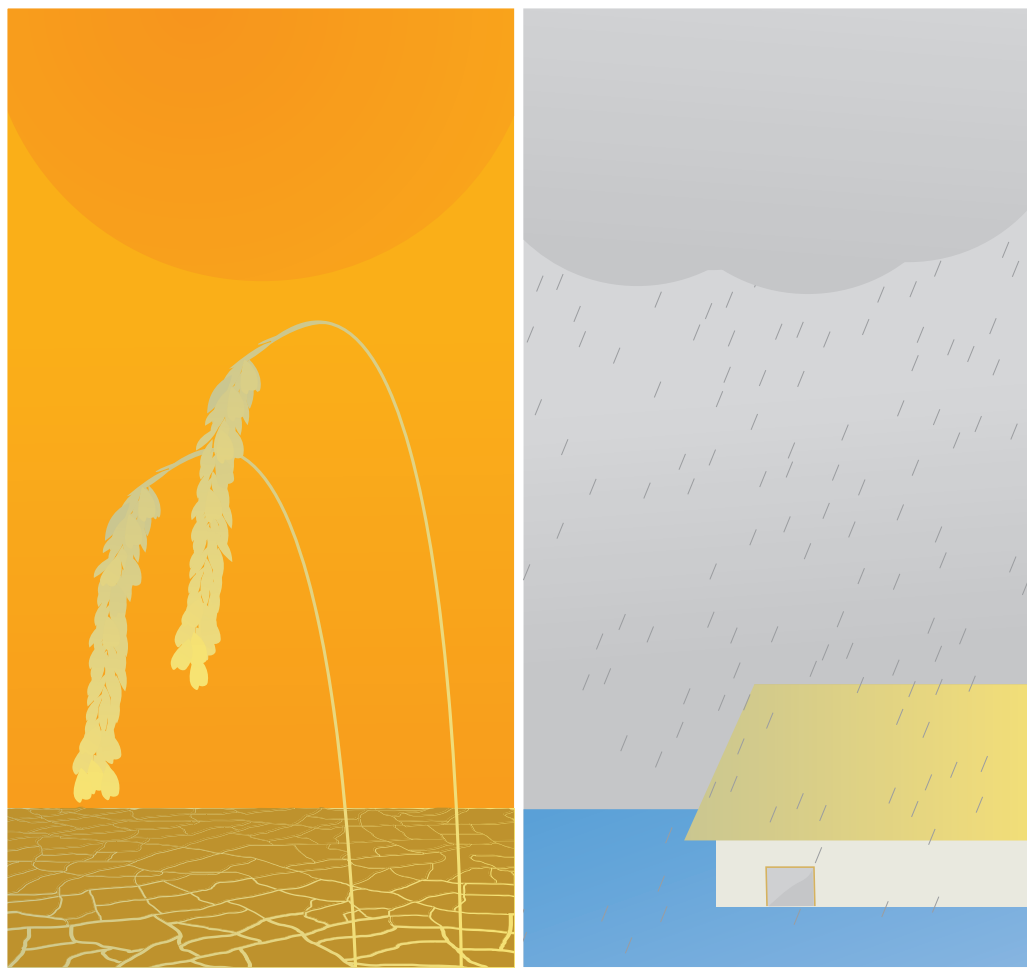


**Oct.
2009**



Climate Change Institute



September 3-5, 2008
New York, New York



Acknowledgements

Regional Plan Association

Regional Plan Association (RPA) is an independent, non-profit regional planning organization that improves the quality of life and the economic competitiveness of the 31-county New York-New Jersey-Connecticut region through research, planning and advocacy. Since 1922, RPA has been shaping transportation systems, protecting open spaces, and promoting better community design for the region's continued growth. We anticipate the challenges the region will face in the years to come, and we mobilize the region's civic, business, and government sectors to take action.

The nation's most influential independent regional planning organization since 1922, RPA has a storied history but is more relevant than ever in the 21st century. RPA's First Plan in 1929 provided the blueprint for the transportation and open space networks that we take for granted today. The Second Plan, completed in 1968, was instrumental in restoring our deteriorated mass transit system, preserving threatened natural resources and revitalizing our urban centers including Stamford, White Plains, Downtown Brooklyn, Newark and Jersey City. Released in 1996, RPA's Third Regional Plan, "A Region at Risk," warned that new global trends had fundamentally altered New York's national and global position. The plan called for building a seamless 21st century mass transit system, creating a three-million acre Greensward network of protected natural resource systems, maintaining half the region's employment in urban centers, and assisting minority and immigrant communities to fully participate in the economic mainstream. RPA's current work is aimed largely at implementing the ideas put forth in the Third Regional Plan, with efforts focused in five project areas: community design, open space, transportation, workforce and the economy, and housing.

ICLEI-Local Governments for Sustainability USA

ICLEI-Local Governments for Sustainability (ICLEI) is an international membership association of local governments dedicated to climate protection and sustainable development. The mission of ICLEI is to build, serve, and drive a movement of local governments to advance deep reductions in greenhouse gas emissions and achieve tangible improvements in local sustainability. The organization was established in 1990 when more than 200 local governments from 43 countries convened at the World Congress of Local Governments for a Sustainable Future, at the United Nations in New York. Established as the International Council on Local Environmental Initiatives, the official name is now ICLEI-Local Governments for Sustainability.

ICLEI USA was launched in 1995 and has grown from a handful of local governments participating in a pilot project to a vibrant network of more than 575 local governments following ICLEI's Five Milestone methodology to reduce greenhouse gas emissions and create more sustainable communities. ICLEI USA is the domestic leader on climate protection and adaptation, and sustainable development at the local government level.

The first Institute on Climate Change was made possible by generous contributions from the Rockefeller Brothers Fund, the Lincoln Institute of Land Policy, JPMorgan Chase and the Leon Lowenstein Foundation.

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Special thanks to **Katie Nosker**, **Jeff Ferzoco**, **Jennifer Cox**, **Tara Klein**, and **Karen Martin** for their help in organizing the event and putting together this report.

Program Structure

Modeled on the national Mayors' Institute on City Design RPA's regional Institute on Climate Change provides a multi-day retreat for six mayors and a resource team of planning and sustainability professionals. At the Institute, each elected official presents a climate-change related challenge facing his or her community, and then participates in an in-depth discussion with the other mayors and the resource team members. Together, the group develops a tailored set of solutions to the mayor's problem statement.

The Institute offers public officials the rare opportunity to discuss at length a challenge facing their community with a group of peers and some of the most respected planners and climate change experts in the country. These institutes typically focus particular attention on the relationship between community planning, design, smart growth, local public policy and public health, and how certain strategies can create more livable communities. Experts in urban design, conservation, ecology, real estate development, transportation, communications, finance and other complementary fields participate in the Institute discussions, providing presentations and analyses of how alternative development patterns and policy initiatives impact the future of our communities. RPA has conducted over a dozen Institutes, including ten in New Jersey, one in Connecticut, one in the greater Northeast region, and three in Long Island.

RPA's first Climate Change Institute, co-hosted by ICLEI, was held at One Chase Manhattan Plaza from September 3 to September 5, 2008. The purpose of this particular Institute was to focus on reducing carbon emissions while creating greener, safer communities. The six case studies presented covered a broad range of topics, from storm water management to energy efficiency, and from transit-oriented development to green building. Each case study engaged the resource team and mayors to think broadly about the future of their communities and the region.

Participants

Supervisor Steve Bellone, Town of Babylon
Mayor Noam Bramson, City of New Rochelle
Mayor Bill Finch, City of Bridgeport
Mayor Michael M. Luther, Township of Parsippany-Troy Hills
Mayor Dannel P. Malloy, City of Stamford
Mayor Alberto G. Santos, Town of Kearny

Resource Team

Rohit T. "Rit" Aggarwala, Director, NYC Office of Long-Term Planning and Sustainability
Ross C. "Rocky" Anderson, President, High Road for Human Rights
Armando Carbonell, Chairman of the Department of Planning and Urban Form, Lincoln Institute of Land Policy
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Douglas I. Foy, President, Serrafix
Sean Patrick Neill, Principal, HR&A Advisors
Michael Northrop, Program Director, Sustainable Development, Rockefeller Brothers Fund
Emilee Pierce, Researcher, Futerra Communications
Margie Ruddick, Principal and Landscape Designer, Wallace, Roberts & Todd, LLC
Lucy Shea, Chief Strategy Officer, Futerra Communications
Gary Toth, Senior Director of Transportation Initiatives, Project for Public Spaces



Resource Team Presentations

This Institute benefited from two inspiring keynote presentations and several informative resource team presentations. They are summarized below.

Keynote: The role of cities in national climate policy

Michael Northrop, Program Director of Sustainability at Rockefeller Brothers Fund, kicked off the Institute by making the economic case for climate action. By creating new jobs and new technologies, and by saving public governments, private companies and residents significant money on energy costs, climate-action programs are a massive opportunity to diversify and strengthen national and local economies. The public perception that climate action will harm the economy is simply untrue. In fact, former President Bill Clinton believes that creating the low carbon clean energy economy presents the greatest economic opportunity for the United States since it mobilized for World War II. Action on climate change should be pursued aggressively, particularly in this grim economic climate.

Northrop cited the example of the chemical giant DuPont, which pledged in 1999 to reduce its emissions of GHG 65% below its 1990 levels by 2010, and to get a significant share of its energy from renewables. Since then, the company reduced global emission reductions 67% and saved \$3 billion. Wal-Mart has also announced goals to reduce energy use and switch to renewables, simply because it is a good business strategy. As Wal-Mart CEO Lee Scott observed: "It will save money for our customers, make us a more efficient business, and help position us to compete effectively in a carbon-constrained world."

Northrop also addressed the importance of municipal action. The federal government has so far focused on cap-and-trade, and other complicated ways to reduce carbon overall. States, regions and municipalities, by contrast, have concentrated their attention on more practical, cost-efficient programs that, together, will build the new energy marketplace. Northrop charged all mayors, and particu-



larly those present, to persist in their local efforts and advocate for meaningful federal policies.

Keynote: Combating Climate Change: A Leadership Imperative

New York City Mayor **Michael R. Bloomberg** and former Salt Lake City Mayor **Ross C. "Rocky" Anderson** spoke at a standing-room-only event at the India House in lower Manhattan.

Mayor Michael Bloomberg, the leader of PlaNYC, one of the nation's most ambitious and comprehensive sustainability plans, spoke about some of the politics surrounding sustainability policy. Given the lack of federal action on climate change, it is up to mayors and governors to become "doers." What needs to be done to improve the environment and cut greenhouse gas emissions is clear – what this country needs are leaders who take decisive action and stand up to political heat if necessary. Bloomberg concluded by hailing organizations like RPA and ICLEI for their research and outreach, but added that only elected officials have the power to implement these ideas.

Rocky Anderson, former mayor of Salt Lake City and founder and current president of High Road for Human Rights, gave an impassioned speech on the effective, principled leadership needed to implement urgent climate action programs. Anderson decried the federal government's lack of leadership on the issue, pointing out that the Iraq war costs \$12 billion a month, when alternative energy research only benefits from a \$5 billion a year federal contribution.

Anderson reminded the audience of the urgency of the situation, not just for our environment but also for human health and happiness. Entire social and economic networks are threatened when large populations are displaced by droughts or flooding. The effects of climate change are increasing exponentially every year, and we have little time – a few years maybe – before these effects are irreversible.

Cities are the Answer – What was the Question?

Doug Foy, President of Serrafix and former Secretary of Development in Massachusetts, made the case that cities are the most efficient and cost-effective places to focus on for climate change action. Mayors are close to their constituents, and they can take the type of





actions that have clear and near-term benefits. Foy also pointed out that, through municipal building and zoning codes, mayors have significant control over the two largest sources of greenhouse gases, buildings and transportation.

Communicating the issue of climate change

Lucy Shea, Chief Strategy Officer at Futerra Communications, reminded institute participants of the importance of marketing climate action programs, and dispensed some professional advice on how to do it: Keep it personal, Make it enjoyable, Reach out beyond the usual suspects, Motivate by loss rather than gain, and Give thanks / accept feedback. She also suggested avoiding terms like “efficiency” and “alternative,” in favor of “smart” or “renewable.”

Landscape design for a changing climate

Margie Ruddick, Principal and Landscape Designer at WRT Design, described how landscaping can reduce stormwater runoff, better absorb storm surges, lower energy bills – and be beautiful. Ultimately, the goal is to reduce the amount of impervious surfaces, because they generate significant stormwater runoff that can over-

whelm sewer systems, particularly in northeast cities where sewer infrastructure is often 100 years old. Pervious pavement, bioswales, green roofs, restored wetlands, as well as climate-appropriate vegetation (instead of water-intensive lawns for example), increase the permeability of the ground and reduce the pressure on sewer systems.

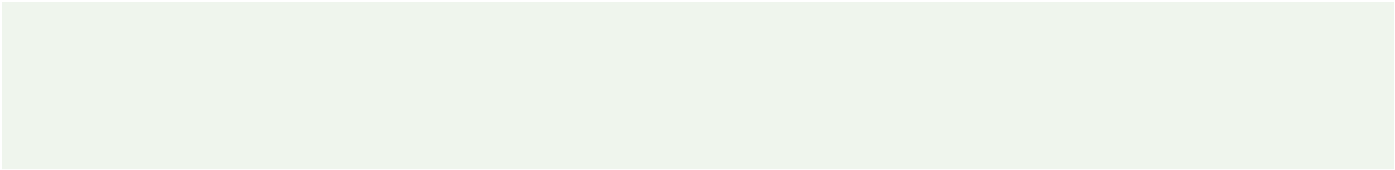
Financing and funding options for energy and renewable programs

Joy Clarke-Holmes of Johnson Controls cited a recent survey by the US Conference of Mayors, that found that 84% of mayors said financing their sustainability projects was a major concern. She argued, however, that municipal facilities, landfills, street lighting, water and wastewater utilities, and other municipal functions can be updated and financed in a variety of ways – often by borrowing against the money saved by the new facility in terms of maintenance and operations.





Bridgeport Mayor Bill Finch points out a problematic intersection in Bridgeport's downtown, and receives feedback from other mayors and the Resource Team about how to improve the city's streets. (Clockwise from top left: RPA Connecticut Director David Kooris, Mayor Bill Finch, WRT Landscape Architect Margie Ruddick, Babylon Supervisor Steve Bellone, Futerra's Emilee Pierce, Stamford Mayor Dannel Mallow, Project for Public Spaces Transportation Director Gary Toth, RPA Executive Director Tom Wright, Parsippany Mayor Michael Luther and RPA New Jersey Director Carlos Rodrigues)



Case Studies



Babylon CT • NY • NJ

Supervisor: Steve Bellone

Population: 221,702

Problem statement

Supervisor Bellone would like to discuss the scalability of Babylon's Long Island Green Homes (LIGH) pilot program, particularly the marketing and workforce development components of such an effort. Given that it will likely cost around \$500 million to retrofit all of Babylon's 65,000 homes, the supervisor would also like to discuss long-term financing options for the program.

Background

This fall, the Town of Babylon is launching an ambitious program to encourage homeowners to improve the energy efficiency of their homes. The residential sector accounts for 38% of Babylon's greenhouse gas emissions, and Supervisor Bellone, in office since January 2002, sees this program as the best way to reduce those emissions, cut costs for homeowners, and create new green collar jobs. "Long Island Green Homes" (LIGH), as the program is called, aims to retrofit 500 homes in the coming year and thousands more after that. The greatest challenges are persuading enough residents to participate, preparing enough contractors to carry out the energy retrofits, and identifying secondary financing as the program is scaled up.

Residential energy efficiency programs have been attempted before, but they are rarely successful at retrofitting the multitude of single-family-homes necessary to achieve critical mass. Upfront audit fees and the cost of work that property owners and prospective purchasers don't readily see tend to dissuade most homeowners from participating, particularly those who plan on selling their house before the expense is recouped from lower energy bills. Local governments also rarely have enough money to finance these types of programs at a large scale.

LIGH is innovative in many ways. It involves no up-front costs to homeowners. The town absorbs the cost of the energy efficient improvements and then attaches a benefit assessment to the home through the town's solid waste fund. The resident is billed by the town on a monthly basis an amount which is less than the energy savings that result from the improvements. When an owner sells the home, this assessment stays with the property, not the person who made the improvements. Finally, the Town of Babylon has implemented an innovative financing system – by counting carbon components of energy waste as a solid waste, the town has been able to set aside \$2 million of its solid waste fund for this program.

Resource team recommendations

Think creatively about financing options

With credit tightening, Babylon needs to think creatively about how to secure financing to scale up the Long Island Green Homes (LIGH) program. The Town is currently examining a number of options. One that has brought great value to other local governments around the country is a revolving energy fund. A revolving energy fund (REF) is an example of a revolving loan fund that is specifically focused on funding energy efficiency, clean energy, or energy reduction measures – projects that are able to reduce operating costs and

energy consumption. The fund is replenished via loan and interest (if relevant) repayments for a predetermined set of time. Revolving funds are often set up to support projects that require seed money initially, but will generate additional revenues over time. Babylon could use existing local, state, federal, or private foundation dollars as the initial seed money for the REF.

Another innovative opportunity to secure additional funding is through a peak load management program. Babylon would have to work with the local utilities (LIPA, National Grid) to establish an aggregate demand response program specifically for the residents participating in the LIGH program.

Require energy audits at points of sale or renovation

The typical homeowner sells his or her home every five to seven years. While this means that there is little incentive for any one homeowner to participate in LIGH voluntarily, it also means that if Babylon were to require an energy audit as part of every sale transaction and every building permit issuance, the town could get through its residential stock pretty quickly. This would be a simple and systematic way to scale up the program and reach a broad range of residents.

Develop a contractor-training program with partners

One of the challenges of a rapidly growing LIGH program is making sure there are enough contractors trained to conduct the energy audits. Babylon must set up an intensive training program to train a large number of contractors to conduct investment-grade audits for residential homes. Babylon should look to partner with local community colleges and trade associations to develop the necessary training programs to support the program. In addition, Babylon will need to hire its own independent contractors – those they know they can trust – to verify a sample of the energy audits conducted. If Babylon succeeds in training all of these contractors, they will have created a very strong "green-collar" job base for Long Island, which will bring the town more economic benefits in the long run.

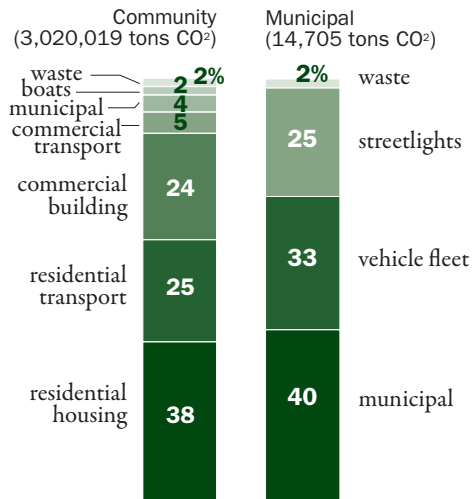
Reach out to a broad constituency

The natural constituency for LIGH – progressive environmentalists – are few in number in Babylon. For LIGH to really make a dent in the town's energy use, a broader segment of the population needs to be persuaded to participate in the program. A well-targeted marketing and advertising campaign with the right message could persuade Babylon's middle income residents – people who might not typically spend large sums of money for non-urgent home improvements – to participate in LIGH.

Provide free Smart Meters for residents

A smart meter is a device that can be installed in individual homes that instantly tells how many kilowatts of power are being used at any given time. The device can also show the price of this energy use to the homeowner. Some municipalities have provided these inexpensive devices to residents with the expectation that they will help residents monitor and eventually reduce their energy consumption. Offering all residents free Smart Meters would be a simple and affordable way to enhance Babylon's LIGH program.

Carbon Inventory Summary: Baseline 2005



If 10% of Babylon homes participated in LIGH, 92,000 tons of CO₂ a year could be saved, assuming a conservative 20% reduction in energy use after a retrofit. If LIGH reached 25% of the Township's homes, 229,000 tons of CO₂ a year could be saved, an 8% reduction in the Township's carbon footprint.



A Smart Meter is a simple, inexpensive technology that encourages people to monitor and reduce energy use.



If Babylon were to require an energy audit every time a home is sold or renovated, most of the town's housing stock would be upgraded in just a few years.



Babylon's LIGH program will require setting up intensive training programs and certification procedures for contractors – a great opportunity to build a solid “green-collar” job base, and give Babylon a competitive edge in the new green economy.

Bridgeport CT • NY • NJ

Mayor: Bill Finch

Population: 139,529

Problem statement

Identify cost-effective strategies for Bridgeport to re-allocate the city's streetspace in a more equitable and sustainable way. A transportation system that reduces vehicle use in favor of transit, walking and biking is critical to enabling economic and population growth without increasing the city's carbon footprint.

Background

The silver lining of Bridgeport's stagnant growth the last several decades is that its local streets and roads do not suffer from the crippling congestion that affects other downtowns along the coast. As the city nears a turning point in its economic development, now is an opportune time to re-think the way in which the publicly owned space between buildings is used. Mayor Finch is seeking to identify strategies to achieve a more sustainable mobility system as the city grows in the coming decades.

Bridgeport is already an inter-modal transportation hub, served by two major highways – Route 8/25 (90,000 vehicles/day) and I-95 (145,000 vehicles/day) – commuter rail and inter-city rail, the state's most progressive bus system, a regional airport, an inter-state ferry, and a deep-water port. Mayor Finch is building on these transportation assets in order to spur new construction and redevelopment projects throughout the downtown, increase residential and employment opportunities in sustainable locations, and help the city regain a prominent position within Fairfield County. The city looks poised for a real turn-around in coming years.

Mayor Finch is committed to not increasing the city's carbon footprint, even as Bridgeport redevelops and grows. One of his main strategies to reach this goal is to develop a sustainable transportation system that prioritizes "soft" modes such as walking and bicycling and transit – even possibly a Bus Rapid Transit system linking downtown with other centers in the greater Bridgeport area with frequent buses that operate in dedicated lanes.

Mayor Finch would like to see Bridgeport serve as a model green community for other formerly industrial cities in the Northeast, and sees a sustainable transportation system as a cornerstone of achieving this goal.

Resource team recommendations

Identify a broad strategy and build a diverse coalition

Promoting transit use, walking and biking will serve to promote a number of goals: reduced air and water pollution, improved mobility, downtown redevelopment and responsible growth, economic development and equity. Bridgeport's progressive transportation strategy should reflect this wide range of benefits, and bring together advocates from all of these sectors in one broad coalition, which could become a powerful force in making Bridgeport's plan a reality. (The broad coalition that PlaNYC brought together – with

advocates from transportation, environmental, construction and economic development groups, among others – is one of the reasons for PlaNYC's success.)

The stars seem to be aligned for maximum state support for Bridgeport's efforts. Department of Environmental Protection Commissioner Gina McCarthy, Commissioner of Economic and Community Development Joan McDonald, new ConnDOT Commissioner Joseph Marie and Metro-North President Howard Permut are all progressive thinkers who could become great advocates for Bridgeport's program. Mayor Finch should engage them on this effort and seek out their support. Bridgeport could also work with ConnDOT to develop guidelines for street design, following the design-oriented examples of Denver and Massachusetts or the policy-oriented smart transportation guides for New York and New Jersey.

Plan Bridgeport's transportation and land use hand-in-hand

To be successful, a street must be well designed within the right-of-way, and also on either side of it. The residential and commercial buildings that visually frame the street – and attract the people who will be using it – are just as important as the design of the street itself in determining the success of a place.

State Street and Fairfield Avenue were discussed as possible streets to redesign from one-way through-streets to two-way urban boulevards that prioritize BRT and are comfortable and safe for pedestrians and cyclists. These design improvements should be planned hand in hand with the redevelopment of undeveloped or underdeveloped land parcels into dense, active and visually engaging mixed-use buildings. Visualization techniques can be helpful in conveying the value of these land uses to creating healthy neighborhoods.

Start small, grow as you go

A little paint is all you need to change how a street functions. A new parking lane painted in the middle of the street can help to narrow the width of travel lanes and slow down cars; a new lane can be painted for exclusive use by buses or bicycles; etc. These changes are low-cost, can be carried out as pilots and adjusted as needed. More permanent changes – such as landscaping, the widening of sidewalks or the construction of bulb-outs – can be undertaken when funding is available (from the developers building along the street, for example) and the case for the improvements has been made.

Make the link to carbon emissions

The savings in carbon emissions can be used to make the case to the public for Bridgeport's progressive transportation and land use policies. The Sacramento Area Council of Governments, for example, has developed "scenario planning techniques" that match alternative land-use plans with alternative transportation plans, and calculate how much carbon is saved in each scenario.

Carbon Inventory Summary: Baseline 2007

	Community (1,123,855 tons CO ₂)	Municipal (44,567 tons CO ₂)
waste/industrial	1% 9	8% streetlights
commercial	28	13 water/sewage
residential	29	20 vehicle fleet
transportation	33	58 buildings



Several of Bridgeport's streets are unnecessarily wide expanses of pavement that encourage car speeding and diminish the quality of the pedestrian environment.



In the long term, Bridgeport should turn State Street and Fairfield Avenue back into two-way boulevards with landscaped medians.

If Bridgeport improved pedestrian conditions so that all residents who work within a mile of their homes walked to work, more than 350,000 vehicle-miles a day would be eliminated.

This translates into 180 tons of CO₂e saved, a 1.5% reduction in commuting emissions.



The buildings on either side are just as important as the streets themselves in creating a pedestrian-friendly environment. Both should be planned together.



Bridgeport's new streets should be designed to prioritize transit users, cyclists and pedestrians – modes with low carbon footprints.

Kearny CT • NY • NJ

Mayor: Alberto G. Santos

Population: 40,513

Problem statement

Kearny is seeking to become more sustainable with the addition of a new train station and a new transit-oriented district directly around it. With so much new development planned, Kearny wants to make sure that the new neighborhood is a model of green design. As a part of this process, Mayor Santos would like to explore designating a “green district,” in which the municipality and developers would be required to use energy, water, and other resources more efficiently.

Background

Kearny is a town of 40,000 residents located between the cities of Newark and Jersey City. Although it currently does not have a train station, NJ TRANSIT is planning to implement passenger service on a currently inactive branch line and build a new station in Kearny, giving the town a 15-minute ride into New York Penn Station. The new station, to be completed in 2017, will be located in an area that is currently underused industrial land, just to the east of Kearny’s historic downtown.

Mayor Santos, who has been in office since 2000, has been leading an extensive community outreach process to determine how to make the most of this future access to transit. Plans are to build a dense, walkable, mixed-use neighborhood directly around the train station, in order to maximize transit ridership and reduce vehicle-miles traveled. The area does pose a number of challenges, including flooding and deficient storm water drainage, heavy truck and vehicular traffic, poor air and water quality, poor pedestrian infrastructure and heavy industrial uses. Given its location at the edge of the Meadowlands, the area also benefits from significant opportunities including the potential for habitat restoration, wetlands regeneration and carbon sink functions.

The Mayor is seeking ways to make this new development more sustainable through incentives and policies for green building and site design, and by using green elements in the design and construction of infrastructure for the proposed “green district.”

Resource team recommendations

Be ambitious

Many green-building technologies that seemed luxurious just a few years ago are now becoming mainstream as costs go down and pay-back periods are shortened. Developers are realizing the benefits of LEED certification, and more and more municipalities now require certain developments be green. Because of this trend – and because of the site’s high desirability – Kearny is in the perfect position to see many green technologies incorporated into its new station-oriented development, such as separate water and sewer lines, combined heat and power systems, porous pavements, bioswales, green roofs, greywater recycling, a streetgrid that encourages transit use, walking and biking, etc. The landfill on the Meadowlands side of the future station could become a source of electricity – either from methane capture (as has been done at other former Meadowlands

landfills) or by installing a field of solar panels there (as the Meadowlands Commission is considering in other parts of its district).

The value of these green design features in terms of their ability to save energy and reduce carbon emissions could be calculated up front and used to make the case to the developers and the public.

Invest in planning and infrastructure up front

Kearny should assess opportunities for partnering with developers to pay for the infrastructure improvements, such as through a tax increment financing program or a development impact fee. While some infrastructure elements such as a combined heat and power system might need to be financed by Kearny, other elements, can be built and paid for by individual developers as they develop their sites. In those situations, the town should set the standards that the developers will need to follow regarding, for example, the area’s stormwater management system, the street grid location, or the typical street design. The town should work out these standards with developers to be sure that they are appropriate and not so onerous that they will drive away development. To save time and money (and headaches) for all involved, they should also be decided on up front for the entire district, instead of on a case-by-case basis with each developer. The Meadowlands Commission, which has enacted its own green standards and operates a Sustainable Communities Planning Service, could provide planning assistance to Kearny as it adopts its own standards. The Hudson County Improvement Authority could provide expertise to Kearny as it sets these green design standards.

Green the landfill

Kearny’s regional landfill, slated to be shut down permanently in coming years, is an opportunity to produce renewable energy. In particular, methane from the closed landfill can be captured and converted into energy. Another possibility would be to create a solar or wind farm on this location. Ultimately, the landfill could also be capped, and the area above could be turned into a sustainable energy park that could be a signature project for Kearny’s green district.

Make the Meadowlands a signature element of the new district

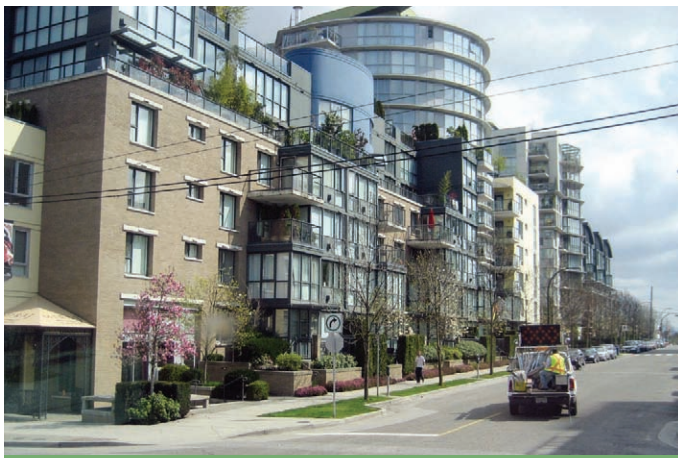
As Kearny begins to plan this new neighborhood, the town should be sure to make the most of the beautiful resource next door: the Meadowlands. Though long neglected, these wetlands are a unique natural and aesthetic resource, and they should be valued as such, perhaps even becoming the signature element of the new district, maybe even of the town as a whole. New residential buildings should be designed toward the Meadowlands, not turn away from them. The wetlands themselves should be designed for passive recreational use – and incorporated into the town’s systems of parks and open spaces – and rehabilitated so they regain their ability to absorb storm surges and stormwater runoff (an increasingly likely problem as our climate changes). As Kearny develops the plans for the green district, open space and landscape architecture should be taken into account as key design elements.



What's there today: underused industrial sites, an abandoned garbage dump in the Meadowlands, and vacant land.

LEED certification for all new residential and commercial development around Kearny's train station would result in a minimum 14% savings in energy, which represents approximately 3.5MWh and 2,700 tons of CO₂e saved per year.

Kearny's carbon inventory has not yet been undertaken.



State-of-the-art green building technology has become more affordable in recent years, reducing the time it takes to recoup investment costs.



Native landscaping retains stormwater and beautifies streetscapes. Developers can build and pay for these improvements according to municipal guidelines.



Kearny's new streets should be designed to encourage transit use, bicycling and walking.



The Meadowlands are a major natural and recreational resource. Their preservation and enhancement should guide Kearny's development.

New Rochelle CT • NY • NJ

Mayor: Noam Bramson

Population: 72,182

Problem statement

Mayor Bramson is seeking to improve New Rochelle's water management system by reducing the amount of water reaching the sewer system or collecting into flood plains during storms. How can the city work with existing building owners and developers to reduce the negative impacts of excess water by implementing such solutions as green roofs, porous pavements, rain gardens, bioswales or other measures? How and at what level can developers contribute financially to this effort? How else can the city and the community prevent major flooding or pollution discharges from occurring in the future?

Background

Like many communities in the region, New Rochelle faces significant stormwater management and sanitary sewer discharge issues. Aging infrastructure, expanding impervious surfaces, and intensifying storms have together created a recipe for potential disaster, in the form of pollution in Long Island Sound and flooding in neighborhoods.

At the same time, city leaders, including Mayor Noam Bramson, have strongly supported transit-oriented development in New Rochelle's downtown area. In recent years, some 1,500 housing units have been introduced in the downtown, and additional development, totaling approximately 2 million square feet, is planned.

In order to prevent new development from worsening New Rochelle's water management challenges, the city has adopted and acted on a number of environmental policies. These include disconnecting illegal connections from private property to the sanitary system, retro-fitting stormwater outfalls with oil/grit separators and floatable debris catches, restoring coastal wetlands, and protecting or replanting trees in new subdivisions and project sites.

In addition, and perhaps most significantly, developers are now required to fund the repair or relining of damaged sanitary sewer lines to prevent the inflow and infiltration of stormwater. Water removed from the system through inflow and infiltration repairs must total three times any new discharge associated with a project.

This policy has been successful, but after several years of implementation, the most obvious and easily accessible weaknesses in the system have been fixed, and the marginal cost of additional repairs to the system is escalating.

Mayor Bramson is seeking ways to maintain a pro transit-oriented development strategy without putting additional strain on the sewer system or causing additional flooding.

Resource team recommendations

Turn the threat of a lawsuit from a liability to an asset

New York State has threatened to sue Westchester County for operating New Rochelle's sewer treatment plant at 15.6 million gallons a day when it was designed for 13.6 million gallons. Even though the facility is county-owned, the cost of expanding it would be borne by New Rochelle taxpayers. That's why, instead of trying to avoid

or postpone this litigation, New Rochelle should actively find out what would be the cost of the litigation and the cost of expanding the sewer treatment facility. Knowing these costs will help the city make the appropriate cost-benefit analysis regarding any stormwater management and/or water conservation programs. These programs might be expensive, but they will likely be less than the cost of expanding the city's sewer treatment plant and will avoid potential litigation with the state.

Undertake a city-wide stormwater management program

When it rains, water washes over roofs, streets and parking lots, picks up pollutants along the way, and ends up in the city's sewer system, sometimes overwhelming it, causing floods and the overflowing of untreated water into rivers and oceans. Increasing the permeability of the ground increases the amount of stormwater that is absorbed slowly through the ground's natural system instead of running off directly into the city's sewer system.

Permeability can be increased: by planting more water-retaining native vegetation (either on publicly owned land or by encouraging private residents to do the same), establishing bioswales or rain gardens – drainage basins with vegetation designed to capture and retain stormwater from impervious surfaces, building green roofs on municipal buildings, or reducing the amount of pavement (by for example keeping sections of parking lots as gravel or pavers, or even by narrowing the widths of streets where possible).

New Rochelle should work with Westchester County, which has committed to stormwater management in its 2008 Climate Action Plan.

Undertake a city-wide water conservation program

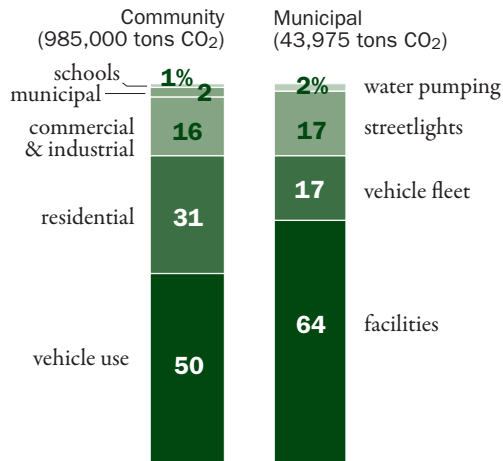
Another way to cut the amount of water headed for the sewer treatment plant is to reduce the amount of water consumed by New Rochelle municipal operations, residents and businesses. This can be achieved by increasing the price of water or sewer for consumers, or with voluntary programs to encourage people to grow more drought-tolerant plants and trees instead of water-intensive lawns, install pressure-reduction valves on their faucets and showers, purchase new low-flow toilets, and so one.

Finance these programs from a variety of sources

Comprehensive stormwater management and water conservation programs will require funding, either to conduct education and advertising campaigns, or to invest in capital improvements to public or private properties. The City of New Rochelle, for instance, could not only establish bioswales on publicly owned land, it could also offer to plant free native trees in people's yards, give away free pressure-reduction valves, or subsidize the purchase of new toilets. A public outreach campaign may also be necessary to describe the importance of water conservation and stormwater management to a broad spectrum of New Rochelle residents.

These efforts can be financed by directing the developers' contributions to improving the city's aging sewer system – now that most of the biggest leaks are fixed. They could also be financed with the money saved from reduced sewer fees, and from not needing to expand the sewer treatment plant.

Carbon Inventory Summary: Baseline 2000



Business-as-usual: 10% increase in emissions from 2000 to 2010



New Rochelle's aging sewers can fail to handle major storm events, like the Northeaster of April 2007. Thousands of homes and businesses were flooded.



Conventional parking lots are major generators of polluted stormwater runoff. Porous pavement or simple paving stones improve permeability and reduce runoff.



The City of New Rochelle should encourage residents should be encouraged to plant drought-tolerant, water-retaining native plants instead of conventional lawns.



New Rochelle could offer residents free low-flow aerators for faucets and shower heads. They are inexpensive and drastically reduce water consumption.

Parsippany-Troy Hills CT • NY • NJ

Mayor: Michael M. Luther

Population: 50,649

Problem statement

Parsippany-Troy Hills is seeking ways to increase recycling rates, particularly paper recycling, from the town's 12 million square feet of office space. The Mayor hopes that a strong communications and public outreach effort will not only save the town money and reduce its carbon footprint, but it will also help to establish a collaborative relationship between the public and corporate sectors, which will lead the way toward future, potentially more ambitious, climate change initiatives, such as energy use and transportation.

Background

The Township of Parsippany-Troy Hills, near Morristown, has a resident population of 52,000 residents and the many businesses in town employ approximately 50,000 workers. There are about 12 million square feet of office space, mostly office parks, in the town.

Although the municipality is still in the process of completing its carbon inventory, Mayor Luther has already begun to take steps to reduce Parsippany's carbon footprint – and reduce its costs. One of Parsippany's most successful sustainability programs to date has been its new, ambitious recycling program for residents, which has achieved a reduction in garbage tonnage of 6%.

Unfortunately, recycling rates from the town's office parks remain extremely low, less than 10%. An estimated 100,000 pounds of paper and corrugated cardboard a year could be diverted out of the waste stream with more effort from office building managers. The State of New Jersey penalizes municipalities with low recycling rates, and the Mayor's office estimates the township could attain an additional \$25,000 to \$30,000 in State grants every year if the corporate sector improved its recycling practices.

Mayor Luther, in office since 2006, is seeking ways to educate the dozen or so office building managers who manage the town's entire office inventory, about the importance and benefits of recycling. In the long term, the Mayor would like to help the corporate sector develop a better understanding of other sustainability issues, including energy use and transportation.

Resource team recommendations

Engage the corporate sector

Many Fortune 1,000 companies have committed to corporate green programs, involving lower energy use, higher recycling rates, etc. It is likely that several of Parsippany's office park tenants are companies with green pledges. These should be the first targets of a public education and outreach effort to improve their waste practices.

A natural constituency to engage the corporate sector on recycling is the community – specifically, the many Parsippany residents who also work in Parsippany's office parks. School-aged children can also become advocates for recycling if they have been educated about the importance of taking part in this simple every-day act.

Making recycling an easy and enjoyable practice is always helpful. It was pointed out that the town of Camden in England had installed recycling bins that were painted like cows and mooed when

they were opened. Making recycling more pleasurable for residents and schoolchildren increased the town's rate of recycling by 62% in one year.

Reduce carbon emissions by increasing recycling

The carbon benefits of recycling are in part related to the frequency of garbage pick-up. In trying to reduce emissions resulting from waste, Parsippany should take into account the vehicle miles traveled (VMT) associated with garbage and recycling pick-up along with the amount of solid waste to be diverted from landfills. A more effective strategy to reduce carbon emissions from Parsippany's waste sector might be to focus on optimizing garbage pick up schedules and in turn lowering VMT along with increasing recycling rates. This could be achieved in a number of ways: picking up garbage less frequently (and perhaps picking up recycling more often); switching to a single-stream recycling system, in which residents mix bottle, cans and paper thus making recycling easier and cutting in half the number of recycling routes; or installing solar-powered trash compactors throughout the town, which can hold five times the amount of trash than ordinary trash cans and therefore reduce the number of times it has to be emptied.

Carbon emissions would also be reduced, of course, if recycling rates increased and VMT remained steady.

Be strategic about sustainability

Recycling is only one component of Parsippany-Troy Hills' overall sustainability. In fact, Parsippany's forthcoming carbon inventory will likely reveal that waste is one of the town's smaller sources of carbon as compared to emissions from buildings and transportation. The town's development pattern, characterized by intense separation of office, retail and residential development, and highly dependent on car travel, is likely Parsippany's greatest carbon generator. What's more, in the era of expensive gasoline, it could also seriously hamper Parsippany's economic competitive advantage.

Parsippany should adapt to the era of high energy costs and provide residents with ways to cut back on their need to drive, which can be done by: encouraging more mixed-use zoning (allowing restaurants in office developments for example, or convenience stores in residential neighborhoods), building sidewalks throughout the community, building pedestrian walkways that cut through large development parcels and better connect destinations for pedestrians; and providing alternative ways to get people to nearby NJ TRANSIT train station. None of these solutions, or even all of them, are a panacea, but together they can make a significant reduction in Parsippany's carbon emissions.

Carbon Inventory Summary: Baseline 2007

Municipal
(13,627 tons CO₂)

8.3%	streetlights
12.9	buildings
16.9	vehicle fleet
61.9	water/sewage

An increase of 25% in Parsippany's residential recycling rates would divert 8,700 tons of waste away from the land-fill, which represents approximately 700 tons of CO₂e saved per year.



Single-stream recycling systems combine bottles, cans, and paper together, making recycling easier and reducing emissions from curbside pickup.



Parsippany's zoning code should encourage more mixed-use zoning. Restaurants in office parks, for example, would reduce lunch-hour driving.



Building sidewalks around town and pedestrian walkways through large parking lots would improve pedestrian connections, safety and comfort. They would provide an option for those who don't want to drive.

Stamford CT • NY • NJ

Mayor: Dannel P. Malloy

Population: 117,083

Problem statement

As Stamford looks to continue to redevelop its downtown around transit, Mayor Malloy is seeking to discuss the most effective ways to frame TOD as a sustainability issue. What public programs and additional land use measures should we pursue to most effectively support TOD - to address bicycle riding, pedestrian access, vehicle/pedestrian conflicts, traffic flow, parking, and to reduce driving? What are the best messages and statistics to convey the importance of TOD? Can the carbon-reduction impact of TOD be quantified?

Background

Mayor Malloy has aggressively pursued TOD as a strategy to: create an active and pedestrian-friendly environment in the City's core business center; expand the city's walkable and lively historic center; build new residential neighborhoods around Stamford's branch line train stations (Glenbrook and Springdale); increase density on East Main Street; and promote the rehabilitation and redevelopment of Stamford's South End neighborhood (an underused industrial area with brownfields), including a feasibility study for a light rail line connecting the South End to the north side of downtown. In short, the pursuit of TOD is one of the main components of Mayor Malloy's effort to make Stamford a national leader in sustainability.

From the public's perspective, however, redeveloping downtown has been perceived mainly as an economic strategy. Mayor Malloy would like to change that perception, and frame the development downtown near the city's Transportation Center as an essential component of Stamford's sustainability efforts and climate change planning.

Resource team recommendations

Frame the city's initiatives as serving Connecticut's carbon objectives

The climate change legislation recently passed in Connecticut provides a strong impetus for several state agencies to identify strategies to reduce their carbon emissions. Most applicably, the Department of Transportation, and the Department of Economic and Community Development, are now looking to identify transportation and development projects that mitigate growth in carbon emissions, while enhancing mobility and enabling economic growth.

Few areas are in a better position to identify such projects than Stamford's downtown and train station area. Improving and expanding Stamford's train station, for example, can help the DOT improve mobility and reduce the state's dependency on carbon-intensive modes. Redevelopment downtown, similarly, will enable economic growth while reducing Stamford's per-capita carbon footprint. What's more, these projects have local support and are actionable in the near future.

Instead of waiting for the state to perform its own carbon-impact analysis of the dozens of projects in the official transportation pipeline (the Transportation Improvement Program for example), Stamford should proactively quantify the potential carbon re-

duction impacts of each proposed transportation infrastructure project and land use development project – both as an absolute number and as a share of the state's emissions reduction efforts – and provide this data to the state. The continued concentration of residential and commercial development in downtown Stamford, oriented toward rail, bus and walkability, will be a vital part of the state's climate action plan, and this should be clearly and proactively articulated to state leaders.

Improve access to the train station

With extraordinary rail service and many destinations within a half-mile of the station, ridership growth at the Stamford station is only limited by the physical capacity of the station and people's ability to get to it. Stamford's upcoming station circulation plan redesign, meant to study pedestrian flow within the station, should also examine how people access the station from around the city.

Access to the station has improved in recent years – both for pedestrians and bus users – but these could be improved further. Bus access and signage at the station, for example, should be improved. Existing shuttle services in the downtown should be consolidated and extended to serve some of the closer residential neighborhoods (instead of relying on infrequent and indirect bus routes). Commuter parking should be limited, and the design and orientation of the parking structure should not negatively impact the ability of other users to access the station. The pedestrian amenities that have been so successful in the immediate station area should be extended out from the station, radiating into the surrounding neighborhoods and linking the city's attractions. Finally, bicycle access to the station and downtown should be included in the city's mobility initiatives: a network of dedicated lanes would make bicycling a viable transportation alternative in this compact and relatively flat city.

ConnDOT should be an active partner as the City examines alternatives for sustainable station access. For while the City can make improvements in the district, ConnDOT is ultimately responsible for the station itself.

Partner with others to develop a universal solution to railroad bridge upgrades

One of the greatest impediments to growth along Stamford's coastline (the city's old industrial district) is the rail right-of-way that separates that part of the city from the downtown. The low clearance on the streets under the railroad bridges, in particular, is unattractive and divides the community. As these railroad bridges are up for rehabilitation, each one requires a time-consuming and expensive one-off design and construction solution.

Given the fact that cities throughout the northeast are similarly saddled with century-old rail infrastructure that needs to be upgraded to modern engineering standards, including higher clearances on the streets below, Stamford should partner with these other cities and develop universal design standards to bring the infrastructure up to modern engineering standards, including higher clearances on the streets below. These replicable standards would result in cost and time savings, and greatly facilitate any town's efforts to encourage compact growth around station areas.

Carbon Inventory Summary: Baseline 1998

	Community (1,515,865 tons CO ₂)	Municipal (52,089 tons CO ₂)	
waste	5%	7%	streetlights
industrial	8	13	sewage
transportation	27	19	vehicle fleet
commercial	27		
residential	33	61	buildings

Business-as-usual: 35% increase from 1998 to 2018
Reduction target: 20% below 1998 levels by 2018

The location of 6,100 residential units in downtown Stamford instead of at suburban densities in North Stamford and adjacent towns will result in a 62% smaller net increase in vehicle miles, and an 87% smaller net increase in GHG emissions. This would amount to a savings of 716,500 tons CO₂e per year.



Stamford and ConnDOT should improve access to the station with better pedestrian and bicycle amenities,



and more efficient bus services. Such measures would decrease traffic and parking demand around the station.



Communities throughout the northeast are confronted with the problem of low clearance railroad bridges that need to be updated to modern standards. Stamford



should work with other cities to look at what opportunities are available for developing universal design standards.

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