) totaled 17,964 tons, which include refuse, recycling, and yard waste. Although total recycling collected decreased from 2007 and 2008, the total diversion rate of 38 percent in

2009 increased due to a decrease in refuse collection and an increase in yard waste collection. Diversion rate refers to the percentage of waste diverted from traditional disposal such as landfills. Oak Park's recycling collection data includes 12,365 household units included in the municipal contract, as well as public litter baskets and special events collected by Public Works.

Oak Park Municipal Solid Waste					
YEAR	Tons				Diversion Rates
	Refuse	Recycling	Yard waste	Total	
2007	13,391	6,222	1,170	20,783	36%
2008	12,243	5,927	1,281	19,451	37%
2009	11,025	5,446	1,223	17,694	38%

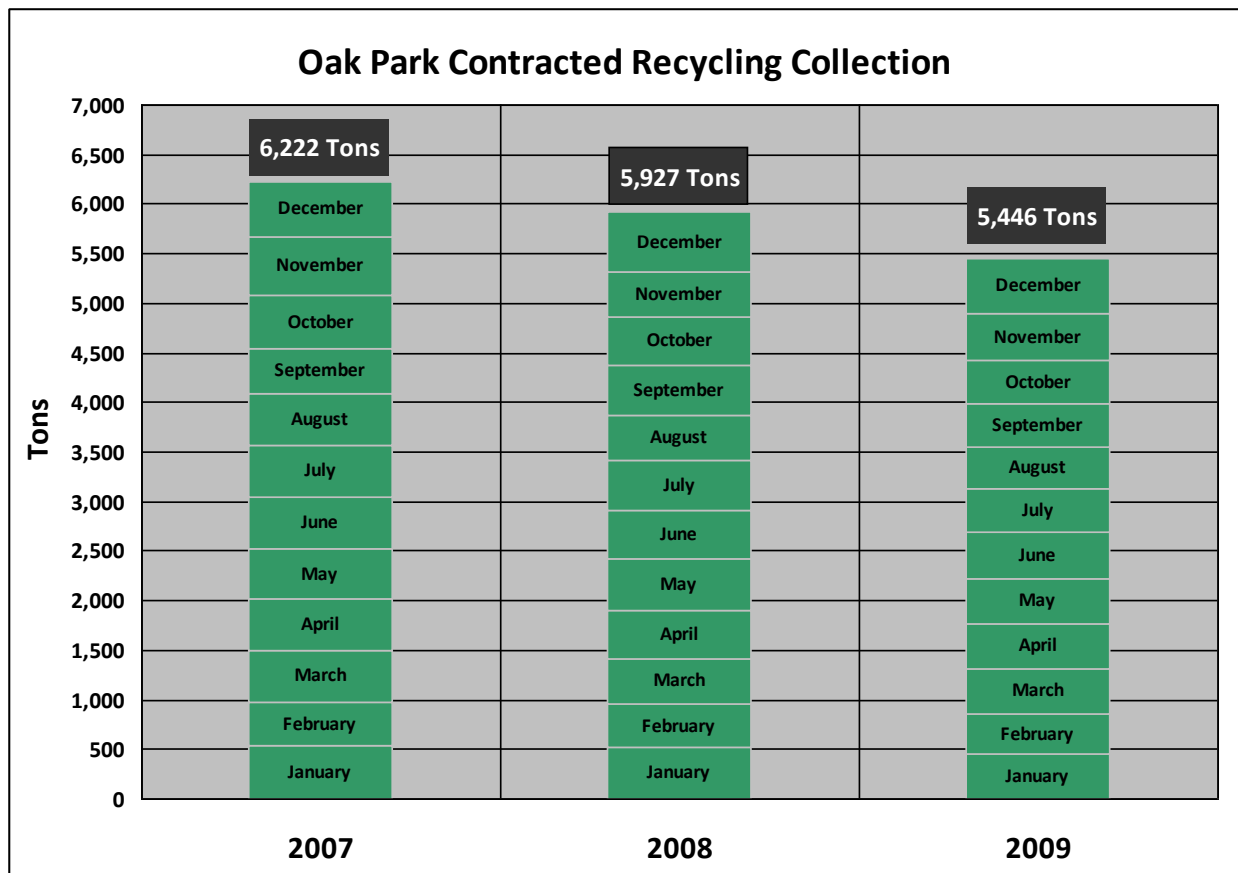


Oak Park, Leave Collection	
Year	Tons
2007	2,747
2008	2,692
2009	2,952

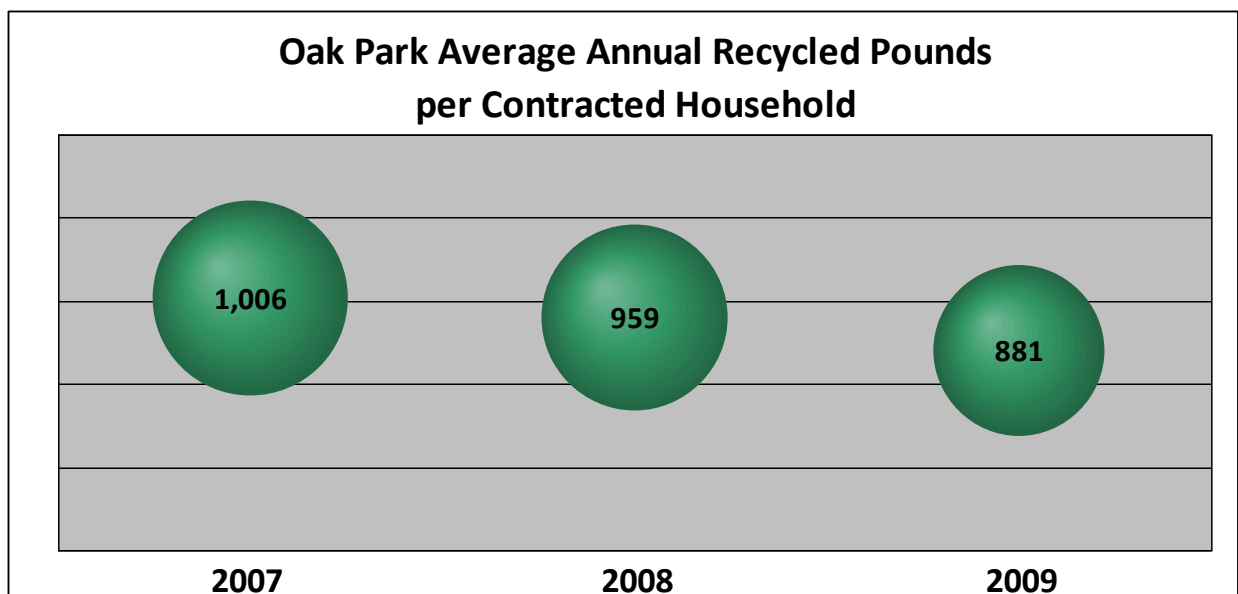
accounted for 4 percent of the total annual municipal solid waste collection. In addition to refuse, recycling, and yard waste collection in Oak Park, fallen leaves are taken to a farm where they are ground up and used as a soil amendment. This data is not included in yard waste.

For years 2007, 2008, and 2009, holiday green collections

The graph below provides a more detailed analysis of recycling collection data for Oak Park contracted services.



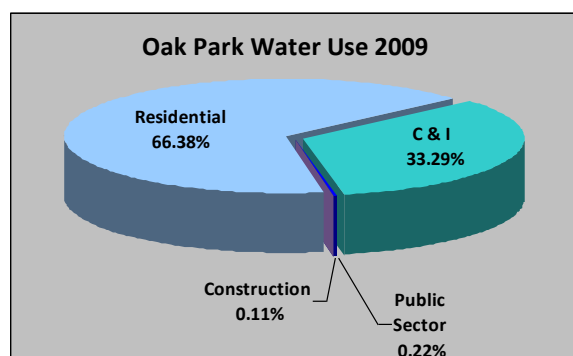
The figure below illustrates the average annual pounds each household recycled in 2007, 2008, and 2009. These households include those that receive services by Waste Management through the Oak Park municipal contract (12, 365 units)



## Oak Park Water Use

The Village of Oak Park records water use by four categories, as listed in the water use and cost table below. The residential sector consumed the largest percentage of water by a significant amount, typical for a community's water consumption. The lowest water consumption occurred in the construction sector.

Oak Park Water Use and Cost		
User	2009	
	Usage (1,000 gallons)	Cost
Residential	1,118,725	\$4,754,581
Commercial/Industrial	561,005	\$2,384,271
Public Sector	3,650	\$4,855
Construction	1,825	\$8,815
Total	1,685,205	\$7,152,522



Water charges (per 1,000 gallons) vary for each sector. For 2009, Oak Park water charges were \$4.25 per 1,000 gallons for the residential and commercial/industrial sector; \$1.33 per 1,000 gallons for the public sector, and \$4.83 per 1,000 gallons for the construction sector. Due to the difference in charges, although the construction sector consumed less water than the public sector, the total water costs in 2009

for the construction sector were higher.

Oak Park Average Household Water Use, 2009		
Total Residential Use	Average Annual Water Use per Household	Average Daily Water Use per Household
Gallons		
1,118,725,000	51,377	141

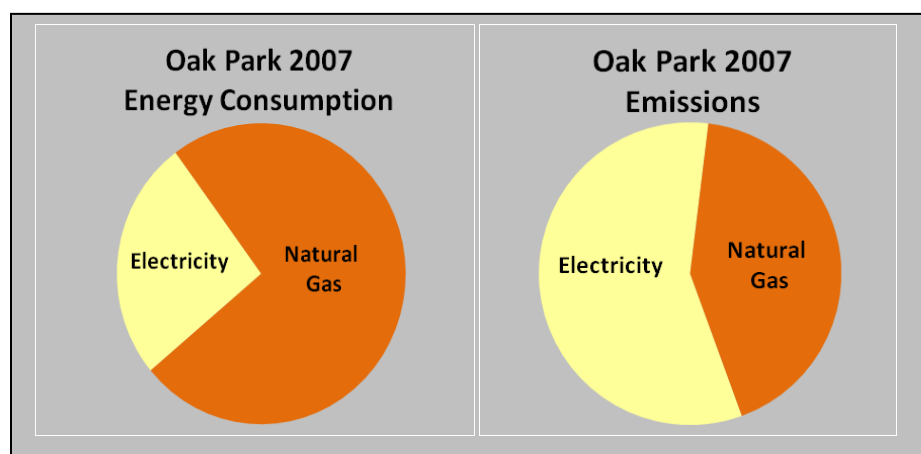
At the residential level, in 2009 the average household in Oak Park consumed 141 gallons daily, totally 51,377 gallons annually.

## Oak Park Emissions

**Energy versus Emissions.** In addition to understanding energy consumption, it is important to recognize the relationship between energy and greenhouse gas emissions. Emissions attributed to electricity consumption are different from those attributed to natural gas consumption because of differences in the production of energy from different sources.

Most of the world's energy originates from the burning of fossil fuels including coal, petroleum, and natural gas. Fossil fuels consist of hydrogen and carbon, and when burned, the carbon combines with oxygen to create carbon dioxide.

However, all energy is not created equal. The actual amount of carbon dioxide produced for a given unit of energy depends on the carbon content of the fuel. Coal emits nearly two times the carbon dioxide per unit of energy compared to natural gas, while petroleum emits less carbon dioxide than coal but more than natural gas. Understanding this off balanced relationship is important when calculating emissions and identifying strategies to reduce emissions.



**Emissions Calculations.** Oak Park's emissions profile was calculated for 2007 using United Nations Intergovernmental Panel on Climate Change (IPCC) methods and local data sources in combination with modeling of national data to local demographics. All data presented are measured in metric tons (tons) or million metric tons (MMT) CO<sub>2</sub>e (carbon dioxide equivalent), to enable comparison internationally.

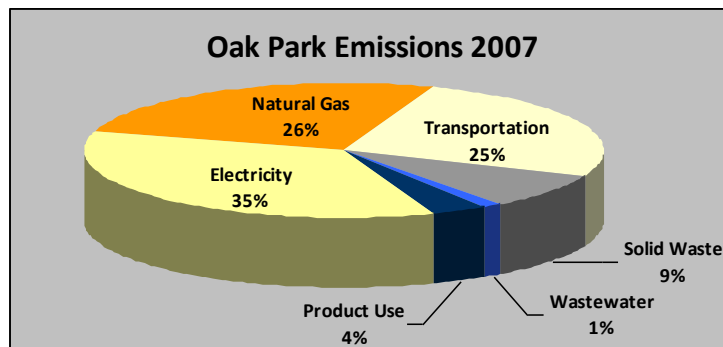
Emissions were calculated for the six major categories of greenhouse gases regulated under the Kyoto Protocol: carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>). Emissions were converted into CO<sub>2</sub>e using global warming potentials from the IPCC Fourth Annual Assessment Report. Activity data were translated into emissions using standard emissions factors and global warming potentials.

**Oak Park Emissions.** An energy profile in the community serves as the basis for conducting a community greenhouse gas emissions profile. In addition to energy and transportation, which are by far the biggest contributors to greenhouse gas emissions, this emissions profile includes estimates for solid waste, waste water, and product use based on regional totals previously analyzed for a regional profile developed for the Chicago Metropolitan Agency for Planning (CMAP).

Oak Park Emissions by Sector, 2007	
Sector	MMT CO <sub>2</sub> e
Electricity	0.247
Natural Gas	0.183
Transportation	0.179
Solid Waste	0.061
Wastewater	0.006
Product Use	0.026
<b>TOTAL</b>	<b>0.703</b>

The table to the left provides the breakdown of Oak Park emissions in 2007 by sector with a total of 0.703 MMT CO<sub>2</sub>e. The same year, Oak Park's emissions per capita was 13.67 tons of CO<sub>2</sub>.

The pie graph below illustrates the breakdown in percentage of emissions. Predictably, electricity was the largest contribution to emissions at 35 percent, with natural gas and transportation following.



This shows that buildings contributed over half of all emissions in 2007 at 61 percent. Clearly identifying strategies that target reducing energy consumption in buildings as an essential component in reducing greenhouse gas emissions.

## Oak Park Air Quality

While greenhouse gas emissions have a global impact, air quality is a local issue. Air pollutants have a direct impact on local health and environmental systems. Although greenhouse gas emissions and air quality pollutants often result from the same activities—such as burning fossil fuels—solutions for one aren't always beneficial for both. For example, producing electricity through burning biomass reduces emissions of anthropogenic CO<sub>2</sub>; however, this increases local particle pollutants emitted into the atmosphere. Another example is power plant scrubbers that remove pollutants from emissions improve air quality impacts, but do not address the CO<sub>2</sub> emissions of those plants.

Health impacts of air pollution are serious concern; however, effects differ significantly from person to person. High-risk groups include children, pregnant women, elderly, and those with chronic heart or lung diseases. Health impacts can be acute or chronic, varying from headaches and nausea to lung cancer. Studies even show those that live near a major highway are more susceptible to asthma and other respiratory diseases.

More detailed health impacts of specific air pollutants are discussed in the subsequent section.

**Legislation.** The primary law that addresses air pollution in the U.S. is the Clean Air Act. Enforced by the U.S. Environmental Protection Agency, this legislation works to ensure that air pollutant emissions are limited so that air quality meets health and environmental standards. This legislation includes several programs to regulate air pollution, which include: National Ambient Air Quality Standards (NAAQS), State Implementation Plans (SIPs), New Source Performance Standards (NSPS), and National Emission Standards for Hazardous Air Pollutants (NESHAPs).

The NAAQS established standards for six of the most common air pollutants known as “criteria” pollutants: carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>), ozone (O<sub>3</sub>), sulfur oxides (SO<sub>x</sub>), particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>), and lead (Pb). Ozone, while useful in protecting us from ultraviolet radiation in the upper atmosphere, poses a public health problem at ground level. Ground level ozone—a major part of smog—is formed when sunlight reacts with nitrogen dioxide and volatile organic compounds, which is why local air pollution can be particularly bad on hot summer days. Areas where air pollution levels exceed the NAAQS are designated by the EPA (U.S. Environmental Protection Agency) as nonattainment areas (NAA).

The Villages of Oak Park and River Forest fall within the Chicago-Gary-Lake County IL-IN nonattainment area, which is currently classified by 8-Hour Ozone (IL portion only) and PM-2.5 (1997 standards). This means that the region has exceeded acceptable levels of these pollutants in the air and must take additional action to reduce pollution in the area. Since 1999, Clean Air Counts has provided a regional coordinated effort to voluntarily improve air quality and to meet the National Ambient Air Quality Standards, while still supporting economic development in the Chicago metropolitan region. This private/public initiative has numerous members, including the Village of Oak Park.

The table below provides potential health impacts categorized by criteria pollutant.

<b>Sources, Health and Welfare Effects for Criteria Pollutants</b>			
<b>Pollutant</b>	<b>Sources</b>	<b>Health Effects</b>	<b>Welfare Effects</b>
<b>Carbon Monoxide (CO)</b>	Motor vehicle exhaust, kerosene or wood burning stoves.	Headaches, reduced mental alertness, heart attack, cardiovascular diseases, impaired fetal development, and death.	Contribute to the formation of smog.
<b>Sulfur Dioxide (SO<sub>2</sub>)</b>	Coal-fired power plants, petroleum refineries, manufacture of sulfuric acid and smelting of ores containing sulfur.	Eye irritation, wheezing, chest tightness, shortness of breath, lung damage.	Contribute to the formation of acid rain, visibility impairment, plant and water damage, aesthetic damage.
<b>Nitrogen Dioxide (NO<sub>2</sub>)</b>	Motor vehicles, electric utilities, and other sources that burn fuels.	Susceptibility to respiratory infections, irritation of the lung and respiratory symptoms.	Contribute to the formation of smog, acid rain, water quality deterioration, global warming, and visibility impairment.
<b>Ozone (O<sub>3</sub>)</b>	Vehicle exhaust and certain other fumes. Formed from other air pollutants in the presence of sunlight.	Eye and throat irritation, coughing, respiratory tract problems, asthma, lung damage.	Plant and ecosystem damage.
<b>Lead (Pb)</b>	Metal refineries, lead smelters, battery manufacturers, iron and steel producers.	Anemia, high blood pressure, brain and kidney damage, neurological disorders, cancer, lowered IQ.	Affects animals and plants, affects aquatic ecosystems.
<b>Particulate Matter (PM)</b>	Diesel engines, power plants, industries, windblown dust, wood stoves.	Eye irritation, asthma, bronchitis, lung damage, cancer, heavy metal poisoning, cardiovascular effects.	Visibility impairment, atmospheric deposition, aesthetic damage.

**Source:** U.S EPA

**Monitoring Data.** Ambient concentrations of pollutants in outdoor air are measured at more than 4,000 monitoring stations owned and operated mainly by state environmental agencies. These monitoring sites report data to EPA for these six criteria air pollutants; and said data can be found at National Emissions Inventory (NEI) database on AIRData website.

**Emissions Data.** In addition to the level of pollution in the air, facilities that emit large quantities of pollutants must monitor and report their emissions. Emissions estimates are collected for individual sources, as well as some county totals for sources such as vehicles. EPA collects emissions data for three criteria air pollutants (carbon monoxide, sulfur dioxide, and particulate matter) and for three precursors/promoters of criteria air

pollutants (volatile organic compounds, nitrogen oxides, and ammonia). Data can be found at Air Quality System (AQS) database on AIRData website.

## River Forest Energy Use

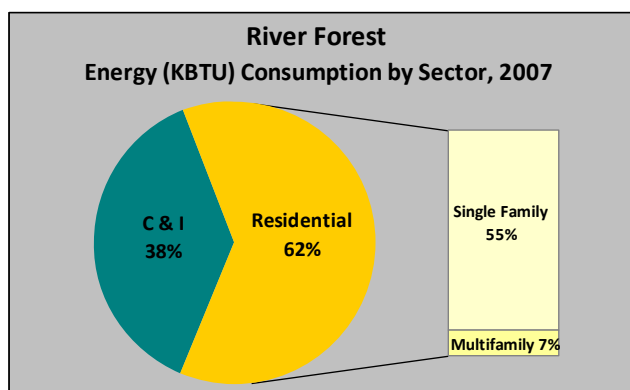
All energy use data for the Village of River Forest includes energy consumed in buildings, including outdoor lighting associated with the building. The majority of all energy consumption in the United States occurs in buildings; therefore, the analysis of building energy use is essential in developing strategies to reduce energy consumption and cost. All of the following energy use data involved examining premise level data from ComEd and Nicor.

## River Forest Total Energy Consumption

Total energy consumption includes 2007 village wide electricity and natural consumption in buildings including outdoor lighting. Total energy consumption is measured in KBTU (Kilo British Thermal Unit). Electricity (kWh) and natural gas (therms) are converted into KBTU to provide the same measurement, which allows for comparison between electricity and natural gas consumption.

This table is a summary of 2007 total energy (electricity and natural gas) consumption in River Forest measured in KBTU, analyzed by the residential sector and the commercial/industrial (C & I) sector. In 2007, River Forest consumed a total of 1.2 billion KBTU.

River Forest Total Energy Consumption, 2007	
	Total KBTU
<b>Residential</b>	765,327,632
<b>C &amp; I</b>	461,432,885
<b>Total</b>	1,226,760,517



The figure to the left illustrates that 62 percent of energy consumed in buildings occurred in the residential sector, with the remaining 38 percent consumed in the commercial/industrial (C & I) sector. Residential energy consumption is further analyzed; of the 62 percent, 55 percent was consumed in the single family sector and 7 percent in the multifamily sector.

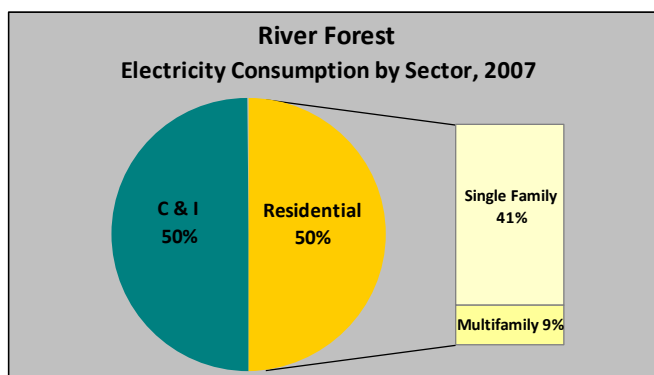
## River Forest Electricity Consumption

Electricity is measured in kilowatt hours (kWh). Electricity consumption in both the residential and commercial/industrial (C & I) sectors is currently increasing nationwide.

Growth in consumer electronics and information technology equipment, as well as an increase in home size and air conditioning use are prominent reasons for consumption increases in the residential sector. In the C & I sector, increasing consumption is driven by telecommunication and network equipment; along with specialized technologies such as medical imaging advancements.

In 2007, River Forest consumed 100 million kWh, of which there was equal consumption between the residential sector and the commercial/industrial sector. Of the 50 percent consumed by the residential sector, 41 percent was consumed in the single family sector and 9 percent in the multifamily sector.

River Forest Electricity Consumption, 2007	
	kWh
<b>Residential</b>	50,339,853
<b>C &amp; I</b>	50,658,847
<b>Total</b>	100,998,700



The below table examines the average annual electricity consumption by unit for both the residential and commercial/industrial sector. Various factors affect electricity consumption; some include square footage, the presence and efficiency of air conditioning, efficiency of lighting, appliances and systems, and individual behavior.

In 2007, households in River Forest consumed an average of 12,768 kWh and paid an average of \$1,374 for electricity consumption. While commercial/industrial customers consumed an average of 116,457 kWh and paid an average of \$10,318 for electricity consumption. It is important to remember, particularly for the commercial/industrial sector, that consumption and cost per unit is an average; size, function, and activities vary greatly between commercial & industrial accounts.

River Forest Electricity Consumption & Cost by Unit, 2007			
	# of Units*	Annual Average kWh per Unit	Average Annual \$ per Unit
<b>Residential</b>	3,943	12,768	\$1,374
<b>C &amp; I</b>	435	116,457	\$10,318

\*Residential # of Units = Households; C & I # of Units = Accounts

## River Forest Natural Gas Consumption

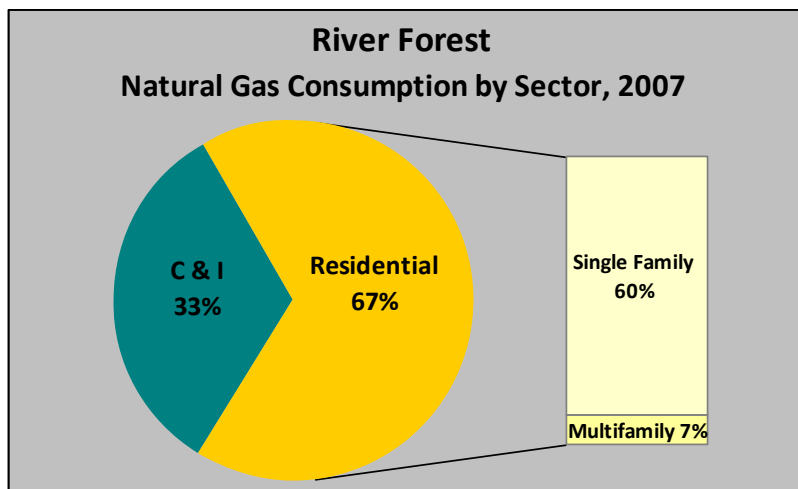
Natural gas is measured in therms. In Northern Illinois, natural gas is the primary space heating fuel. In addition to space heating, natural gas is commonly used for hot water heaters, clothes dryers, and cooking in the residential sector. However, natural gas consumption has been decreasing slightly over time in both the residential and commercial/industrial sectors as homes and buildings become more efficient and de-industrialization occurs.

In 2007, River Forest consumed 8.8 million therms, of which 67 percent was consumed in the residential sector and 33 percent in the commercial/industrial sector.

River Forest Natural Gas Consumption, 2007	
	Therms
<b>Residential</b>	5,935,681
<b>C &amp; I</b>	2,885,849
<b>Total</b>	8,821,530

in

Of the 67 percent consumed by the residential sector, 60 percent was consumed in the single family sector and 7 percent in the multifamily sector.



The below table examines the average annual electricity consumption by unit for both the residential and the commercial/industrial sector. Factors that can affect natural gas usage include building size, building age, building envelope efficiencies, efficiency of the furnace, boiler and water heater, as well as building operations and maintenance.

In 2007, households in River Forest consumed an average of 1,506 therms and paid an average of \$1,337 for natural gas consumption. Whereas commercial & industrial customers consumed an average of 10,973 therms and paid an average of \$9,335 for natural gas consumption. It is important to remember particularly in reference to the commercial & industrial sector, that consumption and cost per unit is an average; size, function, and activities vary greatly between commercial & industrial customers.

River Forest Natural Gas Consumption & Cost by Unit, 2007			
	# of Units*	Annual Average therms per Unit	Average Annual \$ per Unit
<b>Residential</b>	3,943	1,506	\$1,337
<b>C &amp; I</b>	263	10,973	\$9,335

\*Residential # of Units = Households; C & I # of Units = Accounts

## River Forest Municipal Facilities, Energy Use Intensity (EUI)

This section examines energy consumption in River Forest municipal buildings, which include:  
Oak Park Village Hall, Police and Fire Department  
Oak Park Public Works Garage  
Oak Park Water Pumping Station

Through analysis of 2008 energy consumption data and facility square footage, the energy use intensity (EUI) of each building can be calculated; EUI is measured in KBTU per square foot per year. This metric normalizes energy usage by size of building metric to enable comparison of how energy is consumed on a square foot basis.

Reviewing EUIs of municipal buildings can help identify those with the largest energy consumption per square foot to target for retrofits and energy efficiency measures. The lower the EUI, the less energy is being used per square foot. However, EUIs are relative to the function of the building. Therefore, one should not compare EUIs of municipal buildings with different functions, but rather compare to types of similar buildings with similar functions. For example, the EUI of the Water Treatment Plant is expected to be high (400s) given its function. In contrast, EUI of 150 for an office building is high.

Another important value of EUIs is comparing EUIs of the same building from year to year. This comparison helps measure the success of any implemented energy efficiency measures. Understanding and measuring EUIs can be a starting point to flag potential issues, target buildings for more in-depth audits, then identifying and implementing strategies for improving energy efficiency based on those audits.

### River Forest Village Hall, Police and Fire Department

Facility Details	
Address	400 Park Avenue, River Forest, IL 60305
Square Footage	36,475
Hours of Operation	Administrative functions are Monday - Friday during the day only. Police, fire and dispatch are 24/7.
Activities	Administrative offices, police department, fire department, and consolidated dispatch; there is a large public meeting room for various public meetings.
Employees	Overall staffing size is approximately 65 – 70; not all there concurrently.
Systems/Equipment	Building is fully air conditioned. Natural gas hot water heat; the fire department apparatus bay floors are equipped with natural gas infrared heat.

Energy Data		
	Energy Consumption	EUI
<b>Electricity</b>	841,394 kWh	78.71
<b>Natural Gas</b>	24,608 Therms	67.47
<b>Total</b>	5,331,636 KBTU	<b>146.17</b>

### River Forest Public Works Garage

Facility Details	
Address	45 Forest Avenue, River Forest IL, 60305
Square Footage	21,215
Hours of Operation	Most of operating hours are spent in the field performing various tasks.
Activities	Houses all of the public works trucks and equipment, including street and forestry crews and a superintendent. Also houses a street sign shop.
Employees	Approximately 10 employees at the garage.
Systems/Equipment	The office/locker rooms are air conditioned; garage area is not air conditioned. Heated by a natural gas fired steam boiler.

Energy Data		
	Energy Consumption	EUI
<b>Electricity</b>	87,005 kWh	13.99
<b>Natural Gas</b>	14,299 Therms	67.40
<b>Total</b>	1,726,761 KBTU	<b>81.39</b>

### River Forest Water Pumping Station

Facility Details	
Address	7525 Berkshire Street, River Forest, IL 60305
Square Footage	4,250
Hours of Operation	The facility is manned only a few hours a day on weekdays.
Activities	The major electrical use is 3 large electrically driven pumps to pump water. No vehicles are stored there
Employees	A staff of two intermittently occupies the building while checking pumping functions.
Systems/Equipment	The station is not air conditioned with the exception of a window unit in the office.

	Heat is via a natural gas fired steam boiler
--	--

Energy Data		
	Energy Consumption	EUI
Electricity	447,360 kWh	359.15
Natural Gas	6,262 Therms	147.34
Total	2,152,592 KBTU	506.49

## Energy Consumption for Selected River Forest Buildings

This section includes energy consumption data for selected building that are considered to be some of the larger consuming facilities in River Forest. This data can be used as a benchmark to help measure progress in reducing energy consumption and costs for any implementation of energy efficiency strategies.

### River Forest Public Library

735 Lathrop Avenue River Forest, IL 60305-1883

Energy Consumption Data		
	2007	2008
Electricity (kWh)	376,920	350,040
Natural Gas (therms)	11,842	10,937
Total (KBTU)	2,470,289	2,288,051

### School District 90

Includes 2 elementary schools and 1 middle school

Energy Consumption Data		
	2007	2008
Electricity (kWh)		
Natural Gas (therms)		
Total (KBTU)		

## Oak Park River Forest High School

201 North Scoville Avenue Oak Park, IL 60302

Energy Consumption Data				
	Buildings		Stadium	
	2007	2008	2007	2008
Electricity (kWh)	6,461,997	6,183,436	TBD	TBD
Natural Gas (therms)	405,250	431,161	24,083	24,649
Total (KBTU)	62,573,383	64,214,015	TBD	TBD

## River Forest Transportation

There are various components of transportation that can be analyzed within a municipality. For this study, village-wide vehicles miles traveled (VMT) and the municipal fleet and fuel use.

**Vehicles Miles Traveled (VMT).** Typically, transportation accounts for the second largest use of energy after buildings. For this report, Vehicle Miles Traveled (VMT) was tabulated from travel statistics provided by the Illinois Department of Transportation (IDOT) and scaled to River Forest based on IL EPA odometer data and population.

All on-road travel on River Forest roads accounted for approximately 73 million miles in 2007 which captures trips only within municipal boundaries. Further analysis shows, the average household in River Forest drove 14,727 miles, totaling approximately 58 million miles for all River Forest households.

River Forest Vehicle Miles Traveled, 2007			
All On-Road VMT	Household VMT	# of HH	VMT per HH
72,892,756	58,062,444	3,943	14,727

**Municipal Fleet and Fuel Inventory.** The Village of River Forest provided the following information for 2009 municipal fleet and fuel. Currently, River Forest has a total of 56 vehicles and equipment, categorized between smaller, less fuel consuming vehicles (passenger vehicles/light trucks) and higher consuming vehicles (large trucks/equipment).

River Forest Municipal Fleet Inventory, 2009	
Types of Vehicle	Number
Passenger Vehicles and Light Trucks	37
Large trucks and Equipment	19

River Forest Municipal Fuel Purchases, 2009	
Unleaded	Diesel
30,246 Gallons	14,238 Gallons

In 2009, River Forest purchased 30,246 gallons of unleaded fuel and 40,095 gallons of diesel fuel for the village's municipal vehicles.

River Forest Municipal Fuel Consumption, 2009		
Division	Unleaded	Diesel
Public Works – General Fund	15%	58%
Public Works – Water and Sewer	5%	12%
Police	72%	—
Fire	3%	30%
Admin	5%	—

Of the fuel purchased in 2009, the Police Department consumed the largest amount of unleaded fuel at 72 percent of the total unleaded fuel consumed by River Forest municipal vehicles and equipment. For diesel fuel, Public Work General Fund consumed the largest amount of at 58 percent of the total diesel fund consumed.

## River Forest Solid Waste

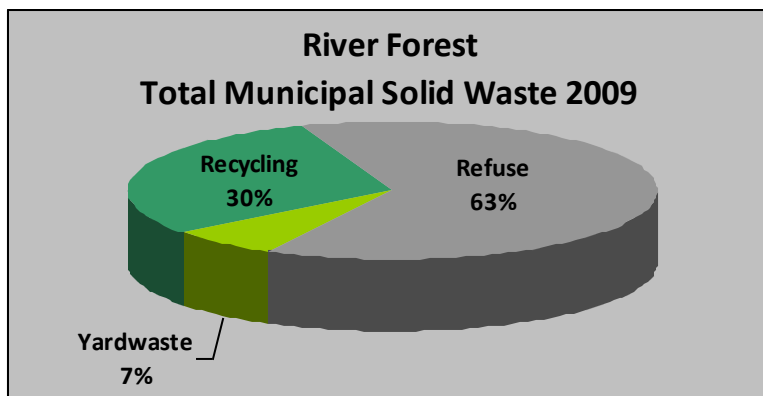
Municipal Solid Waste (MSW) is defined as the waste generated in resident's homes and work places in a municipalities. However, this typically refers to waste collection operated and controlled by elected local officials. In River Forest, trash, recycling, and yard waste collection service is provided for all residential buildings up to three units; therefore, this collection identifies River Forest's MSW. The village's recycling program provides each resident with two 18-gallon recycling bins.

Although River Forest ordinance requires that all multifamily building receive recycling serves, the larger multifamily buildings and commercial/industrial building collection service is contracted independently by each building owner. Currently, there is no standardization or enforcement of reporting waste collection data for these buildings. Therefore, the data presented below is incomplete; it does not represent a comprehensive picture of village-wide solid waste collection. It only reports on residential buildings up to three units. This is an area that River Forest may want to explore in order to have a complete understanding of existing conditions in order to effectively and efficiently target strategies to reduce waste and increase recycling participation.

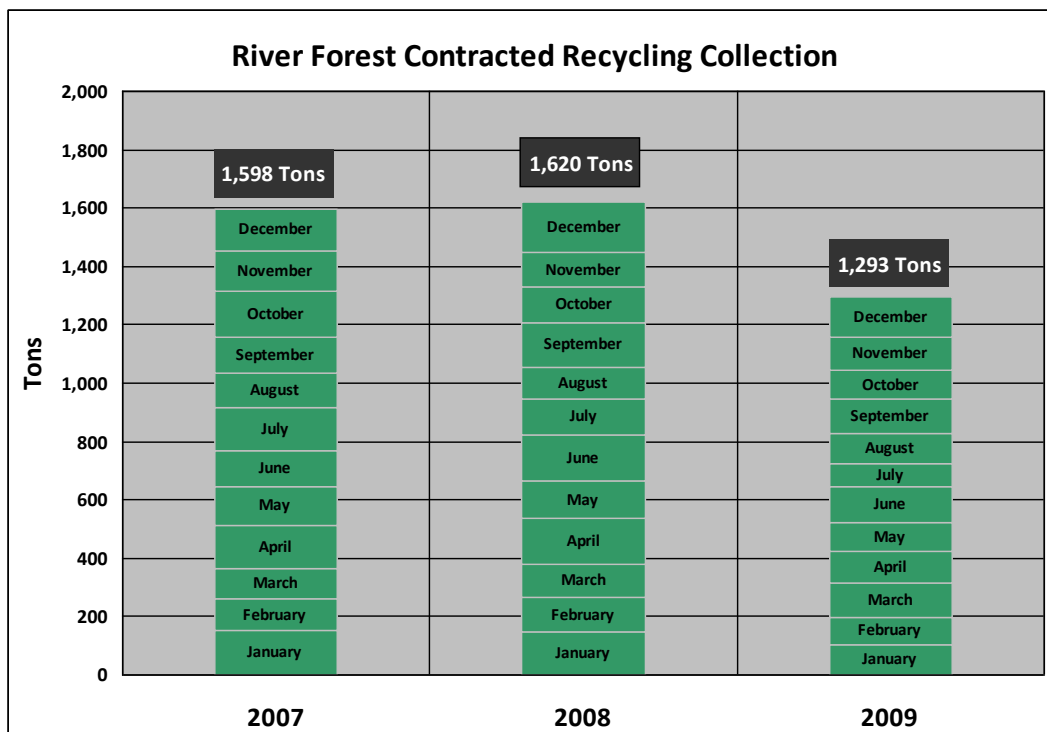
In 2009, River Forest Municipal Solid Waste (MSW) totaled 4,309 tons, which include refuse, recycling, and yard waste. Collection of refuse, recycling, and yard waste decreased from 2008 to 2009, including the total diversion rate. Diversion rate refers to the percentage of waste diverted from traditional disposal such as landfills.

River Forest Municipal Solid Waste					
YEAR	Tons				Diversion Rates
	Refuse	Recycling	Yard waste	Total	
2007	2,955	1,598	314	4,867	39%
2008	2,962	1,621	321	4,904	40%
2009	2,723	1,293	293	4,309	37%

Note: The information is as reported by River Forest's current solid waste collection and disposal contractor. The Village makes no warranty as to the accuracy of this information



For years 2007, 2008, and 2009, holiday green collections accounted for 4 percent, 6 percent, and 7 percent, respectively, of the total annual yard waste collection.



The graph provides a more detailed analysis of recycling collection data for River Forest contracted services.

## River Forest Water Use

The Village of River Forest records water use by seven categories, as listed in the water use and cost table below. The residential sector consumed the largest percentage of water by a significant amount, typical in community's water consumption. The lowest water consumers were the public sector and construction.

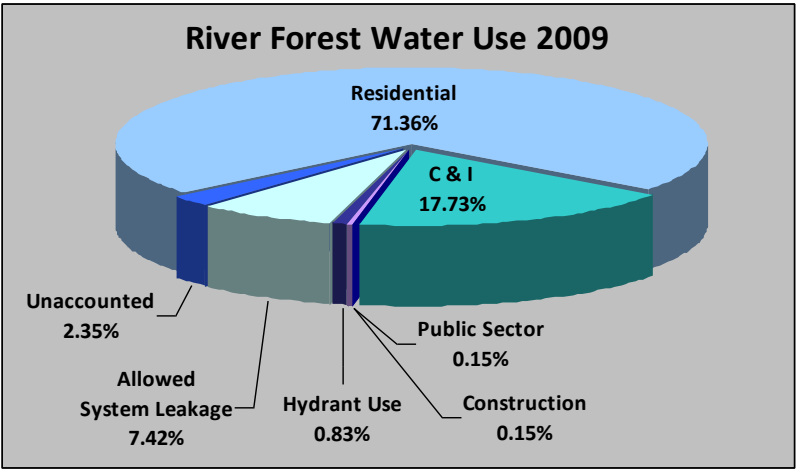
River Forest Water Use and Cost						
User	2007		2008		2009	
	Usage (1,000 gallons)	Cost	Usage (1,000 gallons)	Cost	Usage (1,000 gallons)	Cost
Residential	391,645	\$1,476,502	374,490	\$1,576,603	343,830	\$1,591,933
Commercial/Industrial	95,995	\$361,901	108,040	\$454,848	85,410	\$395,448
Public Sector	730	\$2,752	730	\$3,073	730	\$3,380
Construction	730	\$2,752	730	\$3,073	730	\$3,380
Hydrant Use	5,110	\$19,265	5,110	\$21,513	4,015	\$18,589
Allowed system leakage	35,405	\$133,477	36,135	\$152,128	35,770	\$165,615
Unaccounted	91,250	\$344,013	46,720	\$196,691	11,315	\$52,388
<b>Total</b>	<b>620,865</b>	<b>\$2,340,661</b>	<b>571,955</b>	<b>\$2,407,931</b>	<b>481,800</b>	<b>\$2,230,734</b>

As shown, total water consumption decreased from 2007 to 2009, particularly for unaccounted water usage - potentially a result of improved system operations

and/or maintenance. However, although consumption decreased village-wide, total water costs increased due to an increase in water charges per 1,000 gallons: \$3.77 in 2007, \$4.21 in 2008, and \$4.63 in 2009. Water charges are equal for each sector.

River Forest Average Household Water Use, 2009		
Total Residential Use	Average Annual Water Use per Household	Average Daily Water Use per Household
Gallons		
343,830,000	87,211	239

At the residential level, in 2009 the average household in River Forest consumed 239 gallons daily, totally 87,211 gallons annually.

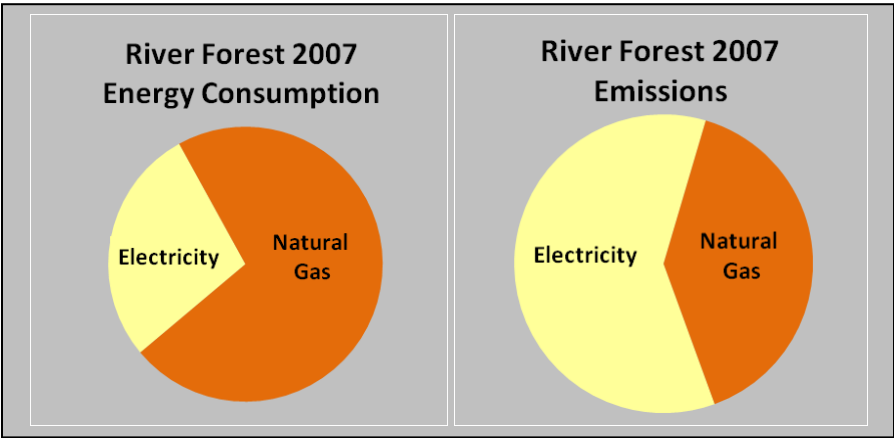


River Forest Emissions

**Energy versus Emissions.** In addition to understanding energy consumption, it is important to recognize the relationship between energy and greenhouse gas emissions. Emissions attributed to electricity consumption are different from those attributed to natural gas consumption because of differences in the production of energy from different sources.

Most of the world’s energy originates from the burning of fossil fuels including coal, petroleum, and natural gas. Fossil fuels consist of hydrogen and carbon, and when burned, the carbon combines with oxygen to create carbon dioxide.

However, all energy is not created equal. The actual amount of carbon dioxide produced for a given unit of energy depends on the carbon content of the fuel. Coal emits nearly two times the carbon dioxide per unit of energy compared to natural gas, while petroleum emits less carbon dioxide than coal but more than natural gas. Understanding this off balanced relationship is important when calculating emissions and identifying strategies to reduce emissions.



**Emissions Calculations.** River Forest’s emissions profile was calculated for 2007 using United Nations Intergovernmental Panel on Climate Change (IPCC) methods and local data sources in combination with modeling of national data to local demographics. All data presented are measured in metric tons (tons) or million metric tons (MMT) CO<sub>2</sub>e (carbon dioxide equivalent), to enable comparison internationally.

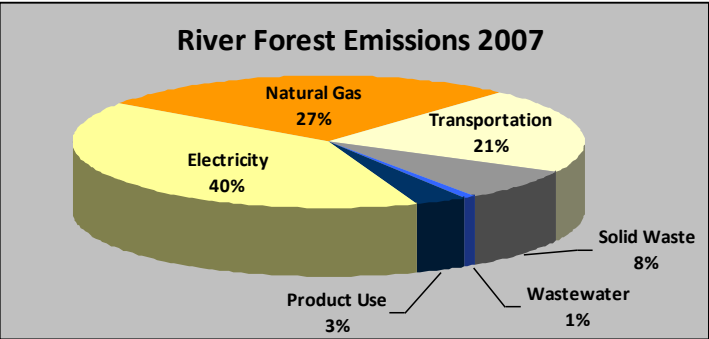
Emissions were calculated for the six major categories of greenhouse gases regulated under the Kyoto Protocol: carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>). Emissions were converted into CO<sub>2</sub>e using global warming potentials from the IPCC Fourth Annual Assessment Report. Activity data were translated into emissions using standard emissions factors and global warming potentials.

**River Park Emissions.** An energy profile in the community serves as the basis for conducting a community greenhouse gas emissions profile. In addition to energy and transportation, which are by far the biggest contributors to greenhouse gas emissions, this emissions profile includes estimates for solid waste, waste water, and product use based on regional totals previously analyzed for a regional profile developed for the Chicago Metropolitan Agency for Planning [CMAP].

River Park Emissions by Sector, 2007	
Sector	MMT CO <sub>2</sub> e
Electricity	0.071
Natural Gas	0.047
Transportation	0.037
Solid Waste	0.014
Wastewater	0.001
Product Use	0.006
TOTAL	0.175

The table to the left provides the breakdown of River Forest’s emissions in 2007 by sector with a total of 0.175 MMT CO<sub>2</sub>e. The same year, River Forest’s emissions per capita was 15.65 tons of CO<sub>2</sub>.

The pie graph below illustrates the breakdown in percentage of emissions. Predictably, electricity was the largest contribution to emissions at 40 percent, with natural gas following, and transportation close behind. The graph also shows that buildings contributed over half of all emissions in 2007 at 67 percent. Clearly identify strategies that target reducing energy consumption in buildings as an essential component in reducing greenhouse gas emissions.



## River Forest Air Quality

While greenhouse gas emissions have a global impact, air quality is a local issue. Air pollutants have a direct impact on local health and environmental systems. Although greenhouse gas emissions and air quality pollutants often result from the same activities—such as burning fossil fuels—solutions for one aren't always beneficial for both. For example, producing electricity through burning biomass reduces emissions of anthropogenic CO<sub>2</sub>; however, this increases local particle pollutants emitted into the atmosphere. Another example is power plant scrubbers that remove pollutants from emissions improve air quality impacts, but do not address the CO<sub>2</sub> emissions of those plants.

Health impacts of air pollution are serious concern; however, effects differ significantly from person to person. High-risk groups include children, pregnant women, elderly, and those with chronic heart or lung diseases. Health impacts can be acute or chronic, varying from headaches and nausea to lung cancer. Studies even show those that live near a major highway are more susceptible to asthma and other respiratory diseases. More detailed health impacts of specific air pollutants are discussed in the subsequent section.

**Legislation.** The primary law that addresses air pollution in the U.S. is the Clean Air Act. Enforced by the U.S. Environmental Protection Agency, this legislation works to ensure that air pollutant emissions are limited so that air quality meets health and environmental standards. This legislation includes several programs to regulate air pollution, which include: National Ambient Air Quality Standards (NAAQS), State Implementation Plans (SIPs), New Source Performance Standards (NSPS), and National Emission Standards for Hazardous Air Pollutants (NESHAPs).

The NAAQS established standards for six of the most common air pollutants known as “criteria” pollutants: carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>), ozone (O<sub>3</sub>), sulfur oxides (SO<sub>x</sub>), particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>), and lead (Pb). Ozone, while useful in protecting us from ultraviolet radiation in the upper atmosphere, poses a public health problem at ground level. Ground level ozone—a major part of smog—is formed when sunlight reacts with nitrogen dioxide and volatile organic compounds, which is why local air pollution can be particularly bad on hot summer days. Areas where air pollution levels exceed the NAAQS are designated by the EPA (U.S. Environmental Protection Agency) as nonattainment areas (NAA).

The Villages of Oak Park and River Forest fall within the Chicago-Gary-Lake County IL-IN nonattainment area, which is currently classified by 8-Hour Ozone (IL portion only) and PM-2.5 (1997 standards). This means that the region has exceeded acceptable levels of these pollutants in the air and must take additional action to reduce pollution in the area. Since 1999, Clean Air Counts has provided a regional coordinated effort to voluntarily improve air quality and to meet the National Ambient Air Quality Standards, while still supporting economic

development in the Chicago metropolitan region. This private/public initiative has numerous members, including the Village of Oak Park.

The table below provides potential health impacts categorized by criteria pollutant.

<b>Sources, Health and Welfare Effects for Criteria Pollutants</b>			
<b>Pollutant</b>	<b>Sources</b>	<b>Health Effects</b>	<b>Welfare Effects</b>
<b>Carbon Monoxide (CO)</b>	Motor vehicle exhaust, kerosene or wood burning stoves.	Headaches, reduced mental alertness, heart attack, cardiovascular diseases, impaired fetal development, and death.	Contribute to the formation of smog.
<b>Sulfur Dioxide (SO<sub>2</sub>)</b>	Coal-fired power plants, petroleum refineries, manufacture of sulfuric acid and smelting of ores containing sulfur.	Eye irritation, wheezing, chest tightness, shortness of breath, lung damage.	Contribute to the formation of acid rain, visibility impairment, plant and water damage, aesthetic damage.
<b>Nitrogen Dioxide (NO<sub>2</sub>)</b>	Motor vehicles, electric utilities, and other sources that burn fuels.	Susceptibility to respiratory infections, irritation of the lung and respiratory symptoms.	Contribute to the formation of smog, acid rain, water quality deterioration, global warming, and visibility impairment.
<b>Ozone (O<sub>3</sub>)</b>	Vehicle exhaust and certain other fumes. Formed from other air pollutants in the presence of sunlight.	Eye and throat irritation, coughing, respiratory tract problems, asthma, lung damage.	Plant and ecosystem damage.
<b>Lead (Pb)</b>	Metal refineries, lead smelters, battery manufacturers, iron and steel producers.	Anemia, high blood pressure, brain and kidney damage, neurological disorders, cancer, lowered IQ.	Affects animals and plants, affects aquatic ecosystems.
<b>Particulate Matter (PM)</b>	Diesel engines, power plants, industries, windblown dust, wood stoves.	Eye irritation, asthma, bronchitis, lung damage, cancer, heavy metal poisoning, cardiovascular effects.	Visibility impairment, atmospheric deposition, aesthetic damage.

*Source: U.S EPA*

**Monitoring Data.** Ambient concentrations of pollutants in outdoor air are measured at more than 4,000 monitoring stations owned and operated mainly by state environmental agencies. These monitoring sites report data to EPA for these six criteria air pollutants; and said data can be found at National Emissions Inventory (NEI) database on AIRData website.

**Emissions Data.** In addition to the level of pollution in the air, facilities that emit large quantities of pollutants must monitor and report their emissions. Emissions estimates are collected for individual sources, as well as some county totals for sources such as vehicles. EPA collects emissions data for three criteria air pollutants (carbon monoxide, sulfur dioxide, and particulate matter) and for three precursors/promoters of criteria air pollutants (volatile

organic compounds, nitrogen oxides, and ammonia). Data can be found at Air Quality System (AQS) database on AIRData website.

## About OPRF Communityworks



Communityworks is a community-driven partnership envisioning a sustainable community. It is supported by the Oak Park-River Forest Community Foundation whose mission is to inspire philanthropy and to steward the community toward sustainability and well-being.

Find out more at [www.oprfcf.org](http://www.oprfcf.org).

## About Delta Institute



The Delta Institute is 501c3 non-profit organization dedicated to leading the transformation to the green economy. Founded in 1998, Delta creates, funds and implements programs that integrate environmental, economic and community health issues to develop a green economy. Delta provides technical assistance, research capacity and consulting services in a variety of green economy impact areas including green buildings, carbon credits, brownfields, green purchasing, sustainable manufacturing, green collar jobs, urban food systems and solid waste. We work with private, public, institutional and non-profit partners to plan, fund and implement sustainable and green economic initiatives. The Delta Institute has the knowledge and expertise required to provide research, writing, technical support, communications and facilitation activities for this proposed scope of work. Find out more at [www.delta-institute.org](http://www.delta-institute.org).

## About Seven Generations Ahead



Incorporated in 2001, Seven Generations Ahead's mission is to promote the development of ecologically sustainable and healthy communities. Seven Generations Ahead's strength is in outlining how to proactively build green communities – not solely responding to environmental crises. SGA advocates for local community solutions to global environmental issues, and promotes clean, renewable energy; eco-effective materials and products; intelligent, sustainable building design; local, sustainable food; zero waste; and strategies designed to create ecologically effective communities. Through education, direct programming, advocacy, and facilitation, SGA works with local government, schools, community institutions, and private sector leaders to help communities make the changes they need to create a healthy and sustainable future. Find out more at [www.sevengenerationsahead.org](http://www.sevengenerationsahead.org).

## About Center for Neighborhood Technology



The Center for Neighborhood Technology (CNT) compiled the baseline metrics for this report. Founded in 1978, CNT has been a leader in promoting more livable and sustainable urban communities. In fact, our work focused on sustainable development before the term became as popular as it is today. As a creative think-and-do-tank, we research, invent, and test urban strategies that use resources more efficiently and more equitably. Find out more at [www.cnt.org](http://www.cnt.org).