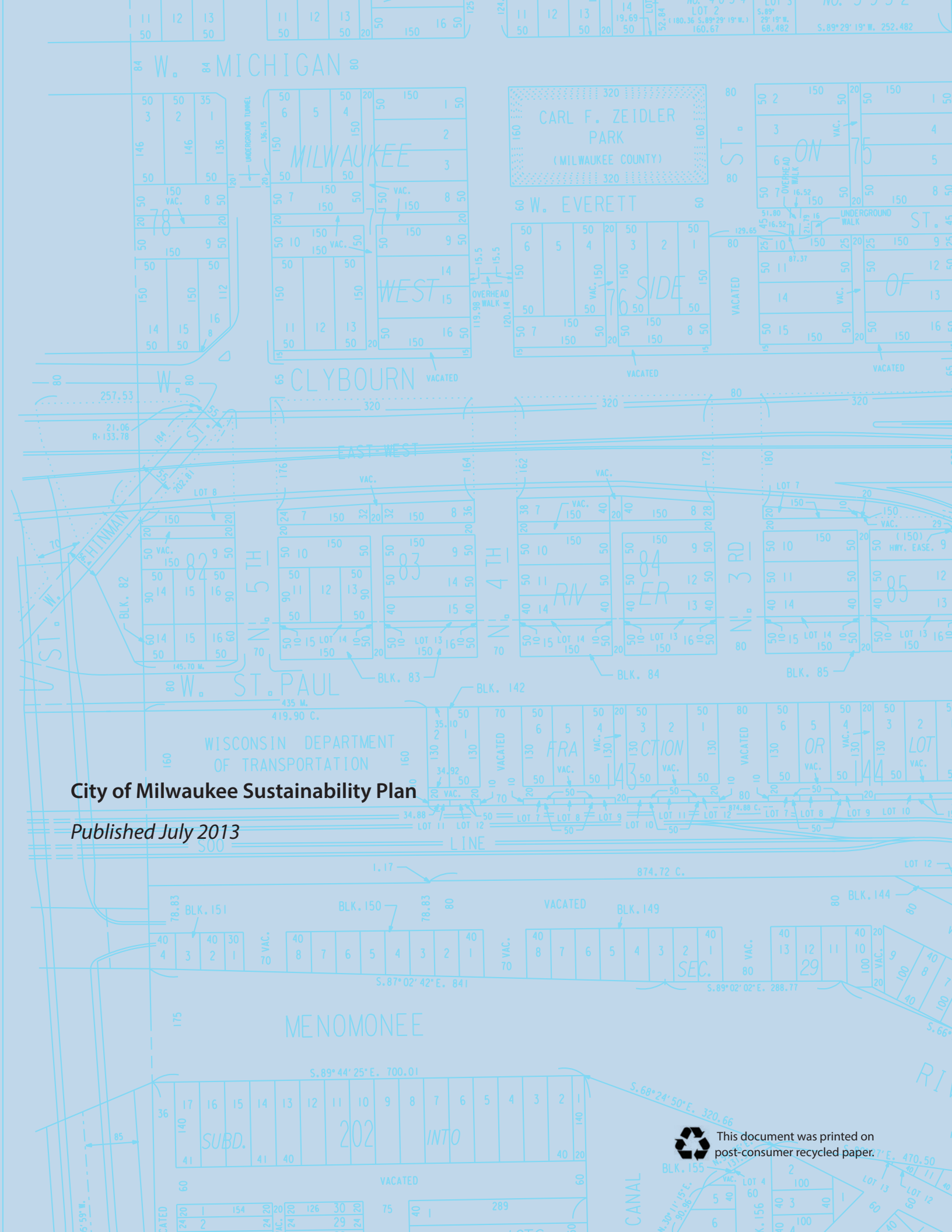
ReFresh Milwaukee

FRESH COAST. FRESH IDEAS.

A Vision for Community Sustainability

City of Milwaukee Sustainability Plan 2013-2023

ReFresh MKE



City of Milwaukee Sustainability Plan

Published July 2013

Milwaukee Mayor Tom Barrett announced at his 2012 State of the City address that he wants to work with the community to build a smarter city through sustainability and directed the City's Office of Environmental Sustainability Director to begin a sustainability planning exercise immediately.

Milwaukee was among nationally leading municipalities when it published the 2005 Green Team Report and created the Office of Environmental Sustainability in 2006. In order to maintain momentum and build on early successes, the Mayor has asked for the creation of a strategic road map for a more sustainable Milwaukee.

Tom Barrett
Mayor, City of Milwaukee

Dear Milwaukee:

I would like to thank all of you who worked so hard on Milwaukee's first Sustainability Plan – *ReFresh Milwaukee*. Your comments, questions and ideas have helped shape a new vision of community sustainability for our great city.

When I formed Milwaukee's first public-private Green Team in 2004, I never imagined the spirit of that work would continue into my third term as mayor. In 2011, I reconvened the original Green Team and thanked them for their hard work and for setting a solid foundation on which to build a more sustainable community. Their 2005 Green Team Report helped guide city policies and projects. The City of Milwaukee implemented 87 percent of their recommendations between 2005 and 2011, demonstrating our commitment to sustainability.

In order to build off this important, early work, I appointed a new Green Team in 2012 and charged them with developing the city's first Sustainability Plan, *ReFresh Milwaukee*. How can we reinvigorate our great city? How do we reinvest in our neighborhoods? And ultimately, how do we build a city where every neighborhood is a great place to live and raise a family? This was the challenge of the new Green Team and I think they delivered with this dynamic road map.

Great cities aren't made overnight, nor are they "accidents." Just as our city forefathers took purposeful steps to connect Milwaukee's first three settlements, protect our lakefront, and build innovative infrastructure, so too must our current generation take ownership of our challenges and future. *ReFresh Milwaukee* is a call to action around a community-endorsed set of goals and strategies that creates smart economic growth while preserving our finite natural resources for our children and their children. Our climate is telling us that the old ways won't work anymore. *ReFresh Milwaukee* is our roadmap on how to do more better, but with less. I hope it's also a spark for community dialogue that leads to practical improvements in all of our neighborhoods.

ReFresh Milwaukee provides guidance under a 10 year timeframe for personal goal-setting, as well citywide goal-setting. Individual responsibility complimented with collective action will yield impressive benefits. As a result, Milwaukee will be America's undisputed Fresh Coast Capital. The Bloomberg Mayors Challenge and IBM Smarter Cities showed that Milwaukee is already a top innovative city. Tomorrow's planners, innovators, educators and civic leaders won't turn to the East or West Coasts for ideas. They'll turn inland to America's Fresh Coast for the next big idea.

Our world-renown water technology companies, good food movement, smart energy companies, storm water management strategies and urban environmental revitalization successes will demonstrate definitively to the rest of the world what I already know: Milwaukeeans know how to get things done. We can build it, fix it, ship it, grow it and design it. We can do all those things when it comes to our neighborhoods and quality of life. Sustainability is the fuel for the great cities of the 21st century and the hope to revitalize our neighborhoods.

Let's begin the journey to a greater, more sustainable future. Let's *ReFresh Milwaukee* together!

Tom Barrett
Mayor

Office of the Mayor • City Hall • 200 East Wells Street • Milwaukee, Wisconsin 53202
(414) 286-2200 • fax (414) 286-3191 • mayor@milwaukee.gov

Table of Contents

What is Sustainability?

There are several ways to think about the concept of sustainability. The earliest uses of the term defined sustainability as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."[1] From this perspective, many people viewed sustainability simply as a "waste-not, want-not" approach to living. As policy and thought on sustainability's application in modern life has evolved, the definition of sustainability has expanded, incorporating the concept of balance. As cities, states, and nations grow, they must balance sometimes competing needs among different groups of people with protecting resources and providing a means of living to citizens.

Nelson Soler, the President and CEO of the Multicultural Entrepreneurial Institute, encouraged the Green Team to "use sustainability to create a new brand and a new economic vitality for the City, through these initiatives to address the issues of opportunity, advancement, and inclusion."

Today most policymakers and municipalities have moved beyond an "either-or" competition between people and the environment to think about sustainability as a concept that supports and balances three pillars of demands: environmental (planet), economic (profits), and social (people). They understand that short-term benefits for one of these pillars may have significant negative consequences for another pillar. For a city or business to be sustainable under this way of thinking, new policies, products, and plans for growth must consider whether the resulting impacts are good for the planet, profits, and people. The three pillars of sustainable development have become the de facto standard by which cities promote and track their sustainability-related performance. Drawing on this definition, but framing it from a business perspective, author John Elkington developed the triple bottom-line approach to growth wherein profits are not just monetary in reference to a single bottom-line, but are based in benefits to the planet and people as well and not just in monetary senses.[2] This is the lens through which the Mayor's Green Team views sustainability. As such, the Green Team has formulated the goals, targets, and strategies identified for community action in this strategic planning document, or Sustainability Plan.

Why Sustainability Matters to Milwaukee

General definitions of sustainability are helpful, but not necessarily clear in how we as Milwaukeeans should apply them in our city. As it turns out, the meaning of "Milwaukee" ties directly to the modern concept of "sustainability." There are several Native American tribes and words that inform our understanding of the origin of the city's name. Perhaps foremost is the word *ominowakiing,* which is the "gathering place" by the water, the Ojibwe word from which Milwaukee is thought to be derived. This history indicates that natural resources have sustained Milwaukee since its founding and have helped make this city great. Quite simply, Milwaukee exists because of its link to water. Its iconic industries rely on water both as a resource and as a source of inspiration. From yesterday's tanneries to today's craft breweries to the promise of the water tech industry in the economy of tomorrow, our environment is inseparable from who we are as Milwaukeeans and as a city. As a result, sustainability matters to Milwaukee.

Although sustainability can be a somewhat difficult concept, which some people choose to ignore or about which some people simply assume they do not know enough to have an opinion, it does matter. Residents, businesses, and our local environment are affected every day, in every Milwaukee neighborhood, by our overall acceptance, rejection, or indifference to sustainability. The following three examples help illustrate sustainability's importance to our city.

Sustainability Matters to People:

Parts of Milwaukee saw over 7 inches of rain in several hours one late afternoon day in July 2010. Stormwater inundated roads and waterways and as a result, eleven thousand residents reported basement backups of flood water or raw sewage. In addition, several homes were demolished because they were beyond saving. People suffered. Unfortunately, because of the changing climate in southeastern Wisconsin, intense rain events like this one will be more frequent than we used to predict. These events will continue to burden sewerage infrastructure that was designed to accommodate a previous era that had a lower statistical probability of dramatic rain events.

Photo: City of Milwaukee

Sustainability Matters to the Planet:

The Menomonee Valley Redevelopment is a national model for sustainable industrial redevelopment. The City of Milwaukee partnered with many stakeholders in the industrial redevelopment of one of the state's largest Brownfields, resulting in 1,300 new jobs, new sustainable manufacturers, and an array of live-work-play amenities. The redevelopment embodies all three pillars of sustainable development. One of the most noticeable results has been the revitalization of the Menomonee River itself, which borders the industrial redevelopment zone. Recently a nearly dead and heavily polluted river, today the Menomonee River runs in parallel with a state hiking and biking trail (the Hank Aaron Trail), and is a focus of fishing activity in the spring and fall with the steelhead trout and salmon runs, respectively. The transformation of this once destitute and polluted waterway, so important to Milwaukee's industrial history, into a regional center of fly-fishing is a marvel, and it has all occurred alongside new manufacturing facilities

Recent Sustainability Recognitions

Milwaukee has already been recognized for it's committment to sustainability. Below are some of the community's most recent achievements.

- In 2013, Mayor Barrett was honored by the U.S. Conference of Mayors for his work to tackle climate change. Mayor Barrett recieved honorable mention in the 2013 Mayors' Climate Protection Awards for the Milwaukee Energy Efficiency (Me^2 program).
- Milwaukee City Hall Complex in 2012 achieved LEED®-Existing Building Gold certification
- Milwaukee Metropolitan Sewerage District was a 2012 U.S. Water Prize winner for its watershed-based approaches toward water sustainability.
- The City of Milwaukee and the Milwaukee Metropolitan Sewerage District won the 2011 Leadership in Stormwater Management Award from Great Lakes & St. Lawrence Cities Initiative.
- In 2011, Milwaukee was named one of 24 cities globally as an IBM Smarter City in recognition of the City-supported urban agriculture movement.
- In 2009, Milwaukee was named one of 25 Solar American Cities by the U.S. Department of Energy.

Milwaukee River. Photo: City of Milwaukee

Hank Aaron Trail. Photo: CH2M HILL

and a vibrant downtown. The public-private efforts have yielded a cleaner, healthier river and new jobs and re-connected residents with the river and its new Three Bridges Park and Urban Ecology Center amenities.

Sustainability Matters for Profit:

Sustainability as a competitive advantage is not just a policy for large corporations and multinationals with extra cash to spend. The "waste-not, want-not" aspect of sustainability helps local Milwaukee companies save money while protecting the environment. Small companies are driving job growth in the United States as they do in Milwaukee with our small- and medium-sized manufacturers increasing sales and workforce. The City's sustainable manufacturing program (ME3) has helped over 20 small- and medium-sized manufacturers cut costs while reducing the negative environmental impacts of their business. City neighborhoods are experiencing less pollution and waste to landfill, while Milwaukee ME3 firms are seeing collective annual savings of nearly $5 million, with a payback of just over 1.5 years on their environmental investments.[3]

These examples are not disconnected vignettes of life in Milwaukee; they are data points in a substantial thread of evidence that demonstrates that our everyday actions at home, in our neighborhoods, at work, and at play have meaningful effects on our lives and our city. Although thinking about how to combat climate change overall may seem difficult, some basic actions are easy to complete and offer significant benefits for our city. For example, inspiring ourselves to properly insulate our homes, fix leaking pipes, and refrain from spraying chemicals on our lawns results in tangible changes to our ground, air, and water quality. Each of these actions can help make our community more sustainable, and in turn, each action benefits our comfort, our wallet, and our local landscapes where we recreate. These are three simple actions that show how sustainability matters. There are a million more.

In fact, many Milwaukeeans live this ethic each year – some without realizing it. Springtime in the city means residents gather in force to clean up city streets, neighborhood parks, our yards, and rivers. Collectively, we understand the benefits of these actions because we can see the immediate effects of clean neighborhoods and rivers. These are tangible exercises in refreshing Milwaukee – allowing us to live outside and celebrate our diverse ethnicities, cuisines, and lifestyles through a summer-long festival season. Rather than limiting that time period by refreshing our neighborhoods only once a year, we should do so every day in small and large ways. We should harness our collective action around a strategic roadmap to make Milwaukee a better place to live, work, and play all year long. Mayor Barrett's Green Team, which led the development of this strategic roadmap, believes that sustainability matters and is a powerful tool in continually refreshing Milwaukee.

For cities not only to survive but also to thrive in the 21st century, they must embrace environmental sustainability and acknowledge the economic benefits of taking the long view toward building a better, more livable city. City-planning conversations within growing world cities, like Copenhagen, Vancouver, and Portland, show that all share a common foundational belief: sustainability matters. These cities attract young professionals, entrepreneurs, businesses, visitors, and investment capital not by accident, but through purposeful action around sustainability. Sustainability is a way of life, a business ethic, and a lens through which civic leadership makes development decisions. This strategic action plan seeks to make the vision and actions related to sustainability a reality for Milwaukeeans in their neighborhoods, so that these building blocks become a strong, vibrant foundation of our local economy, a foundation on which we can thrive and truly live up to our name as "America's Fresh Coast Capital."

Working in Partnership to Achieve Sustainability Goals

As Milwaukee developed from a fur-trading outpost to the "machine shop to the world," the city lost its focus on the old adage: waste-not, want-not. Many Milwaukeeans, like people everywhere, mistook an abundance of natural gifts as a license to consume and grow without much thought to the future sustainability of those natural gifts and the future generations who would also need to rely on those resources for living. However, many of today's leaders, starting with Mayor Barrett, understand the importance of protecting and nurturing our environment. Doing so benefits our long-term economic development and community livability. We have seen the economic impacts of environmental revitalization in the condo corridors along our rivers, both downtown and in the Historic Third Ward, where water access and views come at a premium for renters and owners. In addition, we have seen educational, job development, and neighborhood health and safety improvements that have resulted from sustainability work done by Milwaukee nonprofit organizations active in environmental education, in citizen science, in urban agriculture, and in connecting residents to nature in the urban environment. Some of these organizations are already nationally and internationally recognized for their work; while others remain more locally focused and are unknown outside of their own neighborhoods.

Fresh coast. Fresh ideas. It starts with individual responsibility. Add a healthy dose of purposeful action, and witness the collective impact we can have on our city.

Mayor Barrett stated early in his first term that he wants "to create an alignment of economic and environmental interests that improve Milwaukee's quality of life." The Mayor embraces a style of leadership that values collaboration, getting the right partners to the table, and taking collective action to tackle challenges that affect our City's greatness. The Mayor's commitment to environmental sustainability, smart growth, and redevelopment started on the first day of his first term in 2004. He created Milwaukee's first Green Team, and adopted the team's report in 2005. Recommendations from the 2005 Green Team Report focused primarily on energy- and water-related issues.

Toward that end, the Mayor has overseen significant reductions in City energy use since 2005, and has worked together with the Milwaukee Metropolitan Sewerage District (MMSD) to implement nationally recognized best practices in sewerage and stormwater management. By 2012, the Mayor and the City of Milwaukee had implemented 87 percent of that report's recommendations. These sorts of changes have been critical to the long-term vitality of our City. If Milwaukee is to mitigate and adapt to the challenges of a changing climate, economy, and social structures, its leadership must continue to harness public-private partnerships into purposeful collective action that leads to higher livability and quality of life for all Milwaukeeans.

Our strong tradition of civic engagement and public-private partnerships formed the basis for

Photo: Tina Klose

Photo: Milwaukee County Parks

The completion of this Sustainability Plan is not the end of the process

ReFresh MKE is the beginning, the launching pad, for making dynamic improvements to our city. Sustainability starts with individuals taking responsibility for their homes and neighborhoods; it is propelled by purposeful action outlined in this Plan; and it will result in collective benefits that make Milwaukee the greatest city on the Great Lakes and in America. This Plan functions as a roadmap and will be accompanied by a website that acts as a connecting point and resource guide for residents and businesses. How do we grow a more sustainable city? What goals do we need to set to get there? What actions can residents, businesses, nonprofits, and others take right now to help us improve the livability of Milwaukee?

www.ReFreshMKE.com

Mayor Barrett to launch this latest sustainable planning effort, relying on the joint leadership of municipal and non-governmental community stakeholders. Unlike most other municipal sustainability planning initiatives, which rely on top-down direction, Mayor Barrett chose a bottom-up, citizen-centered approach, asking Milwaukeeans themselves to provide direction and set priorities toward making all of our neighborhoods better places to live, work, and play.

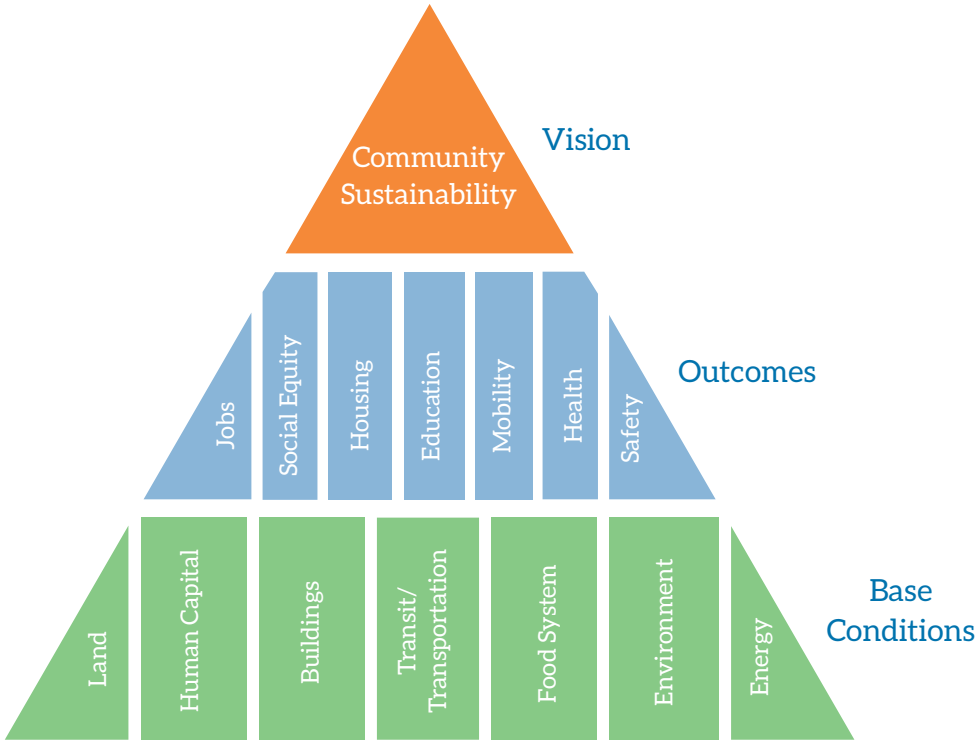
Creating Our Plan of Action

The key to addressing the challenges and obstacles that slow Milwaukee's economic development start with building stronger, more resilient neighborhoods on a foundation of environmental strength. The environmental foundation for each neighborhood rests on the building blocks of clean air, water, and green spaces; adequate transit; healthy, affordable, and culturally appropriate food; reliable and renewable energy; and safe, efficient infrastructure.

We must also nurture our city's human capital, which includes the health, safety, education, and equity of all its citizens. In fact, for too long, the social aspect of long-term sustainable development has been ignored. The Mayor's Green Team tackled this issue head-on and committed to making social equity and environmental justice a comprehensive lens in envisioning all goals, targets, and strategies of this Plan. In addition, this Plan includes a stand-alone chapter on human capital to ensure that, as we grow as a city, we view diversity as an asset and catalyst for change in all of our neighborhoods. People are our greatest asset and they are worth the investment. Just as taxpayer dollars are allocated to redevelopment projects or to habitat restoration, such money also must be allocated to realizing the full potential of the vast human capital that is sitting on the side-lines in many Milwaukee neighborhoods.

While this Plan does not specifically address workforce issues, it does address the conditions that lead to successful workforce development and education outcomes. Furthermore, environmental improvements and access are targeted for neighborhoods that have not benefitted from close proximity to Milwaukee's best water and lakefront assets. In short, by addressing these critical base conditions in each neighborhood, the City hopes to enhance its long-term economic growth and improve the environment and livability of Milwaukee for all its citizens.

To create the building blocks for strong neighborhoods and position Milwaukee as a leader in environmental sustainability and performance in the 21st century, in 2012, Mayor Barrett created a new Green Team



with representatives from neighborhood organizations, non-profits, business and civic organizations, and City government departments. The new Green Team builds on years of successes related to sustainability in Milwaukee. Many of these successes, such as the groundbreaking 2005 Green Team Report to Mayor Barrett and the Mayor's recent 2013 Climate Protection Award from the U.S. Conference of Mayors, have garnered national attention.

The Mayor tasked the new Green Team with developing a Sustainability Plan that "creates an alignment of economic and environmental interests that improve Milwaukee's quality of life both for current residents and businesses and for future generations through embracing smart, achievable sustainability principles." As this vision is realized, Milwaukee will become "America's Fresh Coast Capital." The Plan's 10-year timeframe reflects the magnitude and complexity of this effort. Central to the Plan's success is that the road to this vision be defined by Milwaukeeans and not through a top-down approach to planning and development.

To ensure that the effort outlined in Milwaukee's Sustainability Plan reflects the priorities of residents, Mayor Barrett and the Green Team reached out directly to residents through town hall meetings, smaller group discussions, and a bilingual public survey in order to help identify the issues of focus. In 2012, the Green Team surveyed 1,011 residents in an initial round of public outreach that gathered input and direction on the issues and priorities to address. In addition, the Green Team hosted 5 formal town halls and more than 30 smaller focus groups that reached an estimated additional 435 residents, bolstering the survey input with in-person contributions. The Green Team Chair also partnered with area businesses and several trade groups to gather direct feedback from Milwaukee's business community, with approximately 85 businesses participating.

The online survey had eight questions that revealed the clear guidance and priority-setting of residents and were backed up by in-person feedback (for a copy of the survey questions and a brief analysis of the results, see Appendix A). Although residents agreed that sustainability is an important concept to guide us now and into the future, everyday issues must be addressed first to create a foundation for sustainability. These issues include: access to jobs, quality educational opportunities, and the need for safer neighborhoods. Surveys and interviews also confirmed that Milwaukeeans view diversity as a strength, even as a major obstacle to a stronger city are African-American, Hispanic, and white neighborhoods that remain disconnected from each other. Residents also identified other important challenges and concerns, including empty lots and abandoned buildings, inadequate public transportation, neighborhood crime and graffiti, and lack of access to healthy food.

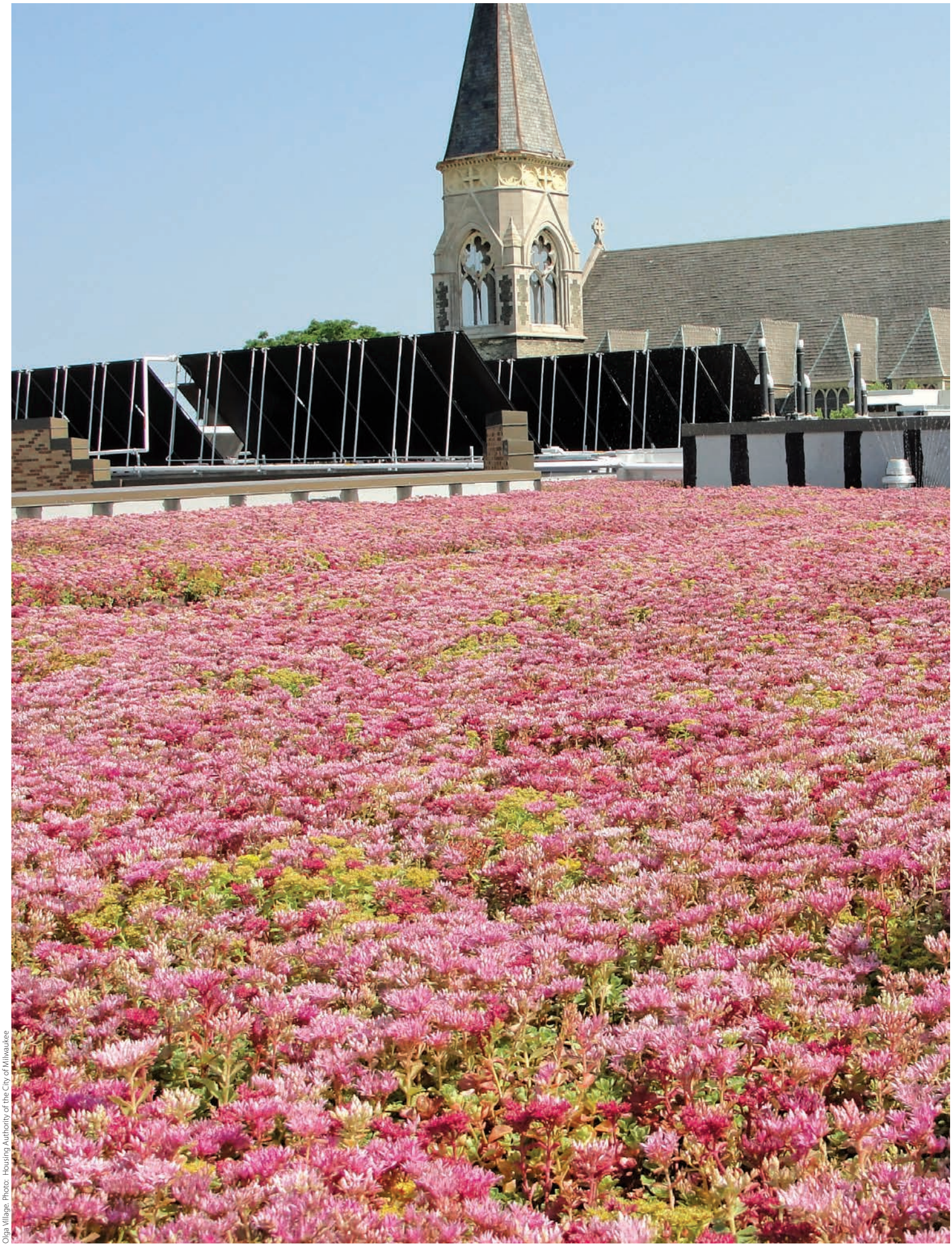
The Green Team used this information to guide development of the Sustainability Plan and craft goals, targets, and strategies to help residents, businesses, and other Milwaukee organizations improve the community at the neighborhoods. The goals are organized by eight main themes and chapters that were derived directly from residents' input. These themes are: buildings, energy, food systems, human capital, land and urban ecosystems, mobility, resource recovery, and water.

The Planning Pyramid **(graphic above left)** provides visual guidance for the community on how the Sustainability Plan will address the eight main themes in a way that also meets residents' critical need for jobs, safer neighborhoods, and access to educational opportunities. By setting goals that generate the necessary base conditions for sustainability, residents and businesses can achieve outcomes, like job creation and safer neighborhoods, which ultimately support a movement toward greater community sustainability.

The goals and targets within each of the chapters provide a strategic framework, or roadmap, for encouraging individual responsibility, City leadership, and purposeful action that will ultimately lead to collective benefits for our city. Turn the page for fresh ideas for America's Fresh Coast Capital!

SOURCES & LINKS

[1] World Commission on Environment and Development, UN Brundtland Commission. 1987. *Our Common Future*, Chapter 2: Towards Sustainable Development.
[2] Elkington, John. 1999. *Cannibals with Forks*. Oxford: Capstone Publishing.
[3] These data are the most current available as of the final editing of this report (July 2, 2013).



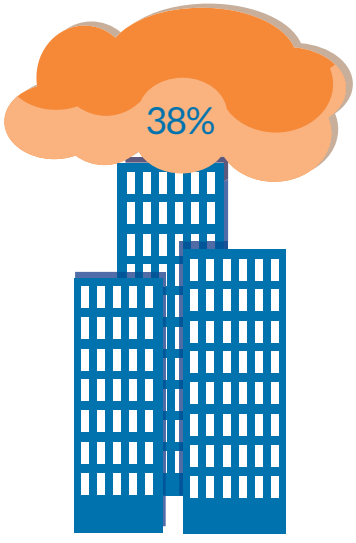
Olga Village. Photo: Housing Authority of the City of Milwaukee

Buildings

Milwaukee City Hall is LEED®-EB Gold Certified

70% of Milwaukee homes were built before 1955

38% of Greenhouse gases are from buildings



Current Baseline and Need for Action

Milwaukeeans have identified the condition and age of our residential and commercial building stock as a top concern and obstacle in improving the quality of life in our neighborhoods. Three major issues affect our building stock: aging structures, the foreclosure crisis, and state law restricting green building practices. Many areas of the city suffer from old and severely dilapidated buildings that impact neighborhood aesthetics as well as occupier comfort. The real estate market in Milwaukee continues to be depressed in many neighborhoods and the expense to do building improvements or a tear down and rebuild is cost-prohibitive. Options for requiring green building guidelines or systems, like Leadership in Energy and Environmental Design (LEED®), are limited in great part because the building code in Wisconsin is a minimum/maximum code that heavily restricts municipalities from requiring green building features; the code is more restrictive than state law.

Like many cities in the Upper Midwest, Milwaukee has many historic buildings and neighborhoods. Unfortunately, many of those buildings now lack modern heating, ventilation, and air conditioning (HVAC) systems, electrical systems, and/or energy- and water-efficient systems. Approximately 70 percent of single-family and multi-family units in the city were built prior to 1955. Improving the physical condition of these aging homes and incorporating green building practices will not only reduce the energy and water costs to homeowners, but also will improve the overall quality of long-term home operation and maintenance. Units built prior to 1955 need significant retrofitting to meet current green building guidelines like LEED®. As a result, Milwaukee continues to fund several programs to help residents improve their homes including the Me^2 program (see Energy Chapter for more information) and the Targeted Investment Neighborhood (TIN) program.

Milwaukee's industrial and commercial building stock is similarly aged. In fact, many manufacturing facilities date back to the early 1900s and, in some notable cases, prior to 1900. The City operates programs like the Façade Grant program to help improve the attractiveness of commercial buildings and the ME3 program to help improve the sustainability of small- and medium-sized manufacturers' facilities and operations. Commercial buildings in particular contribute significantly to our city's carbon footprint. The electricity and natural gas used to heat, cool, and illuminate office buildings make up a significant portion of the city's greenhouse gas emissions. Residential and commercial buildings together use more energy than either manufacturing or transportation. Improving building energy efficiency can yield high returns at low risk.

However, in Wisconsin a major obstacle exists to promoting green building practices and standards. Wisconsin state law provides a uniform building code for residential one- and two-family dwelling units. State law applies a set of minimum and maximum performance standards for these units; these standards cannot be surpassed by municipal codes. As a result, newer and stronger green building

Photo: City of Milwaukee

practices for residential one- and two-family dwelling units would have to be voluntary. To promote more green building in new housing starts, the City of Milwaukee would need to provide incentives for designers and builders to incorporate more sustainable building practices.

The City of Milwaukee has more flexibility to promote commercial and industrial green building standards The City could adopt the Code Council's Green Code for commercial buildings, remaining consistent with state law and encouraging more stringent green building standards in new commercial construction. The Redevelopment Authority of the City of Milwaukee (RACM) has been a national leader in sustainable industrial redevelopment and sustainable building design guidelines. RACM and Menomonee Valley Partners' Menomonee Valley Sustainable Design Guidelines are a model for current industrial redevelopments and should be applied to every City-led industrial redevelopment in the city.

Photo: J.F. Ahern Co.

America's foreclosure crisis hit Milwaukee hard. As a result of tax foreclosures, the City now owns and maintains approximately 900 homes and 2,700 vacant lots. The City's inventory does not account for bank-owned foreclosures. Between 2008, and 2010, almost 16,000 Milwaukee property owners were notified they had defaulted on their mortgage payments and their lenders had started legal action to foreclose upon their homes. As of January 1, 2011, more than 6,200 property owners were in some stage of the foreclosure process. These rates of foreclosure are double historical averages for Milwaukee.[1]

This significant supply of single-family homes in the City's real estate inventory is a major strain on municipal resources. All of these foreclosed properties need to be safely maintained and, in many instances, prepped for eventual demolition or deconstruction. As the City and its partners move forward to address the foreclosure crisis, City departments need to work together to strategically identify properties for demolition that would result in development opportunities or properties for deconstruction that would lead to new job opportunities and skills for Milwaukeeans (also see Land and Urban Ecosystems Chapter).

Photo: City of Milwaukee

Vacant and dilapidated buildings represent loss of City property tax revenue and increased cost to the City in the form of code inspections, more frequent policing, and fire risk. In fact, since 2008 the City property tax base has lost nearly $5 billion in value as a result of the foreclosure crisis. Fortunately, there are opportunities to adaptively reuse vacant and under-utilized buildings to reduce our carbon footprint and create innovative new development. Reducing the amount of vacant industrial areas and building storefronts in commercial corridors can revitalize these areas, provide better services to the community, and improve the economy as well as the aesthetic aspects of our neighborhoods. Putting residential foreclosures back into productive use through programs like HOME GR/OWN (see Catalytic Projects Chapter) will help make neighborhoods safer and more dynamic for all Milwaukeeans. Additionally, increased flexibility to allow certain temporary uses of City-owned foreclosed land and buildings would contribute in the short-run to neighborhood stability.

The benefits of developing sustainable buildings include improved energy and water efficiency, reduced waste and air pollution, and an overall improvement in occupant satisfaction. However, Milwaukee must improve its building stock, not just because of energy or water efficiency goals, but also because the built environment contains a large percentage of impermeable surface areas, which greatly exacerbate stormwater

What is "TIN"?

The Targeted Investment Neighborhood (TIN) initiative is designed to sustain and increase owner-occupancy, provide high-quality affordable rental housing, strengthen property values, and improve the physical appearance and quality of life in neighborhoods. TIN focuses resources for three years on a small area, generally six to twelve city blocks in size.

For more information, see the City of Milwaukee website.

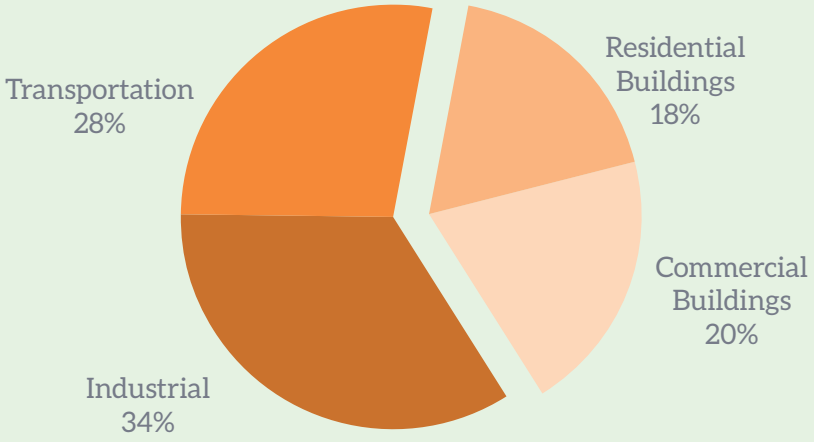
runoff. Increased runoff not only floods homes and backs up in basements, but also pollutes area waterways and the City's three lakefront beaches. A number of different technologies and practices can be incorporated to create "green" buildings that, in addition to the stormwater benefits, have lower impacts on the natural environment and are more aesthetically pleasing.

There are currently approximately 50 LEED® buildings in the Milwaukee area, including prominent buildings like Milwaukee City Hall (LEED®-EB Gold), the Milwaukee Brewers Miller Park (LEED®-EB O&M Certified), the Brewery (formerly Pabst Brewery) (LEED®-ND Platinum), and a University of Wisconsin-Milwaukee Residence Hall (LEED®-NC Gold).[2] These private-sector structures demonstrations of successful green buildings will hopefully encourage other developers to implement green building practices. In the industrial sector, developers need look no further than the Menomonee Valley, where all facilities in the City's redevelopment zone were built to stringent sustainability guidelines. The Menomonee Valley Sustainable Design Guidelines promote the adaptive reuse of Valley lands, recognizing the ecological context, river influence, existing landmarks, building stock and industrial heritage, while improving existing infrastructure such as sidewalks, streets, and storm drains.

The Housing Authority of the City of Milwaukee (HACM) has been a national leader on green building. HACM is committed to providing high-quality affordable housing that also helps to sustain our planet's natural resources and decrease impact on the environment. Since 2000, HACM has steadily increased this commitment through a number of techniques including:

- Deconstruction and recycling of demolished building materials
- Use of Energy Star appliances; ground source heating/cooling
- Upgraded weatherization in older buildings and construction techniques that increase energy-efficiency in new homes and multi-family buildings
- Use of sustainable materials such as bamboo
- Stained concrete flooring and recycled materials
- Reduction of storm-water run-off through rain gardens, green roofs and bio-swales
- Solar power

38% of Greenhouse Emissions in the U.S. are from Buildings



Source: Emissions of Green House Grasses in the US
US Energy Information Administration, Report DEO/EIA-0573 (2009)

HACM was an early adopter of green roofs for large residential facilities in the US, installing its first green roof in 2004 on the Highland Gardens facility for elderly and disabled residents. At the time, the 20,000 square foot grid-system green roof was the largest such residential roof in the U.S. HACM's current green roof inventory exceeds 75,000 square feet. Olga Village, HACM's apartment building for seniors on the campus of the United Community Center, has been certified LEED® Silver. On Milwaukee's northwest side, HACM has completed the redevelopment of Westlawn Gardens, a neighborhood designed to LEED® Neighborhood Design standards and featuring ground source heating/cooling, an LED street lighting system, an extensive storm water management plan, and the potential for future solar installation. HACM should continue its green building leadership and work with local private developers to share best practices and cost-benefit analyses, which may be useful for new residential or commercial projects.

As the City continues to redevelop large areas of Milwaukee, such as the Century City redevelopment in the 30th Street Industrial Corridor, City planners can use large site designs to address water quality, quantity and floodplain issues. The City's reconstruction of infrastructure on Greenfield Avenue and the Reed Street Yards site will account for progressive stormwater management and eventual water reuse for commercial facilities.

Site design should incorporate renewable energy production using south-facing facilities for solar. Site design can also promote energy efficiency through building and facility arrangement for combined heat and power (CHP) systems. As is contemplated in the Inner Harbor Redevelopment Project (see Catalytic Projects), designers should include protection of native species and wildlife habitat, and provide cultural and open spaces for recreation and neighborhood connections.

Lastly, design elements for larger industrial and commercial complexes should incorporate access to alternative transportation and parking design. These sustainable building guidelines should be incorporated into the redevelopment of industrial sectors starting with the Inner Harbor, Century City and Reed Street Yards.

Building Goals

Silver City Townhomes. Photo: Dan Adams, Layton Blvd West Neighbors

Goal:

Implement sustainable building practices and standards for development and major redevelopment.

Targets:

- 100% of new industrial buildings citywide designed and built consistent with Menomonee Valley Sustainable Design Guidelines
- Green Construction Code of the International Code Council® for commercial buildings adopted by 2016
- A targeted suite of new housing-start energy-efficiency and stormwater incentives developed by 2016

Goal:

Improve the physical condition of deteriorating and blighted city, residential, and commercial buildings.

Targets:

- 200 City tax-foreclosed homes sold per year to qualified buyers who must rehabilitate them.*
- At least75 housing units rehabilitated, with a focus on energy-efficient measures, annually through TIN and other programs, where possible*
- 10 buildings adaptively reused (for example, repurposing former schools for new use and former industrial buildings for housing) by 2016

Highest Priority Strategies

Target investment in housing and commercial improvement

The City of Milwaukee will use the data and indicators from The Reinvestment Fund's Market Value Analysis (MVA) to direct how housing and commercial improvement investment should be focused. Milwaukee's MVA provides a recent snapshot of Milwaukee's residential and commercial real estate market, based on an evaluation of a number of market factors. The data will help guide private market and public sector investment towards areas of distressed housing markets and Business Improvement Districts and will support sustainable growth in stronger market segments. Community Development Block Grant (CDBG) HOME funding should also be focused toward the city block level in targeted neighborhood projects.

Update sustainable design and building guidelines for industrial buildings

The City's various departments (HACM, RACM, DCD, and DNS) should develop new and update existing sustainable and building design guidelines for industrial development using the Menomonee Valley Sustainable Design Guidelines as a foundation. Other sustainable building guidelines from the USGBC, Building Owners and Managers Association International (BOMA), US EPA, IBC, and the Wisconsin Green Building Alliance can provide guidance to develop Milwaukee's green building guidelines. Sources of information as provided by USGBC and BOMA can assist in identifying locally sourced resources and building materials and contractors that specialize in green building technologies. Identifying locally sourced resources and building materials will help to determine what

Icon Key:

*** An asterisk signifies that a Target has been previously adopted by the City of Milwaukee and is not new for purposes of this Sustainability Plan.**

The Chapter Icons at the end of each Strategy indicate an overlap with strategies in other Sustainability Plan Chapters.

See the Table of Contents for a complete list of Chapter Icons.

is locally available for contractors and builders to use in the construction of new sustainable buildings. There are a range of economic and environmental benefits to implementing sustainable design and building guidelines. Reducing the amount of energy, water, and waste used to build and operate each building can have a net positive impact on Milwaukee neighborhoods.

Adopt a green code for commercial buildings

Milwaukee could develop and adopt international green building codes, using the International Code Council® as a guide, which would provide a green commercial code consistent with current state building codes.

Incentivize adoption of green building guidelines

New buildings constructed to high standards can be less expensive to operate and maintain in the long run. However, developers often only build to code to save dollars in the short-run. Educating home buyers and prospective office tenants about green building benefits can lead to an increased demand for green building construction. The City of Milwaukee's DCD and OES, in partnership with the Wisconsin Green Building Alliance, can provide these educational resources to prospective tenants and developers alike, particularly at the point where developers seek construction permits.

For example, The Focus on Energy (Wisconsin utilities' statewide energy efficiency and renewable resource group) New Homes Program pairs prospective homeowners with builders and energy experts to construct new homes that are between 10 and 100 percent more efficient than homes built to Wisconsin's Uniform Dwelling Code.[3] They're built to be as comfortable, durable, combustion safe and energy efficient as possible. Additionally, DCD should advise housing developers to consider hung plumbing features on new home construction to reduce the risk of basement backups during extreme weather, and help make our homes more resilient.

How This Supports Job Creation

- Removing barriers for redevelopment projects will generate more business and job opportunities in the fields of building design and construction.
- Associated green jobs will include: building commissioning agent, building operator, energy modeler, energy manager, green roof technician, green renovator and contractor, insulation specialist, energy-efficient lighting specialist, drafter and architect, weatherization specialist, policy analyst and researcher, and educator.
- More deconstruction jobs mean greater demand for skilled workers in this emerging sector.

How This Supports Stronger Neighborhoods

- Improving the quality and urban design of buildings will improve urban living and working conditions.
- Redeveloping vacant or abandoned properties will reduce urban blight and increase neighborhood safety.
- Developing new green buildings will improve the environment and stimulate the economy in the area.

Highlights of the Menomonee Valley Sustainable Design Guidelines

Section	Objective	Results for Facility
Site Design	Promote adaptive reuse of Valley land that recognizes the ecological context, river, existing landmarks, building stock and industrial heritage, and improve the existing infrastructure (sidewalks, streets, storm drainage).	Cost-effective stormwater management system and landscaping plan. Site amenities for employees and connections to the rest of the Valley.
Building Design & Energy Use	Encourage energy efficiency and ensure that the building is capable of operating in accordance with its design.	Long-term operational cost savings and increased employee productivity.
Materials & Resources	Reduce the building's impact on natural resources and improve the working environment.	Decreased life-cycle costs of building materials. Decreased costs for potable water.
Construction / Demolition	Improve construction and demolition waste management practices to reduce waste and environmental impacts.	Revenue from sale of construction waste. Elimination of waste disposal cost.
Indoor Environmental Quality	Provide a healthy and comfortable environment for facility occupants.	Reduced absenteeism and increased productivity.
Operations & Maintenance	Ensure the building and landscape features operate and are managed as designed.	Reduced costs of long-term maintenance and building upkeep. Reduced landscape maintenance costs.

Source: "Menomonee Valley, Overview of Guidelines and Benefits," Sustainable Design Guidelines for the Menomonee Valley River

Photo: Dan Adams, Layton Blvd West Neighbors

Evaluate and update zoning codes and city ordinances

The City will evaluate and highlight current sustainable zoning codes, city ordinances and permit requirements, and update and adopt changes that support green building standards. Obstacles in codes and ordinances to sustainable building practices, renovations, modifications, and installations will be identified based on the following considerations:

- Home improvement projects can be a cost-effective way to provide significant energy savings to homeowners as well as improve the health, comfort, and safety of homes. Remove impediments to "do-it-yourself" improvement projects being implemented by homeowners. Current impediments disproportionately affect low-income residents and discourage new, sustainable development.
- Explore streamlining the permit process for contractors working on residential weatherization and renovation projects (e.g. roofing, lead abatement, energy efficiency).
- Identify state building codes that impede sustainable building practices, such as installation of greywater systems, and advocate at state level for specific changes.
- Review requirements for existing historical buildings to determine whether impediments to building upgrades can be removed.

Energy disclosure mandate for commercial buildings

Markets function best when consumers have clear information to compare products. In the case of buildings, prospective tenants who pay the energy bills often cannot compare the energy costs of occupying one building versus another, because building owners do not readily disclose that data. Implementing an energy disclosure mandate would allow informed decisions about buying, leasing, and financing, and increase the market's awareness of buildings' energy performance. Comparison of one buildings' performance to that of similar facility would also be easier, including an assessment of a building's energy costs over time.

The City of Milwaukee should complete a study in conjunction with interested stakeholders on the costs and benefits of an Energy Efficiency Disclosure Mandate for Commercial Buildings and evaluate how similar efforts have been implemented in other cities. A mandated energy disclosure for commercial buildings would require all commercial buildings to perform energy audits on their facilities and publicly display the energy performance certificate, generally raising public awareness on energy efficiency. The study could investigate a phased approach from 2015-2020 that would start with disclosure at time of purchase or lease, or start with only the largest buildings over a certain square footage. This study should also consider complementary policies for requiring low to no cost energy efficiency improvements.

Funding residential rehabilitation, deconstruction, and demolition

The City of Milwaukee will determine, in conjunction with interested stakeholders, the parameters of expanding public programs that could fund residential roof replacements to improve the quality of the single-family residential homes. Roof repair and replacement are major obstacles for Milwaukee homeowners who want to invest scarce resources in energy efficiency upgrades. Roofs must be in good condition before any energy efficiency work can be done cost effectively and many homeowners needing new or repaired roofs simply cannot afford the cost.

The City operates a wide array of programs for residential home improvement, including one focused on loans for leaky roofs. Increasing the resources allocated to roof repair/replacement programs is

essential as is adjusting program parameters so that more people are able to qualify for the programs. After roofs are repaired or replaced, renovating existing buildings and homes requires sources of funding and support. Some sources of funding include:

- Me^2 grant funds for improving existing foreclosed homes to promote energy efficiency and improve the quality of the houses for resale.
- Funding from the Façade Grant program to renovate the street-facing exteriors of their buildings while promoting products (e.g. windows, building materials) that will provide energy efficiencies.
- Tax Increment Financing (TIF) funding for completing a feasibility study on the development of green infrastructure, complete streets, and green buildings projects. TIF funding is a public financing method that is used to subsidize redevelopment or infrastructure projects using future gains in taxes to subsidize current improvements.
- The Housing Infrastructure Preservation (HIP) Fund that makes investments in historically or architecturally significant properties owned by City.
- The Neighborhood Improvement Development (NIDC) loan program for home preservation and rehabilitation. Given recent funding reductions, resources are currently limited to TIN residents, elderly homeowners, and owners with an emergency repair need who can qualify for a repayable Emergency loan.
- Milwaukee's Department of City Development (DCD) lease-to-own program (in development) for qualified tenants in City-owned property to guide both the tenant and the property owner through ownership transition.

Funding for demolition and deconstruction of buildings not fit for habitation continues to be a priority for the Department of Neighborhood Services. The City simply does not have enough money to demolish all the homes on the City's raze order list. Additionally, the City is interested in working with private sector and non-profit partners to implement strategic deconstruction on a cost-effective basis. Not only does deconstruction reduce waste to landfill and put resources back into productive use, but it also provides a significant opportunity for job creation as the deconstruction market in Milwaukee is relatively small and currently consists of a handful of firms and purveyors.

The City's Neighborhood Stabilization Program (NSP) addresses the impacts of foreclosed and vacant properties on City neighborhoods. NSP funds have been used in the acquisition, rehabilitation and construction of close to 1,000 housing units and resulted in more than $100 million of new investment. (The City must seek to identify new sources of funding to continue this work as NSP funding sunsets.) Community Development Block Grant Program (CDBG) already invests in foreclosure impacted neighborhoods. As the City and community implement strategies in this chapter, activities should be aligned with current CDBG actions to focus funding to the city block level (as opposed to allocating based on Census tracts as is standard practice).

Continue collaborative work with community partners and lenders to save homes from foreclosure

In regard to foreclosure properties and homes, the City has drafted and begun implementing a plan through the Mayor's Milwaukee Foreclosure Initiative that incorporates best practices from around the country to mitigate the impacts of foreclosure. Non-public and (if necessary) public sources of financing will be identified that will allow qualified home buyers to purchase and rehabilitate existing vacant homes, with a focus on energy efficient measures. Vacant housing is reoccupied and taken off demolition candidate lists. This is crucial for overall neighborhood sustainability in the neighborhoods where the City owns large numbers of homes.

How We Will Reach Our Goals

Milwaukee will reach its goals for its residential, commercial, and industrial building stock by bringing together different stakeholders and building partnerships to make a difference.

Key to successful strategy implementation is to first establish a baseline of Milwaukee's residential and commercial real estate market situation and then to target limited, available resources toward the most highly distressed areas.

Administrative actions such as establishment of sustainable design and building guidelines will enhance the sustainable elements of renovation and reconstruction, and potentially make a significant contribution to creating new green jobs. Updating / streamlining codes and procedures to benefit homeowners will encourage home renovation, support neighborhood aesthetics, and save energy when more efficient materials and designs are encouraged and implemented.

The City will need to provide effective consideration and suggestions to renovators and builders, easing navigation through all potential, available funding sources and optimizing the use of limited monetary resources.

SOURCES & LINKS

[1] Department of City Development and Department of Neighborhood Services. 2011. "Foreclosure in Milwaukee: Progress and Challenges."

[2] Wisconsin LEED® Certified Buildings: www4.uwm.edu/shwec/leed/index.cfm.

[3] www.focusonenergy.com/residential/efficient-homes/new-homes

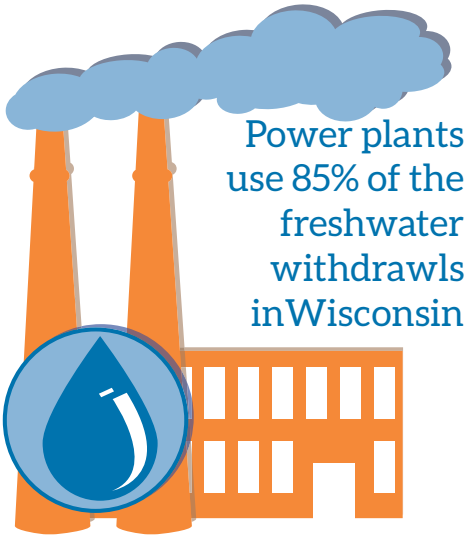
Solar at MSOE. Photo: H&H Solar Energy Systems

Energy

Over $12 billion leaves WI every year to import fossil fuels

Me^2 has helped to improve the energy efficiency of **over 800** Milwaukee homes

Milwaukee has over **150** solar installations



Power plants use 85% of the freshwater withdrawls in Wisconsin

Current Baseline and Need for Action

Energy in its many forms is central to our modern economy. Electricity lights our homes, businesses, and streets, and powers air conditioners, countless appliances, computers, and industrial processes that form the backbone of modern living. Natural gas provides building heat and hot water, and can be used to power cars and generate electricity. Steam provides heat and hot water to many buildings in downtown Milwaukee, and fossil fuels power our vehicles. Abundant and reliable energy makes modern life in Milwaukee possible and is a key driver in our economy.

Like other places across the country, conventional power generation in Milwaukee is typically provided from imported fossil fuels. Coal and natural gas are imported from other states, like Wyoming; and vehicle fuel is imported from other states and countries. Annually, $12.5 billion flows out of Wisconsin's economy to import fossil fuels, including $4.3 billion for natural gas and coal.[1] In 2012, the average southeastern Wisconsin resident paid $1,442 for electricity and natural gas.[2] However, Milwaukee has thousands of older homes that lack the insulation and efficient equipment of newer homes, and have energy costs that exceed $2,900 annually.[3] Milwaukee's older and less-efficient building stock in both the commercial and residential sectors increase the cost of living for a lot of folks in Milwaukee, relative to places with newer construction. In terms of City facilities Milwaukee spent $21 million in 2011 for energy in its municipal operations, including $5.6 million to power the Milwaukee Water Works, $7.2 million for vehicle fuel, $5.1 million to We Energies for electricity, natural gas, and steam for municipal buildings, and $4 million in electricity for street lights.

Energy from conventional sources has not only a monetary cost, but also includes costs to our environment that ultimately get paid through other means. Because Milwaukee relies so heavily on electricity produced from the burning of coal and other fossil fuels, the community suffers from air pollution and increased mercury in our lakes and rivers. The costs resulting from burning fossil fuels are known as "externalities," or "external costs" which are paid by society at large, not at the source of burning. Environmental costs of fossil fuel use include reduced property values for properties located near power plants; impacts to human health, such as impaired respiratory function and cardiac stress, which lead to higher health care costs[4] and lost productivity; and reduced value to commercial fishing. While We Energies has upgraded emission controls at some of its facilities in the last decade, reducing sulfur dioxide (SO2) and nitrogen oxide (NOX) emissions by approximately 70 percent since 2001[5], the Valley Plant is currently the dirtiest plant in We Energies' fleet, and sits in the most densely populated area of the state, our city.

Fossil fuels produce greenhouse gasses that can contribute to climate change, which, if left unchecked, will place additional stress on existing utilities. Greenhouse gases come from various human activities; in the United States, about 38 percent of greenhouse gases come from residential and commercial buildings.[6]

Globally, excessive use of fossil fuels and their greenhouse gasses, combined with deterioration of carbon "sinks" like forests, contributes to global climate change. If left unchecked, global climate change can lead to increasing "cascading" effects that amplify the seriousness of the challenge. Hotter summers, characterized by more droughts and increased frequency of extreme precipitation events, can place additional stress on the Milwaukee's electrical and stormwater utilities, leading to increasing costs and risks of utility failures. Milwaukee has already experienced four precipitation events in the last decade that exceed the volume typical for a 100-year record storm and that yielded millions of dollars in property damage.

Because these environmental, health care, and additional utility costs resulting from fossil fuel use are not included in the price paid to utilities and gas stations, energy from fossil fuels appears to be cheaper than energy from cleaner sources. But a comprehensive look at energy efficiency and clean energy options reveals that they are not only viable, but are becoming more cost effective and essential to a sustainable future. In the future, federal regulations or taxes on carbon pollution could require utilities to account for the environmental costs directly in their rates, thereby making energy efficiency and renewable energy even more cost competitive to the consumer.

While all cities face energy challenges, those that proactively plan for the risks will create a competitive advantage for themselves over time. Milwaukee is well positioned to meet the energy challenges. For example, Milwaukee and Wisconsin are home to a robust cluster of energy efficiency, renewable energy, power, control, and energy storage companies.[7] These companies are supported by dozens of other local companies in their supply chain and hundreds of mechanical and electrical contractors.

More than 50 of these companies and Milwaukee's universities are already partnering through the Wisconsin Energy Research Consortium (WERC). WERC is focused on the research and development associated with Distributed Energy Resources (DERs) and building energy-efficiency technologies. Academic research is linked to these companies through the WERC, making Milwaukee a national leader in these technologies.

Combining smart energy policy with the private sector know-how of these energy efficiency companies and academic research, Milwaukee can position itself to grow its exports and fuel local economic growth. Additionally, we have made a great start on helping to improve energy efficiency by instituting programs like the Milwaukee Energy Efficiency (Me^2) programs for homes and businesses (see inset on).

Mayor Barrett has also created an Energy Reduction Team to systematically work toward increasing energy efficiency in City facilities, which will help to control long-term costs to taxpayers and demonstrate environmental leadership to the community. The Office of Environmental Sustainability (OES) chairs the Energy Reduction Team, composed of facility managers from the following departments: Public Works, Police, Fire, Health, and the Port of Milwaukee. The Energy Reduction Team follows a six-step process for reducing the City's energy use:

1. **Set Goals (Better Buildings Challenge, 25x25 goals, and others)**
2. **Measure city energy use using U.S. Environmental Protection Agency (EPA) Portfolio Manager, Utility Trac Plus, or other tracking tools**
3. **Prioritize Buildings for Energy Improvements**
4. **Identify Energy-Saving Projects**
5. **Implement Projects**
6. **Perform On-going Monitoring and Continuous Improvement**

This effort received an important boost of financial resources through the American Recovery and Reinvestment Act (2009 federal stimulus). In a similar manner, Milwaukee's Common Council issued a resolution (#091066) supporting the "25 x 25" goals, which was promulgated by the State of Wisconsin Office of Energy Independence. The goal called for generating 25 percent of the City's electricity and 25 percent of its transportation fuels from renewable resources by 2025. (See inset on page 25).

Without third-party financing options, such as Power Purchase Agreements (PPA's), the City will not likely be able to afford the up-front cost of enough renewable energy projects to meet the goal.

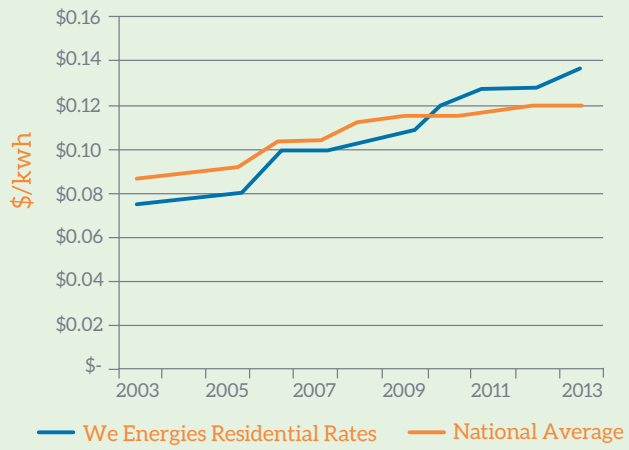
Solar Install at Milwaukee Brewing Co. Photo: H&H Solar Energy Systems

However, the City has begun work toward the 25x25 goal by installing the Port of Milwaukee Wind Turbine and a photovoltaic system on the Central Library. The "Energy Goals: Better Buildings Challenge…" inset shows city energy use (in MMBTUs) for its core buildings (excluding Water Works), how much energy would need to be reduced every year through efficiency efforts, and how much renewable energy would need to be added to meet goals.

City policy makers, residents, and businesses must be more intentional in strategically planning our energy future. Homeowners and businesses should view energy waste as a cost and a drain on economic prosperity, but one that can be controlled. With smart policy, creative financing, and expansion of existing initiatives, Milwaukee can redirect wasted energy dollars into improving our facilities with projects that save energy and create local jobs. We need to increase Milwaukee's energy efficiency projects and initiatives.

We need to integrate more cost-effective renewable energy into our fuel mix, reducing the environmental effects of energy and hedging against rising fossil fuel prices. We need to ensure our energy infrastructure is resilient and reliable, spend more of our energy dollars locally, and increase Milwaukee's energy-related exports, thereby creating local jobs.

We Energies residential electric rates have grown faster than national average



Source: We Energies and U.S. Energy Information Administration

Photo: The Port of Milwaukee

Photo: Helios Solar Works

Photo: H&H Solar Energy Systems

Energy Goals

Goal: Improve residential and commercial energy efficiency in Milwaukee.

Targets:

- The energy efficiency of 2,000 homes improved in 5 years using the Home Performance with Energy Star standards through Me^2; another 10,000 homes improved with no- and low-cost energy-efficiency measures
- The energy efficiency of 1,000 commercial/industrial businesses improved in 5 years.
- Portfolio-wide, the City's building energy use reduced 20 percent by 2020 (per the City's pledge to meet the Better Buildings Challenge)*

Goal: Replace fossil fuel energy use with more clean renewable energy in City of Milwaukee Facilities.

Target:

- 25 percent of the City's electricity generated using renewable resources by 2025 (per the Common Council resolution to achieve the "25x25 Goal")*

Goal: Grow Milwaukee's cluster of energy efficient and clean tech companies to create local jobs and exports.

Target:

- Smart Energy Hub formalized and an Energy Innovation Center created by December 2014

Goal: Increase community resilience and customer choice by removing the regulatory and institutional barriers to distributed renewable energy projects (items such as solar arrays and wind turbines).

Target:

- By December 2014, an Energy Engagement website created to educate the public on clean energy issues
- Intervention in contested cases before the Public Service Commission, including We Energies rate cases, to support Milwaukee's citizens and businesses interest in affordable and sustainable energy

Community Energy Programs are Core

Under Mayor Barrett and with funding from the U.S. Department of Energy, the City of Milwaukee OES has created a robust portfolio of energy programs to support community energy goals. These programs include the Milwaukee Energy Efficiency program (Me^2), ME3 Sustainable Manufacturing program, Milwaukee Shines solar program, and the Better Buildings Challenge.

To date, Me^2 has upgraded over 800 homes in Milwaukee, and the program has approved over 130 business projects valued at $16 million. The ME3 Sustainable Manufacturing program has assisted 22 businesses in identifying energy and resource efficiencies. Milwaukee Shines has tripled the solar workforce in three years and removed barriers to solar energy. There are over 150 solar installations in the City of Milwaukee, all generating over one megawatt of clean energy for the community. And ten of Milwaukee's key downtown buildings have pledged to reduce their energy use through the Better Buildings Challenge.

Continuing these programs is a key strategy for meeting Milwaukee's sustainability goals.

Better Buildings CHALLENGE U.S. DEPARTMENT OF ENERGY MILWAUKEE

ECONOMY ENERGY ENVIRONMENT

Me^2 Milwaukee Energy Efficiency *Smart energy pays.*

Milwaukee SHINES FOR A SUSTAINABLE SOLAR FUTURE

Photo: Tina Kose

Pursuing these goals will have multiple benefits for Milwaukee. First, energy efficiency and clean energy can help Milwaukee homeowners and businesses save money for the long term, helping Milwaukee stay economically competitive.

Second, becoming more energy efficient and replacing energy from fossil fuels with clean energy improves our quality of life by improving indoor and outdoor air quality, and better positions Milwaukee for federal policy that regulates carbon emissions as pollution. Finally, investing in energy efficiency and clean energy creates local jobs that cannot be outsourced, in contrast to our current energy model, which sends billions of dollars out of the state annually for imported fuel.

Highest Priority Strategies

Document and institutionalize the City's existing Energy Management Plan

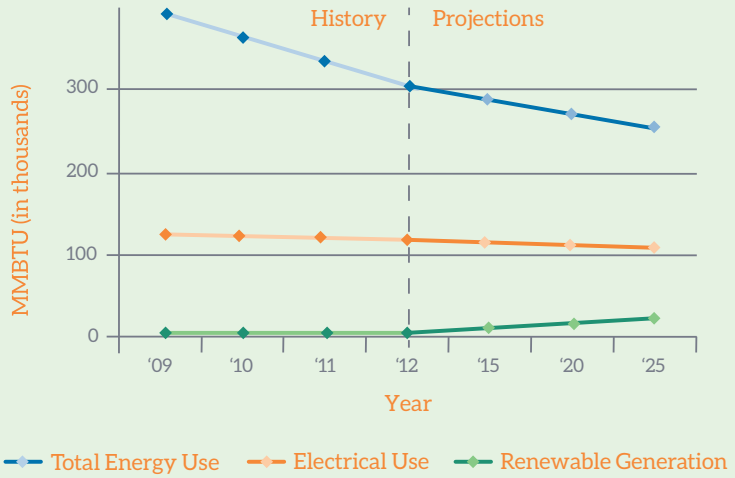
The City will document the OES' existing six-step reduction process in an Energy Management Plan. The plan can include items such as evaluation of vendor switching for natural gas to manage cost and exploration of investments in advanced "smart" building controls. In addition, the City should continue to fund cost-effective energy-saving projects through its capital budget or through innovative financing strategies (noted in the financing strategy below), and identify energy-saving opportunities at the Milwaukee Water Works. The Energy Management Plan will document these efforts and tie the plan to the annual City Budget. The City should also work with university experts to explore waste-to-energy opportunities to fuel city operations.

Promote and enhance Milwaukee's Smart Energy Hub and create an energy innovation center

Milwaukee's Water Council,[8] a first-of-its-kind, public-private partnership, was established to move Milwaukee forward as the world water hub. Much like the Water Council, Milwaukee public and private leaders should formalize support for the existing industry cluster of companies that already support or use energy efficiency and renewable energy measures, support like-minded companies in their supply chain, and partner with WERC. Milwaukee should develop a strong brand name, such as the Smart Energy Hub, for this cluster. The Milwaukee OES currently operates the Solar Hot Water Business Council and could incorporate that entity into this broader group effort. The Smart Energy Hub should include many of the companies already working with WERC, but can be expanded to include other suppliers and installers of energy-efficiency, products such as light-emitting diode (LED) lights and insulation manufacturers. While WERC and the industrial smart energy cluster extend beyond the Milwaukee metropolitan boundaries, the center of the Smart Energy Hub should be in the City of Milwaukee. Toward this end, and to use an available space, Milwaukee should create an Energy Innovation Center at the Century City Tower at 4201 N 27th Street. This Energy Innovation Center will contain the new headquarters for WERC. WERC and other Tower tenants would work together with strategy for commercializing research and development produced by WERC, helping local companies improve and expand their product lines, and incubating small Milwaukee businesses to support the industry supply chain. The project has support from City and State leaders who are already working together to coordinate funding for the project. Additionally, the facility could be used to connect prospective workers with this growing industry through workforce development agencies. Milwaukee's high schools, technical colleges, and universities can develop training courses to support the energy-efficiency industry. Milwaukee Area Technical College (MATC) Center for Energy Conservation and Advanced Manufacturing (ECAM) provides a good example.

Muncipal Building Energy Goals

Better Buildings Challenge: Reduce total energy use 20% by 2020
25 x 25: Generate 25% of electricity from renewables by 2025



Create innovative financing options for energy efficiency and clean energy

Smart financing of energy-efficiency projects reallocates scarce financial resources of homeowners, businesses, and government away from fossil fuel energy, and into building improvements that increase both occupant comfort and the value of our building stock. Innovative financing options minimize or eliminate the up-front cost of energy-efficiency improvements so that building owners can space out their payment for improvements and simultaneously save on their conventional energy bills. Existing financing options include, but are not limited to, Property Assessed Clean Energy Financing (PACE) on-bill utility financing, Power Purchase Agreements (PPAs), Energy Saving Performance Contracts, Managed Energy Service Agreements (MESAs), credit enhancements for more traditional loans, and revolving loan funds. The City of Milwaukee has already created a commercial PACE program, and should advocate other financing options (see the following strategy). The City should also leverage Qualified Energy Conservation Bonds (QECBs)[9] to finance energy-efficiency improvements. The City should incorporate these financing options into successful OES technical community assistance initiatives, like the existing Milwaukee Energy Efficiency Program (Me^2), ME3 sustainable manufacturing program, Milwaukee Shines solar program, and Better Buildings Challenge.

Advocate for a sustainable energy future with We Energies, the Wisconsin PSC, and State lawmakers

Wisconsin Statutes §1.12 explains the State Energy Policy. This law provides that, in meeting energy demands, and to the extent that it is cost-effective and technically feasible, options should be considered according the following priorities, in the order listed: (a) energy conservation and efficiency; (b) noncombustible renewable energy resources; (c) combustible renewable energy resources; and (d) nonrenewable combustible energy resources, in the order listed: (1) natural gas; (2) oil or coal with a sulfur content of less than 1 percent. The Milwaukee Sustainability Plan supports this priority listing, and will advocate that it be implemented in practice to federal and state officials, regulatory agencies, and our utility. The City of Milwaukee OES will work with the utility to make implementing energy-efficiency and clean-energy projects easier for customers. OES will also advocate for improved customer access to their own utility data by encouraging the utility to create automatic data feeds for the EPA Portfolio Manager System or to implement the Green Button (an

Utility Progress with a Mixed Message

Currently, many of the decisions shaping our energy policy are made by an investor-owned utility, We Energies, a monopoly regulated by the Wisconsin Public Service Commission, based in Madison, Wisconsin. We Energies has taken an important step with recent plans to convert the Valley Plant from coal to natural gas[a]; this conversion will produce results in terms of better air quality. The utility has increased rates over the last decade to cover costs associated with building additional power plant capacity and upgrading other plants and infrastructure, which should increase energy grid reliability. However, the utility has built more fossil fuel power plant capacity than is necessary to meet demand.[b] They have also upgraded emission controls at some facilities in the last decade, reducing SO2 and NOX emissions by approximately 70 percent since 2001.[c]

While We Energies complies with State law regarding funding of the Focus on Energy program, contributing nearly $60 million annually, and is on schedule to meet the State mandated Renewable Portfolio Standard, it has recently dismantled its internal business units that promote energy efficiency and renewable energy. A sustainable energy plan for the future would include more public input into utility decisions and acceptable rates of return, utility support for the City's sustainability priorities, and utility executives who are willing to consider new business models that support energy efficiency and more distributed renewable energy.

[a] Content, Thomas. 2013. "We Energies asks PSC to OK conversion of Valley power plant to natural gas." Milwaukee Wisconsin Journal Sentinel JO Online. April 29.

[b] Quirmbach, Chuck. 2013. "Elm Road Coal Power Plant Pollutes Less Because It Runs Less." Wisconsin Public Radio News. June 25.

[c] Wisconsin Energy Corporation. 2012. *2011 Corporate Responsibility Report*. Page 98.

Energy-Water Nexus

Energy use and freshwater use are tightly interconnected. Power plants use a tremendous amount of water for cooling as they generate electricity. Power plants use 85 percent of the freshwater withdrawls in Wisconsin. Conversely, water utilities use a significant amount of electricity to treat and distribute water to homes and businesses. Therefore, conserving energy saves water; likewise, conserving water saves energy and treatment costs.

Behm, Don. "Wisconsin uses over 2 trillion gallons of water a year." JS Online, Journal Sentinel Milwaukee. 23 Feb. 2013.

industry-led effort responding to a White House call-to-action for providing electricity customers with easy access to their energy usage data in a consumer-friendly and computer-friendly format via a website). Consistent with the Energy Priorities law, OES will work with a newly defined Smart Energy Hub (see second strategy) to demonstrate that energy efficiency is cost effective and a technically feasible option, and that renewable energy is becoming more cost effective every year, and can improve over time with additional research and development.

In particular, the City and/or OES will also perform the following activities to support the ideas outlined in this Sustainability Plan:

- Work with the Wisconsin Public Service Commission (PSC) to ask utilities to develop a new business model that encourages energy efficiency and renewable energy investment. Advocate for utility leadership that will explore 21st century business models that view energy efficiency and renewable energy as core business principles rather than regulatory requirements. File to become an Intervener on We Energies contested rate cases to ensure Milwaukee's interests are represented before the PSC.
- Advocate for policies that allow property owners more flexibility for financing and implementing distributed clean-energy projects such as solar arrays and wind turbines. Work with We Energies to fund distributed energy or energy efficiency demonstration projects. Provide public testimony at rate cases and in public presentations to advocate for improved interconnection and net metering rules to allow for larger-scale solar projects and third-party financing.
- Create an Energy Engagement website to educate the public on energy and utility issues. Increase community input on utility rate cases for Milwaukee residents and businesses by providing formal input to the PSC during rate cases.

Advocate for a smart electric grid and Valley Power Plant improvements

For renewable energy to reach its market potential and communities to become more resilient in the face of potential natural disasters, Wisconsin utility companies should begin implementing a smart grid. A smart grid can better handle energy being added to the system from third parties' renewable energy systems. Much like the world-wide web, a smart electric grid can help democratize the energy market and respond more quickly to power outages. Distributed energy can also apply to the heating of buildings. Most properties throughout Wisconsin have their own distributed heating systems, in the form of natural gas furnaces and boilers. However, Milwaukee's downtown is on a centralized steam system, making operating costs for downtown business owners heavily dependent on We Energies rate decisions. The Milwaukee Sustainability Plan supports the proposed conversion of the Valley Power Plant from coal to natural gas, as combined heat and power plants can be efficient. Longer term, policy makers should study options to decommission the Valley Power Plant entirely by instead creating business models in which the utility could fund conversion of downtown buildings to distributed natural gas as part of the utility's rate base.

Photo: Tina Klose

How This Supports Job Creation

- Energy-efficiency and clean-energy projects are labor intensive and the associated jobs (such as insulators, solar panel installers, electricians, and mechanics) cannot be outsourced to remote locations but must be done "in person" at a residence or business.
- Milwaukee's aging building stock has huge market potential for improvements that save energy.
- The community is already spending money to fund these projects, but these resources are currently being wasted on excess energy uses that do not add lasting community value. Smart financing can reallocate these funds to local jobs.
- The Smart Energy Industry offers job possibilities across a broad spectrum of skills, from advanced research and development positions, to skilled mechanics positions, and sales positions.

How This Supports Education

- The Smart Energy Industry requires workers to have math and technical skills, applied in a practical, hands-on way. Local educational institutions, like high schools, MATC, and universities, can make learning come alive for students by showing them the practical industry applications of their learning, from basic math to advanced physics.
- Teachers can educate students of all ages about where energy comes from, how buildings operate, and how our modern life is powered. Class projects to design basic circuits or rudimentary wind turbines can get students excited about careers in energy. The MATC Energy Conservation and Advanced Manufacturing program in Oak Creek, Wisconsin, can partner with city of Milwaukee high schools to create a pipeline of students into the program.

Milwaukee Central Library solar installation. Photo: Donald M. Murphy

How We Will Reach Our Goals

The City has demonstrated national leadership on energy-efficiency and clean-energy policy. OES should immediately form a partnership with WERC to make the Smart Energy Hub a reality. Continued funding of existing energy initiatives, like City energy efficiency efforts and community programs like Me^{2,} ME3, and Milwaukee Shines, will help Milwaukee meet its goals. Partnerships that have been formed across the public, private, and educational sectors should be expanded and branded with pride. Finally, the City and its partners should work with State and utility leaders to show that energy efficiency and clean energy can lead to job creation and lasting sustainability and prosperity.

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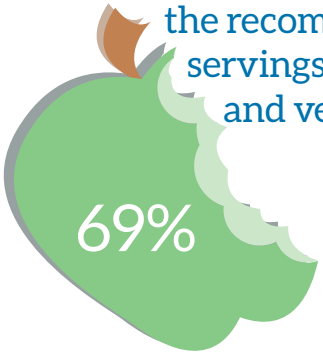
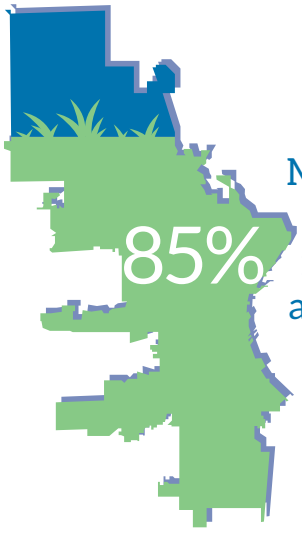
Clock Shadow Creamery. Photo: Juli Kaufmann

Food Systems

69% of Milwaukeeans do not consume the recommended servings of fruits and vegetables



Milwaukee is home to 177 community gardens



85% of Milwaukee is zoned for urban agriculture

Current Baseline and Need for Action

Over the past 10 years, interest in healthy, nutritious, local, and sustainable food has grown rapidly across the United States. Municipal governments are increasingly devoting formal attention to local food production[1] and other food system issues, such as healthy food access.[2] In Milwaukee, the lack of healthy food access is a deep and systemic local concern. Not only did Milwaukeeans place overwhelming importance on healthy food access in the 2012 Green Team public outreach process (see Appendix A for more details on the outreach results), but public health statistics bear out their concern. In 2012, District #4 (encompassing most of the city proper) was ranked 415th out of the nation's 436 Congressional districts in health and well-being.[3] According to the 2012 Milwaukee Health Report, "Milwaukee's large population, poor health outcomes, and large health disparities – many associated with socioeconomic status – continue to have significant impact on the overall health of the state as well as on the economic vibrancy of the city."[4]

Milwaukeeans (regardless of income) report unhealthy eating; 69 percent do not consume the recommended number of servings of fresh fruits and vegetables daily, 51 percent report no access to healthy food, 37 percent are overweight, and 31 percent are clinically obese. These percentages increase for lower socioeconomic groups in the City.[5] In addition, more than 80 percent of children who receive one or more meals a day through the Milwaukee public schools (MPS) participate in the free- and reduced-lunch program, which is an indicator of poverty.[6]

Wisconsin is a top agricultural state nationwide. Milwaukee, a national manufacturing and food processing capital, historically has had a traditional, institutional food system of food distributers, supermarkets, restaurants, farmers markets, and corner stores. The City's loss of more than 77,000 manufacturing jobs since 1970[7] has resulted in private disinvestment in city neighborhoods, where job loss has been widespread. Consequently, community assets, such as grocery stores, leave those neighborhoods. These losses result in lacks of both healthy food access and economic development. A move toward a more sustainable community food system in Milwaukee can benefit all people and neighborhoods where healthy food access is a concern, contributing to the overall vision of a sustainable, resilient Milwaukee.

What is a "food system"? The food system includes all processes involved in keeping us fed: growing, harvesting, processing (or transforming or changing), packaging, transporting, marketing, consuming, and disposing of food and food packages.[8] Community-based food systems are interconnected, place-based, ecologically sound, economically productive, socially cohesive, food secure, and food literate (knowledgeable about food preparation and nutrition).[9]

"A community food system is a food system in which food production, processing, distribution, and consumption (and recycling) is integrated to enhance the environmental, economic, social and nutritional health of a particular place."[10]

The New American Foodshed

It's a **TRIPLE-BOTTOM-LINE** world for entrepreneurs in the New American Foodshed: Social, ecological, and local economy outcomes matter.

To navigate this territory, entrepreneurs are building "food value chain" relationships; that is, they're working together to build consumer and community values into their products and fill gaps in the food supply chain along the way.

Source: Wallace Center at Winrock International

For this Plan, we define the Milwaukee community food system as being the growing, aggregating, processing, distributing, access and consumption, and waste/resource recovery of food, primarily in the Southeast Wisconsin region, while recognizing that much of the food Milwaukeeans currently consume is produced outside our region, in other parts of the United States or in other countries.

The concept of a community food system is sometimes used interchangeably with a "local" or "regional" food system, but including the word "community" emphasizes strengthening the existing (or developing new) relationships among all components of the food system. Establishment of a community food system reflects a prescriptive approach to building a food system that holds sustainability – economic, environmental and social – as a long-term goal toward which the community strives.

The values-based food supply chain, or "food value chain," shown in this New American Foodshed graphic makes transparent the relationships that occur in the food system as food moves from farm to table. The result is that consumers get to know the producers and entrepreneurs who bring them the food they eat and can influence the types of food grown and produced. In Milwaukee, a new community-based food value chain should be created that incorporates healthy food access and food justice, while strengthening economic relationships among food producers, aggregators, processors, distributors, and consumers of food in Milwaukee and southeastern Wisconsin.[11]

The push to improve our local food systems has already started. In May 2007, an ad hoc group of community members, professionals, and government officials who were concerned about the food system began to meet on a regular basis, adopting the name of "Milwaukee Food Council" (MFC). Now, they are collaborating and sharing ideas with the goal of making the regional food system ecologically sustainable, economically vibrant, and socially just.[12]

Also, coincident with the development of this Sustainability Plan, in 2012 Mayor Barrett announced the HOME GR/OWN initiative – a plan to increase healthy food consumption (demand) and access to healthy food (supply) by using City-owned vacant properties in targeted neighborhoods, while catalyzing system-wide improvements in the local food supply chain (see Catalytic Projects Chapter).

The anticipated projects of the HOME GR/OWN initiative are closely connected to the Sustainability Plan's food system goals, targets and strategies. Finally, an impressive array of public, private, and non-profit entities alike are forging great relationships and undertaking projects with the promise of helping meet our City's fresh food needs.

City of Milwaukee
Food Accessibility

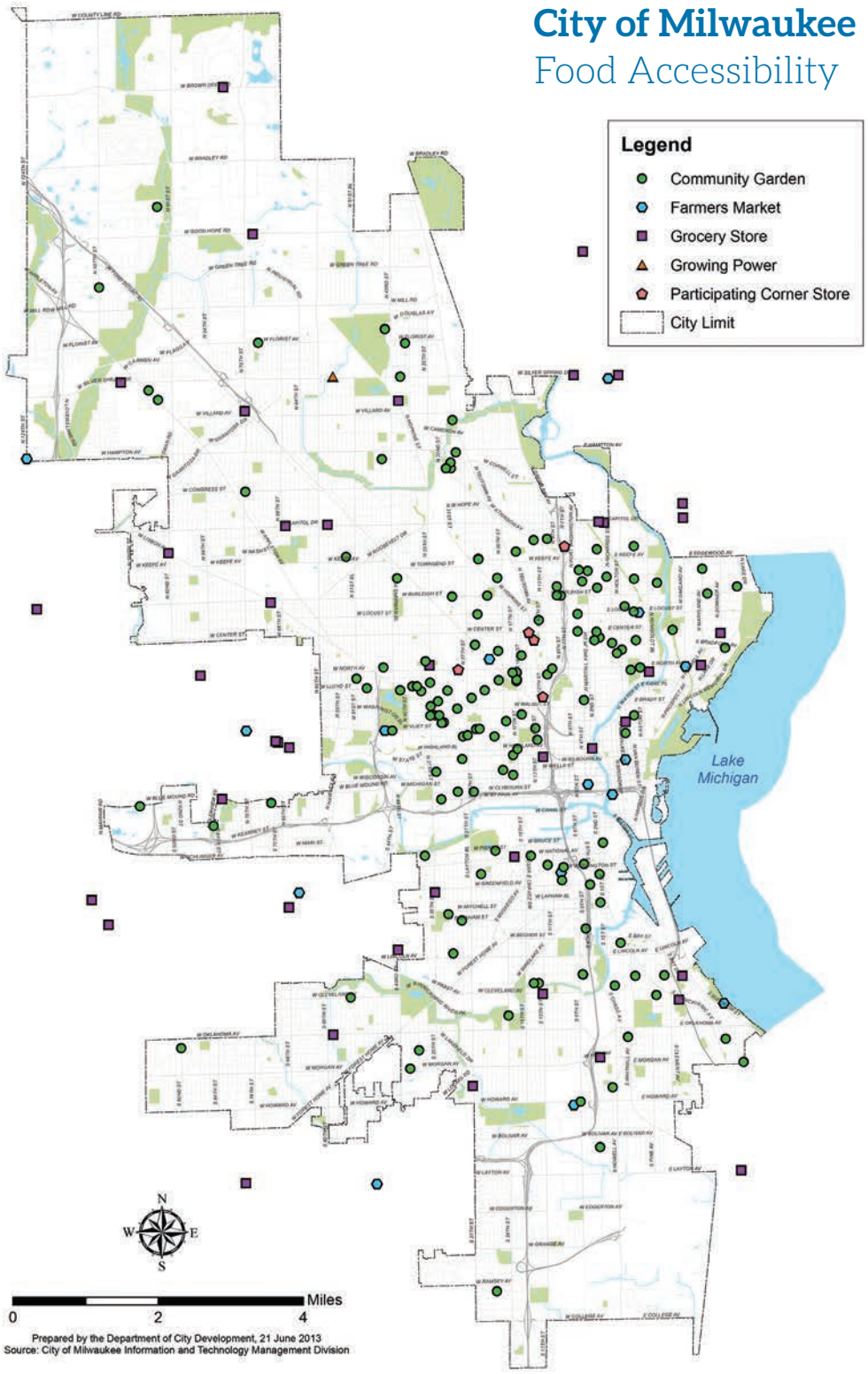


Photo: Victory Garden Initiative

How This Supports Job Creation

- System-wide development of new healthy food outlets, especially non-traditional supply chains (such as food hubs and green carts) can create new food-based employment opportunities.
- A substantial, coordinated food system will create stable alternative food-based career pathways.
- The expansion of urban farming can increase household income through incremental income from healthy food sales. Though these are not full-time jobs, they can generate needed income in our poorest communities.
- Local food system infrastructure improvements, such as new nurseries, hoop house construction, vacant lot site preparation, and composting can provide incremental job creation.

How This Supports Education

- Alternative workforce development is accomplished through new grower and farmer training and food-based small business training.
- Further integration of urban agriculture and nutrition education in MPS and charter schools, coupled with field activities in which students participate in food production, distribution, and marketing, provide learning opportunities and hands-on Science, Technology, Engineering, and Mathematics (STEM) activities.
- City-wide food literacy campaigns targeted at youth and adults will provide education on nutrition and food preparation.

How This Supports Stronger Neighborhoods

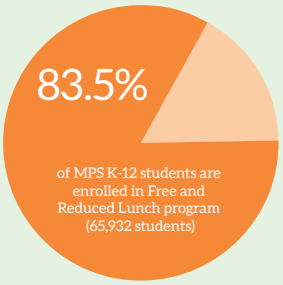
- Strong food value chains will convert vacant and blighted properties to food production and green space and connect residents in new ways.
- Community access to culturally-appropriate, fresh, local food will improve public health.

How We Will Reach Our Goals

One way the City of Milwaukee will reach our goals is through the HOME GR/OWN initiative (see Catalytic Projects Chapter), which is spearheaded through the Office of Environmental Sustainability (OES). This initiative will serve as a pilot project for the City to develop replicable best practices and to identify and address potential implementation issues. City departments involved in the initiative include: the Department of City Development (DCD), OES, Department of Neighborhood Services (DNS), Department of Administration (DOA), Milwaukee Health Department, and others, as directed by the Office of the Mayor.

Current HOME GR/OWN funding allows for two full-time City staff to begin working on food system issues in 2013. The City is pursuing additional funding from philanthropies and local businesses. The ad hoc Milwaukee Food Council will lead the effort to achieve food system targets. The City's current and future collaboration with the food-centric community and nonprofit sector organizations, neighborhood redevelopment groups, private sector food companies, local universities, Milwaukee Metropolitan Sewerage District (MMSD), and the philanthropic community will propel the action steps detailed in the strategies.

Milwaukee Public Schools
Free and Reduced Lunch Participation
2012-2013 School Year



e: WI Department of Public Instruction http://fns.dpi.wi.gov/fns-progstat

Food System Goals

Goal: Set a city-wide food system policy and action agenda.

Targets:

- Clear-cut City food policies published by May 2014
- Good food purchasing guidelines for Milwaukee food service institutions developed by 2017

Goal: Improve institutional capacity and leadership to enhance the sustainability and resilience of Milwaukee's food system.

Targets:

- Milwaukee Food Council's role expanded by December 2014 to formally coordinate City departments, community stakeholders, the nonprofit sector, the private sector, and other major institutions
- Food charter, which is a statement of values and principles to guide the City's food policy, developed by September 2015
- MPS, Milwaukee Area Technical College (MATC) and local universities integrated into resident education and Milwaukee food system planning (potentially using Milwaukee Vincent High School's new Urban Agriculture/Urban Foods focus as such a pathway)

Goal: Increase demand for and access to locally and/or sustainably grown healthy and nutritious food.

Targets:

- Increased community food production, processing, and distribution, as measured by an incremental 30 properties used for food production and businesses engaged in food processing and distribution by 2016, and an additional 175 properties by 2023
- 25 new outlets for purchasing, distributing, and selling locally and sustainably grown food in neighborhoods with documented food insecurity by 2016 and 100 more added by 2023
- Number of residents living within a 10-minute walk of a healthy and nutritious food source increased compared to current level, as identified in a food assessment for healthy food access

These goals will increase the sustainability and resilience of Milwaukee's food system on multiple fronts. Additional cross-departmental municipal policy work will strategically promote incremental increases in food production and processing and will remove obstacles to continued expansion of the local food value chain. Increased access to healthy and nutritious food will support improved public health.

Greener city neighborhoods, revitalized by food entrepreneurs, decrease blight, reduce crime, and promote neighborhood cohesion. System-wide expansion of the healthy food distribution chain creates grassroots economic growth through a deeper, broader, and more decentralized local food system. A more resilient Milwaukee food system truly addresses the social, economic, and environmental goals of a sustainable Milwaukee.

Highest Priority Strategies

Create an action agenda to refresh Milwaukee's food system

Milwaukeeans will benefit from the creation of a city-wide food policy and action agenda to guide future investments in a more sustainable and resilient food system. A local food policy audit, to be completed by May 2014, will reveal which policies affecting the food system are in need of revision and where new policies should be created. The City will begin discussions with the Milwaukee Food Council, started in 2007, regarding the willingness of the MFC to develop into an ad hoc City Food Policy Council to the Mayor, with key City and sector representation in addition to its existing nonprofit membership base, by December 2014.

Critical to this effort is increasing each City department's understanding of its policies related to and regulatory impacts on the food system. Emboldened as a food policy council, the MFC and its nonprofit and for-profit sector partners can convene public processes to develop a food charter, launch a city-wide food literacy campaign in 2015, conduct food value network analysis in 2016, and work with City staff to develop local and sustainable food procurement policies for major city institutions, such as MPS, hospitals, colleges, and universities, by 2017.

Build food value chains to enhance culturally appropriate healthy and nutritious food access

All Milwaukeeans deserve to live within a 10-minute walk of healthy and nutritious food sources. But identifying and mapping areas of the city as "fresh food deserts" and "fast food swamps" does not tell the complete story of food access failure. Food access is a systemic problem, rather than a sector problem. The availability of healthy, culturally appropriate, and nutritious fresh foods is a function of many interconnected food-system policies and activities, involving food production, processing, distribution, consumption, and waste recovery, as well as Milwaukee's political, social, and economic environment.[13] Once the City has established the appropriate policy framework, the community can create the actual components of a food value chain.

Building community-based food value chains will promote, expand, and create food hubs for distribution, facilitate expanded central city supermarket scale retail, and spur food-based social entrepreneurship through non-traditional food retail and direct marketing outlets such as farm stands, Green Carts, food trucks, mobile markets, and CSAs. Community organizations and nonprofit partners will work with the City to transfer ownership or lease of vacant and/or foreclosed properties for urban agriculture, through initiatives such as HOME GR/OWN.

The City will expand existing programs, such as the City's long-term lease program for vacant lots, in partnership with Milwaukee Urban Gardens, to increase opportunities for community gardening across the city. These actions will help expand access to healthy local food, promote local economic development in the food sector, and integrate consumer and community values into business systems.[14] Other significant areas to address include improving education on food preparation and nutrition (that is, food literacy), and expanding access to existing food assistance programs (or creating new ones as needed).

Through its use of City-owned vacant land, foreclosed properties, and other assets, policies, such as sustainable food procurement and education, will generate demand for local, healthy and nutritious food and provide the framework for entrepreneurs to build capacity to supply this food to the community.

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[11] *Ibid*.

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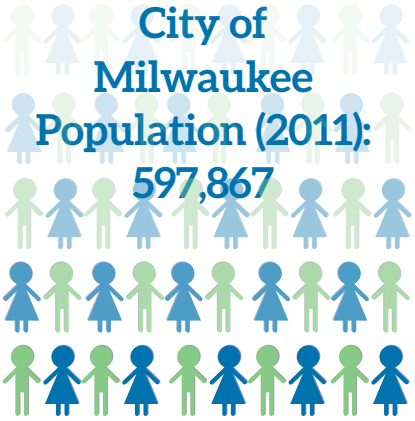
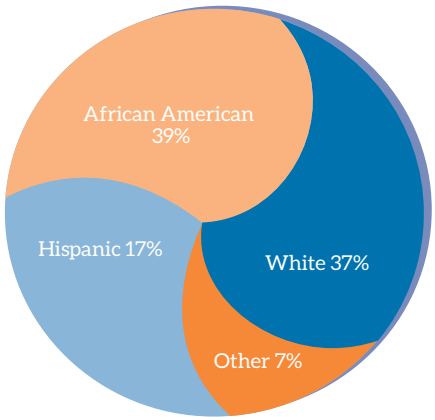
[14] The New American Foodshed. 2013. http://foodshedguide.org/foodshed.

Photo: Rick Wood

Human Capital





Milwaukee is Diverse

90 % of Milwaukee adults hold a high school diploma.

31% of Milwaukeeans hold at least a bachelor's degree

Current Baseline and Need for Action

Human capital, simply put, is the people part of sustainability. The term "human capital" refers to the competencies, knowledge, and social and personality attributes (including creativity) that people use to produce economic value. It is closely tied to the need for economic sustainability through employment and entrepreneurialism, which are key priorities identified by Green Team survey respondents. In fact, top priorities highlighted in the survey included jobs, educational opportunities, and the need for safe neighborhoods for all Milwaukeeans. Broadly speaking, the need for greater social equity is reflected in these priority areas. Human capital includes the perspective that human contributions are our most important economic asset. It recognizes that to keep Milwaukee economically, intellectually, and artistically competitive and vibrant, we need to create opportunities for people to flourish, and, in turn, people must take advantage of those opportunities through individual effort and community collaboration.

Balancing the natural environment and the needs of the human community began with the Native American tribes who first lived in abundance at the edge of Lake Michigan and the confluence of the rivers. Milwaukee then became home for the melting pot of settlers who pushed westward and for immigrants who came from every part of Europe in the 1800s seeking their livelihoods. In the early to mid 1900s, plentiful family-supporting factory jobs were something people moved north to attain, as Milwaukee was a major destination in the great migration of African Americans from southern states.

More recently, Milwaukee has offered opportunity to immigrants from Mexico and to refugees from places as diverse as Laos, Somalia, and Burma. As a result, Milwaukee has a long history of people of many faiths, cultures, and ethnicities contributing to our local economy and enjoying our natural amenities side by side.

Unfortunately, the lagging impacts of the Great Recession are still being felt in Milwaukee, where the unemployment rate in the city is 11.6 percent. Non-white Milwaukeeans are disproportionately affected; 18.6 percent of African Americans, 17.0 percent of Native Americans, and 13.1 percent of Hispanics (any race) are unemployed.[1]

From a public policy standpoint, determining what can be done to improve and better leverage Milwaukee's human capital to grow the local economy and create jobs is the heart of Milwaukee's biggest challenge. In order to create the necessary conditions for propelling Milwaukee onto a path of prosperity for all of our citizens, we must set goals that increase economic opportunity for all residents, develop ladders of advancement for youth and entrepreneurs, and promote inclusion and diversity.

The connection between social responsibility and sustainability is well articulated in this excerpt from an article about the International Organization for Standardization Guidance on Social Responsibility (ISO 26000):

"The ISO 26000 standard is based on the belief that every organization has a responsibility to abide by certain principles, respect individual and collective rights and contribute to sustainable development in general. It also recognizes that unsustainable patterns of production and consumption have serious social and environmental impacts, and that the currently unsustainable rates of consumption often aggravate poverty and social disparities."

From ISO Focus, The Magazine of the International Organization for Standardization, Volume 2, No. 3, March 2011, page 16.

Building on Milwaukee's long history of being a city of opportunity with diverse neighborhoods and newcomers, policy makers and civic leaders should strategically develop ladders of advancement for youth and entrepreneurs that reflect the realities of the economy of the 21st century. In an entrepreneurial culture, young people are taught to get an education not merely to find a job, but also to start a business.

In addition, government, educators, finance institutions, and other partners provide venture capital and other resources to help small businesses get started, grow, and become self sustaining over time.

Another issue that needs to be addressed to fully leverage Milwaukee's human capital is the disconnectedness between some neighborhoods in Milwaukee as well as the lack of mass transit options that can assist residents in reaching jobs on the metropolitan periphery.

The highest levels of unemployment are concentrated in the central city, and many of these residents are limited in the scope of their job search because they reside far away from where many new jobs are being created. There is a spatial mismatch between where those who need a job most live and where many new economic opportunities are being created.

Milwaukee has a rich diversity of people with different backgrounds. This diversity can drive creativity and innovation in all facets of life, from the economy to the arts to family and community life.

An equitable society, in which people from all backgrounds have an opportunity to fully participate in economic life, leads to sustained economic growth. The metropolitan area leadership should fully embrace diversity as an asset by demonstrating a spirit of inclusiveness that values, respects, and supports our diverse population.

Human Capital Goals

Goal: Increase economic opportunity for all Milwaukeeans.
Targets:

- Green jobs pilot program created in a sustainability area identified as a priority by the community
- Menomonee Valley Industrial Center Wage Policy, as adopted by the City of Milwaukee and the Redevelopment Authority of the City of Milwaukee (RACM), used as a model for future RACM projects and Sustainability Plan catalytic projects, where feasible

Goal: Develop ladders of advancement for Milwaukee youth and Milwaukee entrepreneurs.
Targets:

- Summer internship placements prioritized in industry areas outlined as priorities in the Sustainability Plan
- Participation increased in City Youth Employment Programs by 10 percent per year
- Increased number of new minority business start-ups in Milwaukee within 10 years

Goal: Promote inclusion and diversity for a sustainable economy.
Targets:

- Mayor-hosted Call to Service breakfast campaign for local business and civic leaders
- Human capital strategies aligned with City block grant-funded programs that create inclusion

An under-used, divided, and unequal Milwaukee is not a sustainable Milwaukee. Therefore, Milwaukee needs to develop approaches to better develop the human capital of our people and extend existing job opportunities to a more diverse mix of people. We must begin with the premise that we all share a common humanity and have a common purpose. We share a belief that if you work hard and play by the rules, a middle-income lifestyle should be within reach. This vision will be achieved by redoubling our efforts to develop the human capital of Milwaukee.

Highest Priority Strategies

Expand green jobs opportunities with a new green jobs program

Mayor Barrett and the Green Team will hold a *Tournavation*-style event that gathers community and business input on developing a new project to support Sustainability Plan goals and targets that are related to creating jobs in a sustainability industry identified as a priority by residents.

Organizers of the *Tournavation* should use the Community Workforce Agreement that governs the Milwaukee Energy Efficiency (Me^2) program as a model. This strategy can build on the first *Tournavation* held by the City, ArtMilwaukee and NEWaukee in August 2012, to gather community ideas on ways to implement HOME GR/OWN.

In addition, the City has already created green job opportunities through the Me^2 program and Milwaukee Shines Solar program. Those programs contain a Community Workforce Agreement that requires contractors to complete Me^2 jobs with City of Milwaukee residents. However, a group of workforce development experts, participating small businesses, and others should cooperatively strategize to better link worker training programs, hiring of contractors, and workforce development agencies so that residents can take better advantage of available opportunities.

"How do you unpack and create a different way to create a middle class...?

A strong middle class makes for a strong city. A strong middle class is what keeps a city viable."

- Jeanette Mitchell, Ed.D., Executive Director of Leadership Center, Cardinal Stritch University

Create business open house program for mentoring Milwaukee youth

Mayor Barrett should partner with the Milwaukee Metropolitan Association of Commerce (MMAC), the Greater Milwaukee Foundation, and other business groups to identify a stream of resources that connect business mentors with area youth to promote a culture of success/work preparedness and innovation. As noted in the Human Capital group's outreach session, youth, especially youth of color, can feel unwelcomed in traditional social and business environments. The open-house concept serves as a direct point of connection for area youth who are not familiar with Milwaukee's business leaders and who may not otherwise have the means to meet and explore local business opportunities. The program would also foster cross-cultural communication.

Develop strategic framework for expansion of existing youth programs

Engage a university partner to conduct a study that identifies factors causing college educated youth to leave the metropolitan area as well as factors that attract relocating young professionals. Create a practical, future-focused, life-after-school curriculum for young people in middle and high schools to prepare them for life as engaged and responsible citizens.

Increase participation and funding for the City's Youth Employment programs in sectors that support Sustainability Plan goals and targets. City Youth Employment programs under the heading "Earn and Learn" include three programs for young people ages 14 to 21: the Community Work Experience program, the Private Sector Job Connection program, and the City Summer Youth Internship Program.

Solar install workshop. Photo: Midwest Renewable Energy Association

How This Supports Job Creation

- Working with the community to identify local job growth sectors, and then support sector growth through City development, increases economic opportunity.
- Connecting underused human capital with job centers creates access to job opportunities.
- Expansion of youth program investments not only leads to direct, short-term jobs, but also helps youth to better market themselves for gainful long-term employment.

How This Supports Education

- Connecting youth with area business leaders demonstrates that good-paying jobs and companies of influence are accessible and attainable.
- Developing a culture of entrepreneurship and appropriate curricula will prepare Milwaukeeans to start small businesses and innovative endeavors.
- Educating Milwaukeeans on the importance of diversity and inclusion will help break down barriers to advancement and connection between residents.

How This Supports Stronger Neighborhoods

- Greater access to employment will strengthen families and increase investment in our neighborhoods.

SOURCES & LINKS

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Expand transitional jobs opportunities

Transitional jobs offer disadvantaged, yet demonstrably dedicated, job seekers, who are unable to find a private sector job, access to a wage-paying job at a community-based organization. Like Youth Employment programming, the jobs pay minimum wage and are time limited, with structured support to improve soft and hard skills so that individuals can move into the private labor market.

Model City Business Development Agency policies on Menomonee Valley Industrial Center Wage policies

Menomonee Valley Industrial Center Wage policies can serve as a model for all City redevelopment projects. In addition, businesses receiving aid from City resources should explore the benefits of qualifying for the internationally recognized and accepted ISO 26000 Social Responsibility standard.

Provide active support of entrepreneurship by City departments

Recent developments in Milwaukee are putting the City on the radar screen when it comes to supporting new start-up businesses. As the City restructures the Office of Small Business Development, it should explore strategies to grow new businesses that are connected to global export markets, our strongest local industrial sectors, and our largest anchor businesses. As an additional means of supporting diverse business start-ups, the City will increase access to local resources for those not typically engaged with local government agencies.

For example, the City could reserve space in City redevelopment projects or in under-used City facilities to incubate small minority businesses, with shared office space and shared office support staff. As a first step, the City should develop streamlined business license processing, registration and start-up-service instructions in multiple languages on the City's website.

How We Will Reach Our Goals

Over the years, Milwaukee has implemented a number of policy strategies that have helped to address the issue of employment access for local residents and support for small, locally owned businesses. The Residents Preference Program, the Office of Small Business Development, City contracting standards for those businesses, and the MORE Ordinance are all policies that address the issue of creating employment opportunities and thereby reducing poverty.

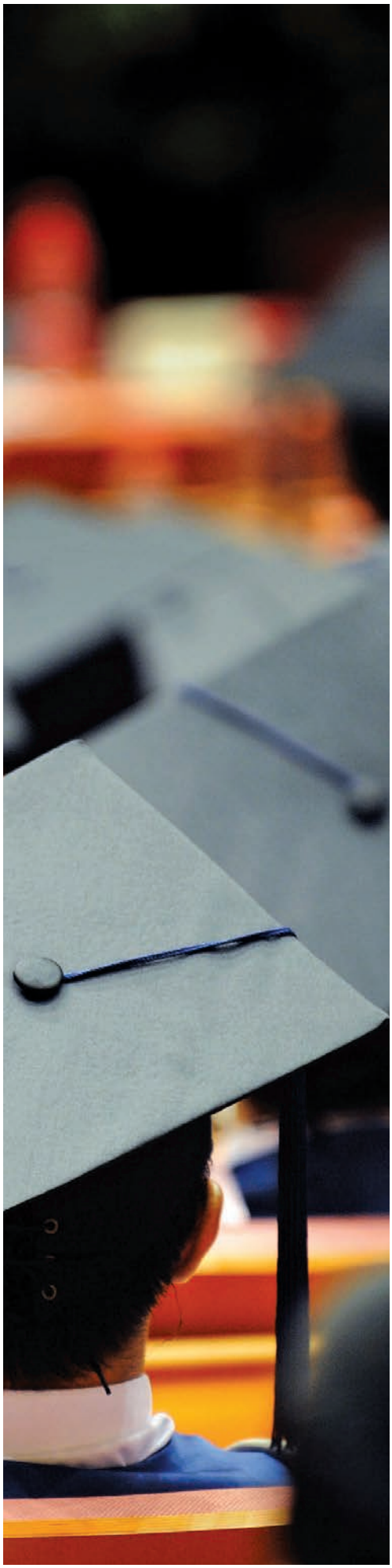
However, these measures have not been enough, on their own, to overcome the larger economic forces affecting Milwaukee's quality of life and employment prospects. Nonetheless, each effort provides a foundation for advancing a more progressive human capital development and deployment campaign.

The City's Common Council has also spent considerable time and resources addressing human capital needs, from the important work of the African American Male Unemployment Taskforce to the newly formed Black Male Achievement Advisory Council. Stakeholders working on human capital issues in the metropolitan area should look to align programs with recommendations and strategies developed by these committees. These types of task forces and councils also provide a model to be used by other groups disproportionately affected by segregation or lack of diversity and inclusion.

The City and its partners have piloted progressive approaches to development in the Menomonee Valley Redevelopment project, combining sustainable design standards with wage standards for companies locating in the project area. In addition, a community work force agreement framed the City's implementation of its energy efficiency program, Me^2. Milwaukee can set the bar high for human capital development and deployment, and has direct experience on which to draw.

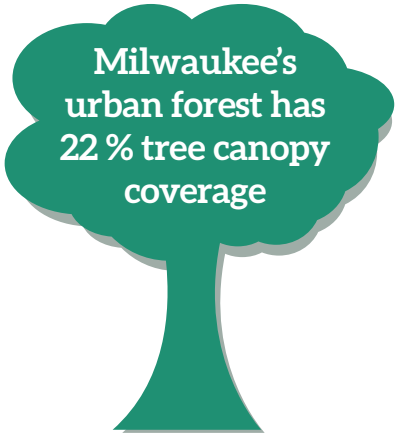
As a result of our past and ongoing efforts, there are many reasons to be optimistic. Milwaukee has many assets to work with to improve human capital conditions. The City can and should play a role in helping to organize these assets and resources for maximum impact. Many different units of local government play a role in human development. These units include schools, libraries, work force development agencies, and health departments. Through block-grant funding, they support many more programs that are administered by community-based agencies.

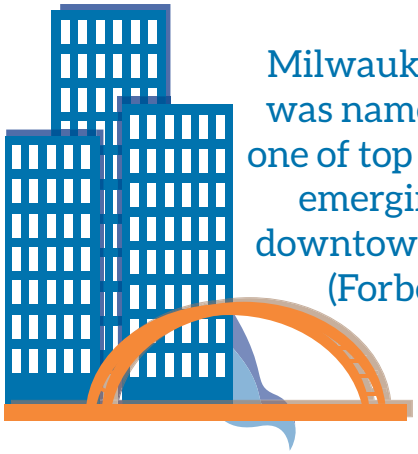
Together with the philanthropic and business community, the City can work to align the programs offered by these agencies to prepare youth and adults to be successful in 21st century urban life. There are many community partners in Milwaukee whose organizational missions are related to human capital development and who, for years, have contributed greatly to putting residents back to work, advocating for good corporate citizens in the region, and building a successful foundation on which to launch human capital strategies.



Land & Urban Ecosystems

Milwaukee is ranked 19th of the 50 largest U.S. cities for access to parks





Milwaukee was named one of top 15 emerging downtowns (Forbes)

Current Baseline and Need for Action

Milwaukee encompasses 98.6 square miles and lies adjacent to Lake Michigan at the confluence of the Milwaukee, Menomonee, and Kinnickinnic Rivers. Milwaukee's thriving downtown, recently ranked by Forbes as one of 15 top emerging downtowns in the United States, and its unique and historical neighborhoods contribute to the vitality of the city. Most of these neighborhoods are walkable, have a variety of land uses, and include amenities such as numerous County and other local parks and playgrounds, all interconnected through a street grid system. However, many other neighborhoods face challenges partly as a result of the increasing number of vacant lots, underused former manufacturing and industrial land, and lack of access to parks and open space.

The City's Department of City Development (DCD) spent six years (2004 to 2010) working with residents, businesses, and other civic groups to comprehensively address Milwaukee's land use policies and align them toward a common goal.[1] DCD developed 13 neighborhood area plans, which specifically tackle land use issues in many of the same parts of the city where foreclosed and vacant properties and lack of green spaces are issues. In addition, the City's Department of Public Works (DPW) and Department of Neighborhood Services (DNS) work to maintain and beautify city-owned green and vacant spaces, and engage with parks and other revitalization groups to ensure the protection of strategic parcels of land necessary to support our fragile urban ecosystem.

The City's involvement with the community to develop the Milwaukee Riverway Greenway Overlay is one such example and a best practice. The Overlay uses development set-back and riparian corridor requirements to protect 12 river miles of primary environmental corridor along the Milwaukee River. Riparian corridors are unique plant communities, consisting of the vegetation that grows along rivers, streams, lakes, lagoons, and other natural bodies of water. These areas generally include mud flats, trails, and bluff areas, and are critical to healthy ecosystems. The best practice exemplified by the Overlay can serve as a model to also preserve and create vital greenspace along the Menomonee and Kinnickinnic rivers.

Vacant lots and deteriorating green spaces are a destabilizing force in our neighborhoods and a resource drain on taxpayers; this chapter focuses on such areas as priority issues. The productive reuse of vacant lots, with no buildings and Brownfield areas (former industrial or manufacturing properties with environmental contamination), is critical to creating sustainable neighborhood-based amenities. Additionally, the protection and creation of riparian features, including wetlands and environmental corridors, should also be a focus of creating neighborhood-based amenities through productive reuse while protecting and revitalizing natural areas to create a more sustainable urban ecosystem.

Photo: Brad Blavat, urbanmilwaukee.com

Photo: City of Milwaukee

Currently, the City owns approximately 2,700 vacant lots in Milwaukee. While this figure is a fraction of the number of such lots that some other cities face, this issue permeates deeply into our neighborhoods and ranks as a top concern for Milwaukeeans.

Neglected and vacant areas detract from the quality of life, as well as from economic opportunity. Furthermore, they impede social equity and neighborhood redevelopment. In many cases, houses used to be on these lots, but as they fell into disrepair or foreclosure, they were demolished. The deterioration has grown, spreading house by house and block by block, decreasing the population and property values. These vacant properties become targets of illegal dumping and litter, leading to an overall perception of neighborhood neglect and heightened safety concerns. Ultimately, these social and economic problems lead to environmental degradation in the heart of our city.

The City-owned vacant lots that were acquired through tax-foreclosure require costly maintenance such as mowing and snow removal, which strains already limited resources. And the inventory of vacant lots continues to increase because of lagging tax-foreclosure actions and a list for demolition and deconstruction of City-owned foreclosed homes (see chart below). Selling or leasing these lots for reuse is a lengthy process. This problem is further exacerbated by the fact many of the properties are in high-crime neighborhoods or have been stripped by thieves of any remaining economic value. As a result, the City's inventory of vacant residential lots continues to increase without many lots being leased or sold.

Like many of the other older industrial cities in the Upper Midwest, another source of vacant land is former industrial and manufacturing properties. While Milwaukee has remediated and redeveloped hundreds of Brownfield areas over the past two decades, creating thousands of jobs by leveraging private investment, there still remains a high concentration of old, industrial, and manufacturing sites with embedded environmental issues and aging or inadequate redevelopment infrastructure. These once productive sites lie abandoned or underused and are in need of environmental assessment and remediation. These properties are the most difficult and costly to redevelop. However, Milwaukee, a national leader in Brownfield remediation, has the capacity to continue strategic clean-up and redevelopment of sites.

Milwaukee's urban ecosystem includes public open lands and other green spaces, such as parks, pathways, and natural areas that contribute to the livability and sustainability of our neighborhoods. While Milwaukee ranks 19th out of the 50 largest cities for access to parks, according to The Trust for Public Land,[2] equitable access and connectivity for all neighborhoods still needs to be improved.

Milwaukee's Riverwalk system is the ideal model for City planners and private-sector developers who seek to reorient economic development

Milwaukee County- and City-Owned Parks

Owner	Number of Parcels	Acres	Percent of Total
City	129	408	11.90%
County	164	3020.9	88.10%
Total	**293**	**3,428.90**	**100.00%**

Source: 2013 City of Milwaukee Master Property File.

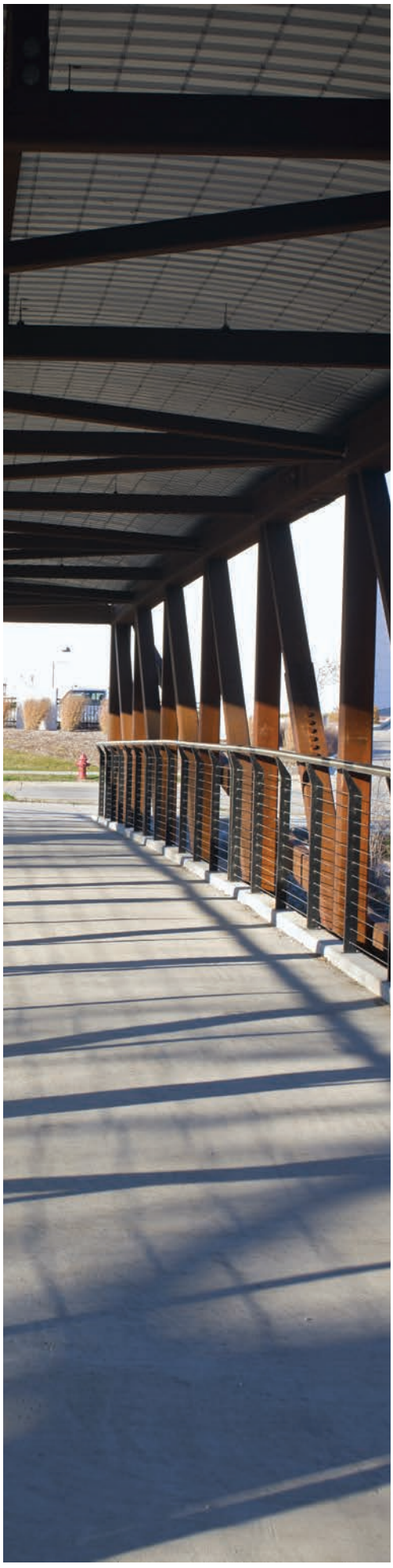
Urban Ecosystem Defined

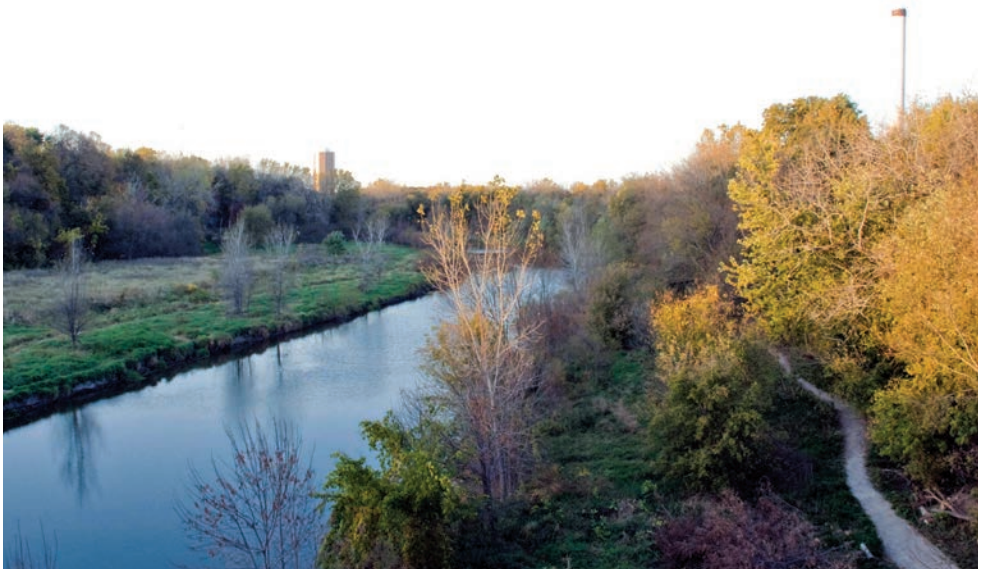
Urban ecosystems consider the seen and unseen connections between nature and humans in a built environment – a city. The urban ecosystem represents the interactions of all of the separate functions (such as land use, transportation, and economy) among and between people and nature.

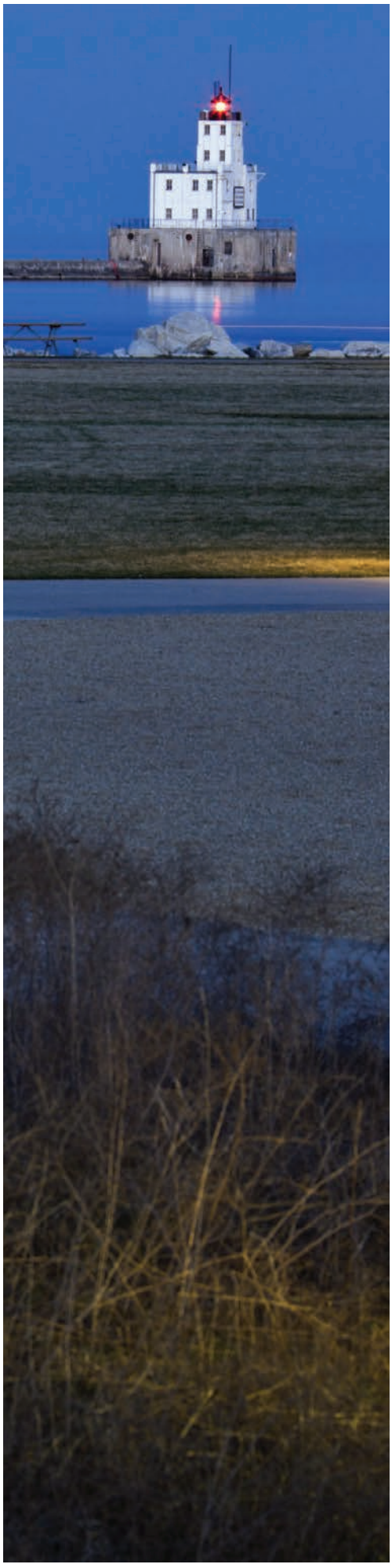
to Milwaukee's urban ecosystem. Unfortunately, many green spaces are poorly maintained, and some are not protected or properly zoned as natural areas for solely park, public, or ecological use. Increasingly, protection, preservation, and restoration of these natural resources are important to sustaining Milwaukee and creating true synthesis between our land use and management policies and our urban ecosystems. Milwaukee has demonstrated such synthesis through projects like the Menomonee Valley Redevelopment, private development north of downtown along the Milwaukee River and down into the Historic Third Ward. Nationally-recognized, progressive Urban Forestry initiatives, which use environmental sustainability to catalyze economic development, also demonstrate the link between policies and urban ecosystem benefits.

As we restore our neighborhoods, revitalize our ecological assets, and refresh our public open and green spaces, we can build on an existing planning framework. The aforementioned comprehensive plan and subsequent policy plan, approved by the Common Council in 2010, provide broad, smart growth policies that focus on 13 large areas of Milwaukee.

This strategic document sets land use recommendations and catalytic projects for every neighborhood, developed in association with local stakeholders and area residents. The Sustainability Plan will complement many of the policies contained in the comprehensive plan by creating goals, targets, and strategies that amplify this existing document.







Land & Urban Ecosystems Goals

Goal: Reuse vacant and under-used land.

Targets:

- 1,000 vacant lots converted to benefit neighborhoods, including uses such as parks, stormwater management areas, food production, and sustainable development, by 2016
- 30 acres of City-owned Brownfield areas redeveloped by 2016

Goal: Realign policies and codes to support Refresh Milwaukee goals and targets.

Target:

- Implementation of the policy recommendations included in the comprehensive city-wide and area plans*

Goal: Protect, restore, and maintain Milwaukee's natural resources.

Targets:

- Tree canopy coverage in Milwaukee doubled to 40 percent by 2023*
- The acreage of natural areas (including riparian areas, wetlands, stream buffers, environmental corridors, and green stormwater facilities) that are restored or placed under protection increases annually by 10 percent

Goal: Increase Milwaukeeans' connections to the city's green and recreational spaces.

Targets:

- All residents live within a 10-minute walk of a park, greenway, or green or other amenity space
- The Nature Explore Outdoor Classroom™ concept[3] modeled in Milwaukee as a way to institutionalize urban ecosystem and environmental outdoor education with Milwaukee Public Schools for all youth

Pursuing these goals improves the quality of our built environment and protects Milwaukee's natural areas. Vacant lots can be transformed into useful community spaces, either through redevelopment or the creation and maintenance of open or other types of green space. Convenient, consistent, and safe access to well-maintained greenspace provides opportunities for passive to active recreation from sitting, resting, and gardening to creative play, nature exploration, and sports. All are critical to the health and livability of any community.

Overall, urban land and ecosystems, which are well maintained and nurtured, raise the value of surrounding properties and have better potential for reuse and development. Where this land is managed with community support, there are added benefits of social interaction, increased pride, and additional community stabilization. While vacant land is an increasing problem, it can also become our biggest opportunity. We can refresh Milwaukee by turning liabilities into assets that make all our neighborhoods better places to live, work, and play.

Highest Priority Strategies

Expedite disposition of vacant properties to productive use

Vacant properties that the City owns can be returned to productive use through a streamlined process for selling City property, achieved by reducing redundant approvals, providing flexibility in recruiting and hiring professional staff and vendors, and adopting sales policies and priorities with input from community-based stakeholders. City real estate disposition policy should be updated for lease and sale of vacant lots. Removing City real estate requirements, such as reducing the minimum building area for new housing construction, can be explored to promote owner occupancy and eliminate blight. Sales of vacant lots to adjoining owner occupants can be increased to create larger lots in identified neighborhoods by conducting research to identify those neighborhoods, and revising City real estate policy on sale of buildable lots.

The City should also explore developing incentive programs that match landscaping funds with vacant land purchases for neighbors looking to increase green space or gardens. The result is reduction in the City's inventory and additional tax base to be reinvested back into our neighborhoods. The City has already made many improvements in this area and seeks to build on these successes and best practices.

Develop vacant lot reuse handbook

The DCD will develop a vacant lot handbook for reuse of vacant, abandoned, and under-used lots for converted uses as parks, green stormwater facilities, food production, landscaping, Nature Explore Outdoor Classrooms™ or other beneficial temporary and permanent uses, focusing on enhancing the effects of the Sustainability Plan's Catalytic Projects (HOME GR/OWN and the Inner Harbor Redevelopment). A vacant lot reuse book will include examples of existing models of area urban agricultural organizations, and provide visual images and ideas, available on DCD's website, for community groups and owners to adaptively reuse vacant residential lots.

New tools for maintaining vacant lots, public parks, and open spaces

Vacant lots need to be stabilized, by thorough cleanup and removal of debris and basic landscaping, to prevent further deterioration until future uses for the land are determined. Stabilization may also include ongoing maintenance and installation of barriers to prevent illegal dumping. The City should establish a new fee schedule, to be charged to absentee property owners, to cover the costs of maintaining their vacant, privately owned lots and strengthen the enforcement of dumping and litter laws. Stabilization and maintenance efforts can be turned into local jobs. The adoption and community stewardship of public land through adopt-a-lot programs should be expanded and job creation opportunities identified, following the model of the Neighborhood Ambassador Program and Neighborhood Environment Ambassador program.

Analyze zoning codes

The City will review, analyze, and update zoning codes to promote land use policies for sustainable urban design. Nodes and multi-modal corridors for rezoning should be identified to allow for high-density, mixed-use, transit-orientated development. A revision to the zoning code should be explored to allow for other temporary uses, such as art installations and exhibits, to provide temporary reuse of vacant lots and create more welcoming public spaces. A great example of this type of temporary use is the swing installation under the Marsupial Bridge.[4]

Photo: Milwaukee County Parks

How This Supports Job Creation

- Brownfield remediation and sustainable site redevelopment create entry-level and advanced-skilled environmental workers.
- New sectors of growth, like eco-tourism, require local experts to staff and grow related businesses.
- Maintaining public spaces, parks, and other green areas is a year-round job that requires continued City and community resource allocation.

How This Supports Education

- Raises awareness about negative effects of vacant properties on neighborhoods and encourages neighborhoods to brainstorm new uses for vacant lots.
- Provides for the development of environmental mentors and internships through continued placement of Earn & Learn interns with environmental non-profits to provide educational and work experiences with green spaces.
- Develops eco-tours (canoe, walking, green roof, river walk) of natural areas (Milwaukee River) for residents and visitors.

How This Supports Stronger Neighborhoods

- Improves the attractiveness of our neighborhoods and enhances sustainable growth using effective land use policies that provide "quality of place", protect natural resources, and drive economic vitality.
- Creates places with lasting value and civic importance by using quality urban design.
- Improves public access to parks, open spaces, and the natural environment and provides for active recreation, leisure, and engagement, regardless of age or ability.
- Conserves irreplaceable environmental resources for future generations.

Implement grow zones and additional green overlay zones

The City will institute a green overlay district in specific neighborhoods to implement HOME GR/OWN, promote urban agriculture uses, focus sales and leases of vacant property where food deserts or otherwise underserved neighborhoods have been identified, and provide more opportunities for food production in the County park system through community gardens (that is, Grow Zones). Overlay ordinances can be developed and implemented for other primary environmental corridors, modeled after the existing Milwaukee River Greenway to protect the environmental corridors from development and provide riparian buffers. The subdivision ordinance should also be revised to reduce the required time for consolidating or creating development parcels.

Increase tree planting and preservation

The City of Milwaukee's urban forest is composed of 21.6 percent tree canopy coverage citywide.[5] Based on a study by American Forests,[6] the City's tree canopy needs to be increased to 40 percent in order to maximize the environmental, economic, and social benefits that trees provide. Milwaukee's trees remove pollutants from the air, cool and shade areas, reduce stormwater runoff, save cooling costs, improve physical recovery and well-being, reduce stress, increase property rates, increase economic activity in shopping districts, and improve community-connections and neighborhood safety.

These benefits will be further enhanced as tree canopy increases. In order to reach a 40 percent tree canopy, trees will need to be planted on public and private property. This will mean job opportunities in the tree care industry, as trees are planted and maintained. The City will increase street tree planting by incorporating the Green Streets Stormwater Management Plan as part of street repaving or reconstruction. The City will work with land trusts and other stakeholders to assist in greenspace and riparian corridor improvements that allow for tree planting on a broader scale. In addition, the City's Forestry Department will continue to work with homeowners to promote tree planting on residential property.

Green access neighborhood study

The City and County should collaborate on a study to determine the number of residents living within a 10-minute walk of a park, greenway, or other green space, and identify areas with insufficient parks and green spaces. The City and County should work in these areas to identify vacant or under-used lots, which can be targeted for conversion to parks or green spaces.

Promote eco-tourism as a growth sector for employment

The City should work with VISIT Milwaukee, Keep Greater Milwaukee Beautiful and The Green Corridor, as well as other civic groups, to develop eco-tourism in Milwaukee and improve environmental awareness and stewardship. Eco-tours that highlight Milwaukee's sustainability successes, such green roofs, energy-efficient or LEED® buildings, community gardens, and rain gardens, can promote the significant efforts levied by the community. The eco-tours should incorporate social media and interactive components to provide educational opportunities for residents and visitors alike. Tours should be organized to promote access by canoe, bike, walking, or car.

How We Will Reach Our Goals

These strategies will support the implementation of many other goals and targets throughout the Sustainability Plan, including the two Catalytic Projects. Vacant properties that have been remediated and are properly zoned will allow for more community gardens and food production facilities to support food systems, stormwater retention and mitigation to support water management, green and healthy buildings, and walkable neighborhoods with multi-modal transportation options.

Milwaukee needs to be creative and strategic to effectively reclaim vacant land, redevelop Brownfield areas, and protect natural areas to create sustainable neighborhoods. We need to establish zoning regulations to achieve the highest possible reuse standards.

We also need to recognize neighborhood conditions when considering land use alternatives. In relatively stable and traditional neighborhoods with a handful of vacant properties, infill housing, mixed-use development, and pocket parks may be appropriate. As the level of vacant properties and abandonment increases, large-scale interim and permanent options need to be considered immediately.

With the depletion of government resources and the declining tax base, we need to be strategic in our focus and better align with community partners to leverage financing to implement the priority strategies. This can be achieved by creating a support base of donors and foundations willing to pool public and private money to achieve neighborhood stabilization that is timely and strategic, and incorporates efficient use of funds, city-wide green infrastructure, and enhancements to existing green space that improve overall quality of life.

The City also needs to continue supporting other agencies, such as the Housing Authority of the City of Milwaukee, which are creating sustainable neighborhoods and demonstrating viable models for neighborhood revitalization. Overall, inter-departmental cooperation and collaboration with departments such as DCD, DNS, DPW, and City Attorney is necessary to realign and revise the subdivision ordinance and zoning code.

To continue Brownfield remediation, U.S. Environmental Protection Agency funding and support of the Redevelopment Authority of the City of Milwaukee is necessary. The City needs to establish partnerships with other units of government, like Milwaukee County, which perform the same or similar services, like vegetation management, so that efficiencies are realized. Other potential partners in streamlining service delivery as it affects land and urban ecosystems include Milwaukee Public Schools (vacant lot, open space, and property management) and the Milwaukee Metropolitan Sewerage District (shoreline protection and restoration, and green infrastructure development and management).

SOURCES & LINKS

[1] Milwaukee Department of City Development. 2010. *Milwaukee Comprehensive Plan*. March.

[2] Trust for Public Land online Parkscore® index: http://parkscore.tpl.org/rankings.php.

[3] http://www.natureexplore.org/.

[4] http://www.ladallman.com/prj_marsupial_bridge.html.

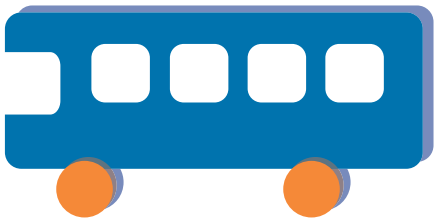
[5] City's i-Tree eco analysis. 2008.

[6] American Forests. 1996. Urban Ecological Analysis for Milwaukee, Wisconsin. June.

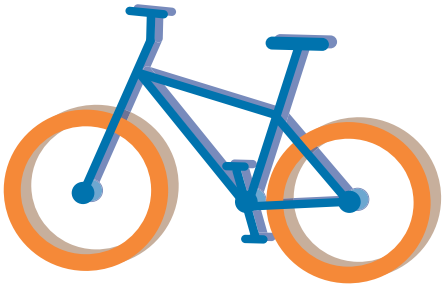
Photo: Midwest BikeShare

Mobility

Over 19 million vehicle miles of travel occur every weekday in Milwaukee County



By using public transit, Milwaukee saved an estimated $111 million (in 2004)



Over 500 miles of roads in southeast Wisconsin accommodate bikes with paved shoulders

Current Baseline and Need for Action

Like many cities in the United States, the transportation infrastructure in and around Milwaukee has been developed primarily to benefit and accommodate automobile travel. As a result, a network of high-volume arterial streets and highways has disconnected large residential areas and eliminated easy access via foot, bike, or other alternate transportation modes to jobs, schools, parks, stores, and other important destinations for Milwaukee residents.

According to Wisconsin Department of Transportation's (WisDOT's) historical traffic count data, an estimated 19,032,000 vehicle miles (including all vehicles) of travel occur on an average weekday in Milwaukee County.[1] The large number of vehicle miles comes with great consequences to the livability of the City's many neighborhoods. Vehicle exhaust generates emissions of nitrous oxides, sulfurous oxides, and other air pollutants, which can affect the health of our community, especially for children, the elderly, and our more vulnerable residents. Vehicles also emit carbon dioxide, a major greenhouse gas, contributing to climate change issues, such as droughts and severe storms. An automobile-focused transportation system that has limited non-auto travel options leads to greater congestion, travel delays, and traffic injuries and fatalities. Such a system also increases costs to businesses (for example, from reduced productivity of workers who have long auto commutes) and affects transportation budgets (for example, from increased use of materials for repairs). High-traffic volumes and vehicle congestion reduce quality of life in our neighborhoods and add into our environment unwanted materials, such as auto maintenance oils into lakes and streams, and fossil fuel emissions into the air. Fossil fuels burned by individual vehicles contribute significantly to poor air quality.

Managing congestion and providing more non-auto mobility options can yield cost benefits to vehicle owners and operators while decreasing travel time, accidents, and environmental emissions through reduced congestion from fewer individual auto vehicle miles. Milwaukee saved an estimated $111 million in costs associated with vehicle ownership and operation, emissions, safety, travel time value, and social cost in 2004, based on congestion management provided by the use of public transit.[2] These savings are estimated to be $139 million by 2024. Nevertheless, the miles of congested freeways in southeastern Wisconsin are expected to approximately double from 24.1 percent in 2001 to 46.5 percent in 2035.[3]

Owning a car can be expensive, making it an unaffordable luxury for many residents. Over the first five years of ownership, a median value car costs more than $9,100 a year to own.[4] If public transit is not available or adequate, the ability for some residents to commute to a viable workplace is in danger. The reach of existing transit service has been shrinking, placing even greater limitations on access to available jobs throughout the region for those who choose not to own or cannot afford to own a car. Providing non-auto travel options reduces pollution and costs and provides greater mobility for

Photo: Dave Schlabowske

residents and workers in Milwaukee. Indeed, the Milwaukee County Transit System provides express and local bus service throughout Milwaukee. Other current travel options in Milwaukee County include voluntary use of 14 park-and-ride lots[5] and a voluntary RIDESHARE program, sponsored on a county basis by WisDOT, which offers online registration and ride-matching for both automobiles and bicycles.

An estimated 534 miles of roadways accommodate bicycles in southeastern Wisconsin through paved shoulders. Another 55 miles of roadways provide bicycle-exclusive lanes and 44 miles through physically separate or parallel off-street paths. In addition, 203 miles of regional off-street bicycle paths are located on former railway rights-of-way and in parkways. These off-street paths provide particularly safe and aesthetically attractive routes connecting the Region's urban centers and communities.

The Southeastern Wisconsin Regional Planning Commission (SEWRPC) recommendations for the region's transportation future include:[6]

- "[S]ignificant improvement and expansion of public transit," including development of a rapid transit and express transit system, improvement of existing local bus service, and integration of local bus service with the proposed rapid and express transit services
- Paratransit service provisions consistent with the Federal Americans with Disabilities Act (ADA) of 1990
- Rapid and express service initially provided with buses and ultimately upgrading to commuter rail for rapid transit and to bus guideway or light rail for express transit service
- Segment-by-segment reconstruction/ resurfacing of surface arterial streets, with consideration of accommodation for bicycle lanes, widened outside travel lanes, widened and paved shoulders, or separate bicycle paths
- Adoption of a policy recommending that responsible parties adopt pedestrian standards and guidelines while developing bicycle paths

The City of Milwaukee is already on board with the idea of enhancing options to automobile transit. The Milwaukee by Bike; City of Milwaukee 2010 Bicycle Master Plan – Plan and Maps that was completed September 7, 2010,[7] provides numerous options for completing

Average weekday ridership on Milwaukee County Transit System rose 1.5% between 2010 and 2011 to 151,500 riders, providing more Milwaukee County residents a cost-effective and reliable mode of transportation.

www.ridemcts.com/about-us/annual-reports

standalone bike trails and features such as bicycle boulevards. These options create on-street travel conditions for cyclists who do not wish to ride in bicycle lanes or may not feel comfortable on streets with heavy motor vehicle traffic.

As a follow up to the bicycle master plan, the City has been successful in pursuing and obtaining bicycle project grant funds. Grant funds of approximately $500,000 are currently being used for the first phase of a city-wide effort to install bicycle lanes. A second phase will begin implementation in 2014 using federal funds to extend the Beer Line Bicycle Trail from Richards/Keefe to Capitol Drive. Open deck bridge bicycle retrofits to add solid plates for bicycle lanes on Water, Wells and Cherry Street bridges are currently in design, with construction anticipated for 2014.

The City of Milwaukee is also working with Midwest BikeShare, Inc., to implement a comprehensive bicycle-sharing system in and around downtown Milwaukee. The first station is operational in parallel with fundraising efforts for future stations. The City has committed approximately $290,000 and supports Midwest BikeShare's efforts in private fundraising. Plans indicate that once the bike-share system is fully built-out, in 2014, there will be more than 20 stations and over 200 bikes available throughout downtown, the East Side, and the Historic Third Ward.

The initial system will serve as a connector to other transit options, such as the Milwaukee Intermodal Station and Streetcar stops. As additional funds are secured, the system can easily be expanded. These bike-sharing systems have been cited as a way to solve the "last-mile" problem and help users connect public transit networks with their final destinations.[8]

Construction of the Milwaukee Streetcar is in the final design phase and is currently scheduled to begin service in 2016.[9] Once constructed, the Streetcar will serve a substantial number of riders AND provide significant opportunity for economic development. The proposed route was designed to complement existing bus routes, especially the major bus corridor along Wisconsin Avenue, and to connect with important transportation and business locations.

It will connect the Intermodal Station and its 1.4 million annual users with the Historic Third Ward (the fastest-growing neighborhood in City), East Town (containing the largest concentration of jobs in the state), and the lower east side (containing the highest-density residential neighborhood in the state). The initial route and extensions will be within a quarter-mile, about a three-to-four-block walk, of the following downtown destinations:

- 100% of hotels
- 90% of occupied office space
- 90% of occupied retail space
- 77% of parking
- 77% of housing
- 90% of major downtown attractions
- 100% of downtown's 20 largest employers

The City has several environmental-related initiatives that will help improve transit and transportation in Milwaukee. The City's Department of Public Works (DPW) will soon implement Milwaukee's Green Streets Stormwater Management Plan (March, 2013) during street design for new, repaved, or reconstructed streets. The plan provides a menu of street-focused stormwater strategies, which will reduce stormwater runoff, minimize the carbon footprint of the streets, maximize recycled materials used, and maximize the sustainable benefits of our street network beyond transportation improvements alone (see Water Chapter).

Milwaukee's Office of Environmental Sustainability (OES) has installed four electric vehicle (EV) charging stations at strategic locations in Milwaukee (including Discovery World, Water Street, Brady Street, and near the airport) with funding from the U.S. Department of Energy. OES will explore additional stations once market demand for EVs matures. OES is also partnering with Zipcar® to provide a car-sharing program, starting in 2013, on Milwaukee's East Side for individuals who don't need a car every day but may want to access one for weekend trips or an occasional trip to the store. This newest Zipcar® area is in addition to programs already in place for University of Wisconsin – Milwaukee and Marquette campuses.

Although steps are being taken to improve amenities for bicyclists and pedestrians, and the Milwaukee Streetcar project is moving into final design, their completion is not assured. Similarly, while Milwaukee County's Transit System plays an important transportation role in the City, a continuously shrinking budget and significant obstacles to increasing revenue prevent the system from being able to fulfill the many mobility and access needs of the citizens of Milwaukee.

How This Supports Job Creation

- Improved access to jobs will result for residents who cannot afford to own an automobile.
- Increased transportation and transit options will be more attractive to employers looking to relocate here.

How This Supports Education

- The Safe Routes to school strategy will educate families as to how children can get to school safely, which may also encourage higher attendance rates.
- Student participation in developing the Safe Routes to School Strategy provides hands-on education in planning and leadership.

Milwaukee streetcar. Rendering: Tina Klose

Brady Street charging station. Photo: City of Milwaukee

Bike path to Menomonee Valley. Photo: CH2M HILL

Mobility Goals and Targets

Goal: Expand Milwaukee's mass transit system.

Targets:

- New, expanded, and improved access to public transit services
- Approved Milwaukee Streetcar plan implemented on schedule (by 2016)*

Goal: Integrate current and new transit services with other elements of Milwaukee's transportation system.

Targets:

- Improved transit accommodations on 100 percent of City paving projects that have or are planned to have transit routes
- Completion of a multi-modal integration project by 2016

Goal: Improve pedestrian and biking infrastructure as critical, healthy components of Milwaukee's transportation system.

Targets:

- 125 miles of additional bicycle network (or 70 percent of proposed new facilities in the City's 2010 Master Bicycle Plan) implemented*
- 25 percent of "Safe Route to School" plans developed by 2020

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Highest Priority Strategies

Establish an inter-agency working group to identify opportunities to improve, introduce, and better coordinate multi-modal transportation options

The City of Milwaukee will establish an inter-agency working group of representatives from government (city, county, and state), regional planning (SEWRPC), private industry (such as car-share and parking companies), philanthropic/funding organizations, and non-profit organizations to coordinate and plan for an integrated transportation system. The working group will consider the local and regional transit options associated with the airport, Amtrak, Streetcar, In-City and Intercity Bus, parking facilities, and BikeShare. The group will develop easy and efficient connections to meet the travel needs of residents, workers, and visitors within Milwaukee. SEWRPC members from outlying and adjacent communities will be invited to participate in the group to establish regional credibility and optimize regional transit opportunities.

A balanced multi-modal transportation system should begin with a strong, comprehensive, and integrated system of accessible and easy-to-use bus and rail transit that serves short, mid- and long-range trips. Pedestrian facilities, bicycle facilities, car- and bike-share programs, ride-share programs, and other travel strategies, such as water taxis, would then complement the transit services and further extend the range of influence and flexibility of a comprehensive multi-modal system for a community. The different travel modes should connect effectively and support planned land uses and development projects. In addition, a financing strategy needs to be developed to ensure that multi-modal improvements are implemented and maintained in a fair and balanced manner into the future.

Design city streets for multi-modal travel to accommodate the travel needs of all users of the public way

Design new, reconstructed, and rehabilitated City streets using a Complete Streets approach to accommodate pedestrians, bicyclists, and transit, and to increase mobility options and reduce the effects of automobile traffic and congestion on adjacent neighborhoods and property owners. "Complete streets" are broadly defined as "…roadways designed and operated to enable safe, convenient, and comfortable access and travel for all users. Pedestrians, bicyclists, motorists, and public transport users of all ages and abilities can move along and across a complete street with safety and comfort."[10]

Any project receiving federal assistance dollars is already required to follow Complete Streets policies. Also, WisDOT's policy for resurfacing and reconditioning projects requires an evaluation to include bicycle and pedestrian accommodations, where possible and practical within the project scope. The City of Milwaukee should adopt its own formal Complete Streets Policy that would further expand its Green Streets Stormwater Management Plan into a more comprehensive Green Streets Design Guide so that bicycle and pedestrian facilities are considered when designing city streets.

Develop a "Safe Routes to School" initiative for pedestrians and bicycle users

Milwaukee has approximately 220 public and private elementary and secondary schools. Many parents drive their children to school because of concerns of traffic safety or because their child has some sort of special need. Research shows that 10 to 14 percent of morning peak-hour traffic is created by parents transporting their children to school, which generates traffic congestion, air pollution, and reduced safety for students who want or need to walk/bicycle to school.[11] One of the consistent concerns expressed by the public during outreach for this Sustainability Plan was safety in neighborhoods.

This strategy entails development of specific walk/bike-to-school and traffic circulation-focused plans to improve safety and encourage students to walk and bicycle to school instead of being transported by personal vehicles. The City will engage leaders from civic organizations, such as DPW, Milwaukee Police Department, WisDOT, and neighborhood organizations, and from school administration and students to map out safe routes along with walking/bicycling distances and travel times for each Milwaukee Public Schools neighborhood.

The leaders will consider specific walk/bike routes, traffic volume, traffic signal locations, crossing guard locations, designated school crosswalks, sidewalk availability, transit stops, bicycle racks, loading zones, and parking areas. The initial map recommendations could be simple, static, downloadable documents.

A longer-term goal could be turn-by-turn interactive maps created by parents, students, and school staff that are specific to each student (web-based and Smart Phone applications). Eventually, the program could be expanded to include Safe Route maps for schools outside the Milwaukee City boundary in support of the School Choice program. The resulting maps will help the City prioritize investment needs, support packaging projects for funding requests, and identify needed infrastructure changes and improvements for crossings, disabled accessibility, loading zones, and parking.

How We Will Reach Our Goals

The City of Milwaukee wants to provide residents, workers, and visitors with an integrated system of efficient and safe alternatives to automobiles, which provide a level of service and flexibility to meet an array of travel needs. Establishing the inter-agency Working Group to plan and coordinate transportation-related activities is an important first step. The Working Group will help to coordinate and optimize the various transit and mobility improvements.

To promote mobility opportunities beyond city boundaries, the City, County, and SEWRPC can prioritize regional connectivity through transit as a key tool for economic growth and development. These efforts can include increased connectivity to the Chicagoland area. Developing a strategic, multi-modal transportation system with Milwaukee functioning as the hub will help the whole metro-region better compete on a national and worldwide level for business and economic development.

A balanced multi-modal approach to providing transportation options will also allow residents the ability to avoid costs associated with owning an automobile or multiple automobiles. Increased use of bicycle and pedestrian routes will also help improve our environment and encourage active and healthy lifestyles. Expanding current mass transit options, integrating new forms of transit into the regional transportation system, and promoting healthier alternatives to driving will better connect Milwaukeeans to jobs throughout the region, improve local air quality, and reduce dependence on fossil fuels.

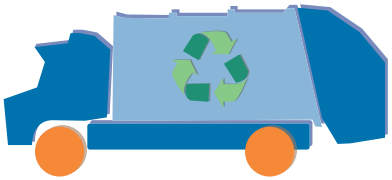
Photo: City of Milwaukee Department of Public Works

Resource Recovery

In 2012, the City provided recycling collection for over 190,000 households

It's not waste. It's a resource.

Milwaukee is sending less to the landfill. Nearly 25% of waste is diverted. Instead it's recycled, reused or compsted.



Current Baseline and Need for Action

Waste is a reality of life; unconsumed materials are generally discarded. Waste management involves processes to reduce, recover, divert, and dispose of materials that are no longer needed for their intended purposes. Traditionally, cities have disposed of waste in landfills that do not account for environmental, economic or social costs. Disposal results in lost resources when materials that retain economic value and use are discarded, increasing energy use and the need for raw materials. Landfill disposal will continue to play a role in waste management, but the current system must evolve from one that promotes disposal to one optimized for resource recovery and reuse.[1] Increasing costs of energy and raw materials and strong market values for recyclable materials will continue to support the transition to resource recovery and reuse. Resource recovery activities include waste prevention, recycling, reuse, composting of organic waste, and extended producer responsibility (EPR), which holds manufacturers accountable for all stages of a product's lifecycle including the end of life(recovery and/or safe disposal). Resource recovery generates economic value while reducing the amount and cost of disposal.

The City of Milwaukee is taking steps to optimize resource recovery and use waste as a resouce. The City provided residential recycling collection to 190,000 households in 2012 at a net cost of $4.4 million.[2] The recycling program experienced its third consecutive year of increased recovery, with a 13 percent increase in pounds recycled per household between 2009 and 2012.[3] Overall, the City's landfill diversion rate, waste that was reused, recycled, or composted instead of landfilled, increased from 21.4 percent in 2010 to 24.3 percent in 2012.[4] This success stems from recent changes with more frequent and guaranteed recycling collection dates; a change to Single-Sort recycling that no longer requires separation of recyclables into different containers; additional materials accepted for recycling; and strong educational efforts through the *Recycle for Good* outreach campaign.

For continued success, Milwaukee must broaden its emphasis of resource recovery beyond residential recylcing to better address commercial and industrial waste. Industrial waste from one facility can be used as production input at another facility with minimal value-added processing. By-product synergy, as this reuse concept is known, saves manufacturers money on waste disposal, reduces landfill waste, creates intermediary value-added processing jobs, and cuts costs for the down-stream user. With one of the country's most robust manufacturing sectors, Milwaukee has a unique opportunity to monetize industrial by-products, which can result in economic growth.

One focus of resource recovery must include neighborhood cleanliness, which is a high priority for Milwaukee residents and ranked in the top public outreach survey responses as an important issue to address in the City's Sustainability Plan. Neighborhood cleanliness is an indicator of environmental quality of life for many residents and, when lacking, adversely affects neighborhoods. As the City and its partners invest in new resource recovery strategies, improved access to recycling infrastructure,

Photo: City of Milwaukee Department of Public Works

Photo: City of Milwaukee

including residential recycling carts, public recycling containers, and facilities, must be addressed; these strategies should increase neighborhood cleanliness.

Another approach to improve cleanliness is to continue and expand Milwaukee's Neighborhood Ambassadors and Neighborhood Environmental Ambassadors (NEA) programs, which are currently targeting select neighborhoods in 2013.[5] The Neighborhood Ambassador Pilot Program provides employment opportunities for unemployed and underemployed Milwaukee residents with limited skills. Ambassadors work to improve the cleanliness and attractiveness of the City's business improvement districts (BIDs) as places to shop, dine, and open and operate businesses, thereby stimulating economic development in BID neighborhoods. Responsibilities of ambassadors include removing litter, graffiti, and snow, and performing other neighborhood clean-up activities. Additionally, the NEAs seek to educate businesses and residents on the importance of proper litter disposal and recycling practices (including ordering recycling bins as requested); educate businesses and residents on the City's new Green Team and ways for the public to participate in its Sustainability Planning process; distribute Green Team/Sustainability Plan flyers; and distribute other City materials (such as Me^2 Energy Program brochures/sign-ups) as relevant.

The City of Milwaukee conducts recycling outreach and has seen an increased interest in resource recovery at the individual and community levels as well as a demand for broader recycling and composting efforts. The City received the Associated Recyclers of Wisconsin 2011 Award for Outstanding Achievement in Education for the "Recycle for Good" campaign, which raised awareness of resource recovery and promoted the benefits of recycling. "Recycle for Good" uses community-based social marketing, door-to-door outreach, mass mailings, media promotion, and public events to engage residents. The City doesn't work independently; Milwaukee benefits from non-governmental organizations that are active in resource recovery with a focus on recycling, reuse, composting, and environmental education.

City of Milwaukee Recycling Highlights:

- **City of Milwaukee and Waukesha County have signed an Intergovernmental Agreement to coordinate recyclables processing.**
- ***Clean Kitchen-Green Community* demonstration project promotes backyard composting and provides garbage disposers to residents to divert food waste to Milwaukee Metropolitan Sewerage District (MMSD).**
- **Self-Help Centers have expanded recovery programs.**
- **Single-Sort recycling collection and processing increases ease and efficiency.**

Examples of City and partner resource recovery opportunities include:

- Two City Self-Help centers that accept used motor oils, antifreeze, oil filters, auto batteries, used vegetable oil, carpet, residential asphalt shingles, concrete, soil, building construction materials, electronics, scrap metal, corrugated cardboard, mixed recyclables, yard clippings, brush, and all types of shoes except heels for recovery. Sixty percent of the material managed is diverted from landfills.
- City residential pick-up allows all household recycled materials to be co-mingled in collection carts, thereby reducing homeowners' time commitments to recycling efforts.[6]
- City seasonal curbside brush collection and fall leaf collection.
- Milwaukee Metropolitan Sewerage District (MMSD) offers household hazardous waste (HHW) collection through mobile and permanent self-help sites,[7] as well as annual pharmaceutical collections at Miller Park, and ongoing pharmaceutical collection at more than a dozen police departments for cities in Milwaukee County.[8]

Additional recovery programs and educational efforts are generating results. The City has experienced a 23 percent reduction in solid waste, with 228,000 tons landfilled in 2012

Tossing less reduces cost:

Starting in 2011, Milwaukee households with multiple garbage carts began to pay a fee per additional cart, while recycling was incentivized with no added cost for more than one recycling cart.

compared to 307,000 tons in 2004.[9] One reason for the downward trend is a change in behavior by residents as fees are charged for specific materials at the City Self-Help centers. Fees have served as a disincentive for waste disposal and residents are looking for ways to increase resource recovery. Although new or increased recycling, composting, and reuse opportunities for residents have been and will continue to be developed, funding resources for programs and infrastructure are limited. To see behavior changes that result in increased resource recovery, an optimized waste management system will need to include continued education, fee structures that discourage disposal and favor recovery, and dedicated resources from manufacturers for end-of-life product recovery and/or disposal as part of the EPR.

According to the *2009 Waste Characterization Study* by the Wisconsin Department of Natural Resources, approximately 15 percent of Wisconsin's waste stream is comprised of food waste.[10] Great potential exists for food waste solutions in Milwaukee thanks to numerous local organizations that are active in urban agriculture and have a demand for and capacity to produce compost. One local organization reportedly composts more than 43 million pounds of waste per year,[11] while another is constructing an anaerobic food digester that will accept waste from local grocery stores and other large organic waste producers. Additionally, Milwaukeeans are being encouraged to put more food waste down their garbage disposals through a City partnership with Insinkerator®, as part of the *Clean Kitchen-Green Community* demonstration, which provides garbage disposers to residents and augments MMSD's wastewater treatment processes using bacteria and other microbes to break down waste. The microbes release methane, which is captured and used to generate energy for MMSD operations, saving $1.9 million in energy costs in 2007.[12] The biosolids are also converted into a natural lawn fertilizer that is sold commercially.[13]

Expanded resource recovery will:

- Maximize landfill space.
- Increase revenue from recyclable materials and contribute to employment growth.
- Reduce waste disposal costs.
- Reduce energy costs from raw materials production, resulting in reduced greenhouse gas emissions.
- Increase availability of compost for local gardens/food growing efforts, thereby improving public health.
- Transfer un-used goods to those able to make use of them.
- Promote healthier, cleaner neighborhoods.

How This Supports Job Creation

- As resource recovery increases and waste disposal decreases, City workers switch from waste disposal to recovery, with the potential for additional employees being needed.
- Private sector will see increased demand for waste collection, hauling, and processing services.
- Private sector will benefit from increased recovery of materials providing valuable feedstock for manufacturers.
- Composting facilities and pick-up services will increase.
- More environmental educators will be needed to assist children in understanding how resource recovery affects their lives.

How This Supports Stronger Neighborhoods

- Expanded services at self-help centers and/or additional centers will contribute to neighborhood cleanliness and save residents money on cost disposal.
- Additional jobs may create more funds that stay in neighborhoods themselves, increasing quality of life for residents and providing additional funds for cosmetic conditions of residential and commercial properties.

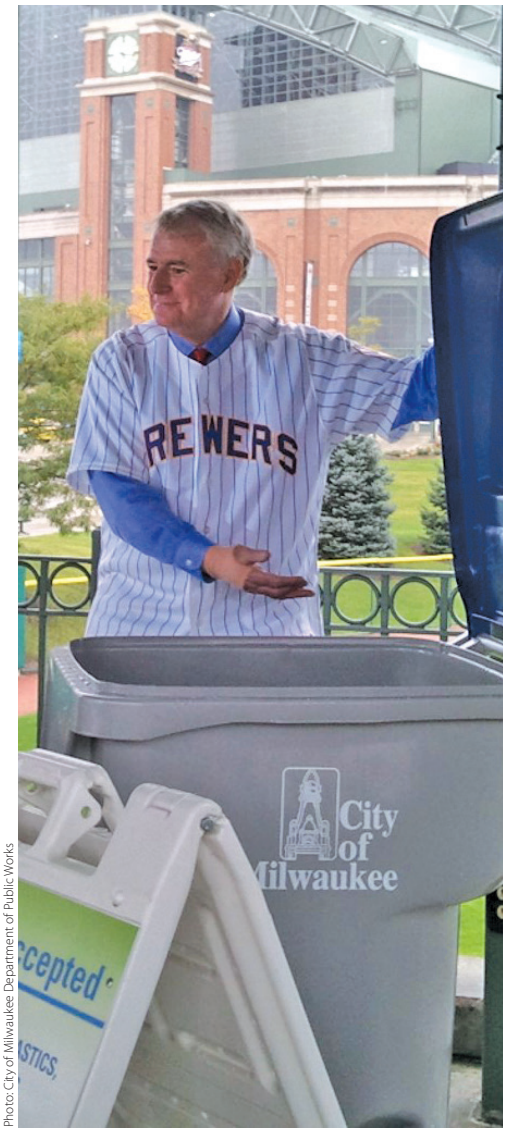


Photo: City of Milwaukee Department of Public Works

Photo: City of Milwaukee Department of Public Works

Resource Recovery Goals and Targets

Goal: Reduce residential and commercial waste sent to landfills.

Targets:

- The City's 40 percent waste diversion goal achieved by 2020*
- Food waste diversion and composting program established

Goal: Develop City policies and education to promote waste as a resource, laying the groundwork for future resource recovery efforts.

Targets:

- A City-led, regional by-product synergy program, which targets manufacturing and is focused on industrial waste "resources," established by December 2015
- Existing state requirements for commercial recycling actively enforced by providing ongoing assistance and education to businesses and guidance on implementation of recycling programs*

Highest Priority Strategies

Complete a resource recovery audit

The City will complete a community resource recovery audit that identifies and quantifies all existing public, private, residential, and commercial recovery activities; this audit will then be used to identify potential opportunities to increase resource recovery. Results will be used to increase public awareness and motivate behavior changes, leading to increased recovery activities. The audit will review access to infrastructure, including residential recycling carts and public collection containers, and examine "pay as you throw" (PAYT) options that discourage disposal by paying for the amount of waste generated and reward recycling behavior. The study will look at all types of waste assets to evaluate the by-products generated and the market potential for reuse and/or revenue generation, and establish full costs, including economic, environmental and social costs, per garbage cart size so that cost comparisons can be made against alternative strategies.

The audit will also study alternative compost collection methods, including truck and waste water treatment collection based on cost, energy use, customer acceptance, and highest end use (such as source of organic materials for water treatment process and compost soil); the results will be used to design a food waste diversion and composting program. Audit results will be summarized to include a set of measurable goals that directly increase the amount of resource recovery that occurs in Milwaukee.

Increase resource recovery options

This strategy will be modified by the results of the resource recovery audit. It may include sub-strategies such as the following:

- Generate a variable PAYT fee structure, based on the amount of waste generated, covering the full cost of waste disposal and providing a financial incentive for residents to "throw less," wherein residents who send more to the landfills pay more and there is no cost for residential recycling carts.
- Ensure every resident has both a recycling and an optimal-sized waste cart along with a written guide of items that are banned from landfills and options for recycling/reuse.

- Install streetside public recycling containers adjacent to public trash bins. Explore partnership opportunities to recoup costs of new containers via advertising rights.
- Offer more frequent recycling collection and accept more items (such as mattresses) in residential collection.
- Expand the number of City Self-Help centers and/or increase services. Explore options for locating smaller-scale Self-Help centers that offer recovery for a targeted set of items at City facilities. Also explore potential for expanding services at existing Self-Help to include services such as compost availability.

Establish resource recovery policies

Modifications to existing City codes and ordinances are under the direct purview of the City of Milwaukee. Several sub-strategies will be explored for implementation, including:

- Establish construction and demolition recovery requirements for projects that are publicly funded (publicly financed development, deconstruction, redevelopment, and foreclosure demolitions).
- Specify minimal packaging requirements for City Purchasing Contracts/commercial service contractors.

Design a food waste diversion and composting program

The food waste diversion and composting strategy fits well with a catalytic project included in this plan, namely the HOME GR/OWN initiative (see Catalytic Projects chapter). Results of the Resource Recovery audit (Strategy No. 1) will be used to design and guide a food waste diversion and composting program. Substrategies of this program are subject to audit results, but they will likely include:

- Fund public promotion and incentives around strategies that involve managing materials on private property through composting and use of sink disposer units.
- Establish residential compost collection by providing containers with small, inexpensive kits (including instructions and receptacles) for backyard composting.
- Find partners to develop a restaurant collection pilot program that explores post-table food waste collection.

Advocate for expanded producer responsibility (EPR) legislation and actively work with stakeholders to fund Implementation Program

The City will partner with the Product Stewardship Institute (a national, non-profit, membership-based organization that works with state and local government agencies to partner with manufacturers, retailers, environmental groups, federal agencies, and other key stakeholders to reduce the health and environmental impacts of consumer products), the State of Wisconsin, and other stakeholders to work toward product stewardship legislation. The existing electronics landfill ban provides a model for other industries. Manufacturers must refine production in a manner that promotes reclamation and minimizes the need for disposal.

Expand Neighborhood Ambassadors and Neighborhood Environmental Ambassadors Programs

Upon successful completion of the pilot period in 2013 and final metrics reporting, the City will determine feasibility of a long-term approach to expansion and funding of these programs.

How We Will Reach Our Goals

Implementation of the resource recovery audit is critical to the completion of all the remaining strategies. The audit should commence as soon as funding allows, so the audit can be completed by July 2015.

Once the audit is completed, the opportunities for increasing recovery options will be more readily understood and the strategies to achieve 40 percent waste diversion be implemented. The City can move forward with resource recovery policies and work toward building EPR. Establishment of this work will directly support waste diversion and resource recovery efforts.

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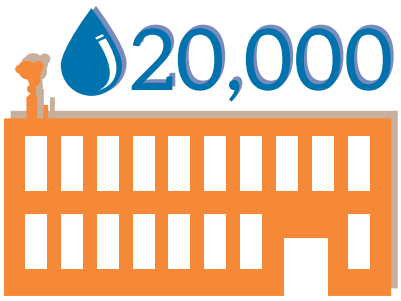
Water

Milwaukee sits on 20% of the world's freshwater supply

180 aquatic invasive species have been documented in the Great Lakes



Southeast Wisconsin is home to 150 water-related businesses that provide 20,000 jobs

Current Baseline and Need for Action

Water resources are a critical asset for the City of Milwaukee and have played an integral role in the city's development. Named by Native Americans as "gathering place" by the water, the City of Milwaukee is linked through history, economy, and culture to Lake Michigan and the Milwaukee, Menomonee, and Kinnickinnic rivers, which flow through the city. Milwaukee's traditional economies included water-intensive industries, such as brewing, manufacturing, tanning, shipping, and farming, which fueled much of the city's growth. Because of extensive water use in these industries, related companies developed to manage, measure, treat, and transport water. These water-related companies survived and grew, even while the number of primary industries, such as breweries and manufacturing, declined in the city.

To build on the historical and economic significance of being located on the largest supply of fresh water in the world, Milwaukee is currently leveraging its natural water resource assets with the latest research and technology to realign the local economy around water and become a water-centric city on America's "fresh coast." On the world market, the water sector is valued at an estimated $483 billion.[1] Milwaukee is ready to position itself as a world water leader, with over 20 college and university water research- and talent- development programs, most notably at the University of Wisconsin-Milwaukee's School of Freshwater Sciences, which is dedicated to the study of freshwater resources. Milwaukee is also a United Nations Global Compact City[2] on water issues, one of only 20 cities in the world with this designation. We are home to global water technology leaders with 5 of the 11 largest water-related companies headquartered in the region 150 water-related companies that provide 20,000 local jobs. Additionally, Milwaukee's Water Council[3] is a first-of-its-kind, public-private partnership, established to move Milwaukee forward as the world water hub. The Milwaukee Water Works and the Milwaukee Metropolitan Sewerage District (MMSD) provide quality water distribution and wastewater treatment for residents and businesses.

Galvanized around our rich water resources, the City, MMSD, the Southeastern Wisconsin Regional Planning Commission (SEWRPC), neighboring municipalities, and a strong community of non-governmental organizations have pursued water quality improvements and flood control by using a watershed-based approach to collectively set priorities. This approach holds potential for further development and assessment of new watershed-based tools, such as water quality trading and adaptive management techniques, to improve the quality of Milwaukee's rivers and Lake Michigan.

The City's Department of Public Works (DPW) is developing a plan for implementation of Milwaukee's Green Streets Stormwater Management Plan for streets and sidewalks projects in 2014. The Plan provides a menu of street-focused stormwater strategies to improve water quality and reduce polluted stormwater runoff. The Plan's strategies are considered when designing a street for repaving or reconstruction projects to maximize the sustainable benefit of our street network. While significant advances have been made, more work is needed.

Water Quality Trading and Adaptive Management Techniques

Watershed water quality credit trading is akin to the credit trading used by various air emissions entities. Water quality trading is measured in pounds of pollutants that are typically discharged to an individual water body. Trades between various sources (such as municipalities and farmers) may occur based on economic and environmental conditions to achieve a compliance goal.

Adaptive management is an iterative process used to manage systems over time, especially when information is uncertain. This approach is used in Wisconsin to address one pollutant: phosphorus. The approach includes investment in a watershed through actions to reduce phosphorus runoff and achieve water quality standards. These actions can serve as alternatives to expensive infrastructure upgrades (such as wastewater treatment plant upgrades).

Photo: Milwaukee County Parks

In 2013, Milwaukee's water resources continue to face serious threats. Increased stormwater runoff from more intense rain events jeopardizes water quality and risks property damage. The storms of 2004, 2008, 2010, 2011, and 2013 produced significant flooding, basement backups, and sewage overflows. These storms, generally with precipitation amounts in excess of the predicted 100-year storm levels or with precipitation occurring over a several-day period, demonstrate that the city's existing grey infrastructure, which includes traditional sanitary and storm sewer systems, cannot be cost effectively expanded to keep pace with such increases in stormwater volume. These rain events indicate that the projected impacts of climate change, including the likelihood of increasing and intense storm events as indicated by the Wisconsin Initiative on Climate Change Impacts,[4] is already happening and straining Milwaukee's aging sewerage system. Resilient infrastructure and adaptive planning are necessary tools for Milwaukee to mitigate the impact of increasing storm events on our sewerage system.

The Great Lakes Restoration Initiative[5] recognizes nonpoint source pollution as a national priority and identifies stormwater runoff as a primary contributor of nonpoint pollution entering the Great Lakes. SEWRPC found that a significant proportion of pollutant loads from Milwaukee-area rivers flowing into Lake Michigan come from polluted stormwater runoff.[6]

Balancing the built and natural environments in the city by preserving riparian buffers, creating urban greenspaces in the most densely populated neighborhoods and installing green infrastructure strategies such as rain gardens and bioswales will reduce stormwater runoff and assist in making the critical connection between land use and water quality.

Also, aquatic invasive species (AIS) continue to increase at alarming rates in our lakes and rivers. Approximately 180 AIS have been documented in the Great Lakes.[7] Their presence negatively affects the health of Lake Michigan and its inland rivers, altering biological and chemical processes, which harms native habitat and native species. In the Chicago area alone, nearly 40 species are poised to pass between the Mississippi River and Great Lakes basins; these species include Asian Carp, which could destabilize or even collapse the $7 billion Great Lakes fishery.[8]

Human influences, including dredging, lake water withdrawals, and Great Lakes water diversions, coupled with the natural fluctuations in annual precipitation and evaporation and warmer water temperatures, have caused record low water levels in Lake Michigan. Collectively, if these challenges remain unchecked, they will continue to degrade water quality in Lake Michigan and local rivers. However, these challenges also present new opportunities for research, innovation, business development, and employment growth, especially in connection with Milwaukee's slow economy, joblessness, and poverty.

With a wealth of water assets, including the presence of water-related companies and technology, academic and commercial research, talent development, and natural resources, Milwaukee is poised to become "America's Water-Centric City." The Water Council's efforts to promote Milwaukee nationally and globally as a water leader will help advance this vision.

The city must leverage these local efforts to benefit our neighborhoods and local businesses. Milwaukee's homeowners and businesses must demonstrate and maintain water-centric practices through wise water use and water conservation; we must use water-centric technology and infrastructure broadly, in both public and private applications; we must create water-based jobs at all skill levels to improve quality of life for all residents; and we must protect Lake Michigan and our local rivers through awareness, education, and motivation to ensure that our incomparable water resources are there for future generations. Quite simply, we must deploy our world-renown technology in Milwaukee's neighborhoods.

Water Goals

Goal: Reduce stormwater runoff and clear water from entering sewer system.

Targets:

- Baseline measures of impervious surface and green infrastructure established on a citywide basis by June 2014
- A City green infrastructure policy plan created by December 2014
- A regional climate change resiliency plan that uses the best available atmospheric science developed, via City collaboration with partners, by 2015
- Volume of stormwater runoff captured through green infrastructure increased by 10 percent annually

Goal: Achieve swimmable and fishable waters in Milwaukee watersheds and the near shore of Lake Michigan.

Targets:

- Total Maximum Daily Load (TMDLs) studies developed, with City assistance, for the Kinnickinnic, Menomonee and Milwaukee River watersheds and the Milwaukee Harbor estuary
- All riparian corridors on all waterways and in the estuary preserved and expanded as redevelopment occurs, balancing both the built and natural environments

Goal: Establish Milwaukee as America's Water-Centric City.

Target:

- Water-centric strategies used on both public and private projects across residential, business, and commercial applications to substantially increase water conservation and energy saved citywide

Goal: Prevent new Aquatic Invasive Species (AIS) from entering Lake Michigan and Milwaukee area waterways.

Target:

- Plan of action adopted by 2018, in coordination with Great Lakes cities, states, federal and international governments, to prevent new AIS from entering Lake Michigan and local waterways

By pursuing these goals, the City of Milwaukee will help to reduce polluted stormwater runoff that enters Lake Michigan and area rivers; improve water quality; improve neighborhood resiliency, relative to the effects of increasing climate change; conserve water; and protect our Great Lakes ecosystems, thereby showcasing Milwaukee as America's Water-Centric City.

Green Infrastructure Solutions

Green Infrastructure Benefits:

- Reduces stormwater runoff and pollution
- Provides water storage to reduce localized flooding and basement backups
- Saves critical capacity of the combined sewer system and the deep tunnel
- Saves wastewater treatment and energy costs

Green Infrastructure Practices:

- Use of green roofs, with plant material, to absorb and store rainfall that falls on a building and prevent or decrease stormwater runoff from a site
- Use of rain barrels and cisterns to capture and harvest rainwater
- Placement of porous pavement in streets, alleys, sidewalks, and parking lots to allow stormwater infiltration and reduce runoff
- Design of rain gardens and bioswales that use native vegetation to absorb rainfall and promote infiltration
- Planting trees that absorb rainwater through leaves and roots, allowing water to infiltrate into the ground and evapotranspirate back into the atmosphere
- Expansion of greenspace and riparian corridors that store and drain stormwater slowly into the ground

Photo: Tina Klose

How This Supports Job Creation

- A Water-Centric City supports job creation at all skill levels, with the advent of increased research, technology development, manufacturing, and green infrastructure implementation. All members of the community can benefit from the opportunities and challenges presented in solving the water puzzle.
- Requirements to upgrade and maintain existing water infrastructure can be used as economic development tools to develop new and expand existing industries.

How This Supports Education

- Water Commons and Green Corridor efforts support neighborhood, citizen-level education regarding water's importance to all.
- Continued collaboration with Milwaukee Public Schools (MPS) to reduce impervious surface areas on school playgrounds and incorporate green infrastructure and other outdoor classroom elements will also educate children as they see items constructed.

How This Supports Stronger Neighborhoods

- Expansion of riparian corridors and other habitats will improve the availability of green spaces to affected neighborhoods.
- Construction of green roofs and other gardens/stormwater retention features will help beautify local neighborhoods as they see items constructed.
- Reduction of aquatic invasive speciemay result in cleaner beachfront areas for all to enjoy.

Highest-Priority Strategies

Develop a City green infrastructure policy plan

Form a city-led consortium of professionals from public, private, non-governmental, and academic sectors to create a City green infrastructure policy plan and implementation strategies, based in sound science and recent data, and aligned with regional stormwater and water quality goals, including, but not limited to, MMSD's Regional Green Infrastructure Plan and the MMSD/ SEWRPC Water Quality Initiative. When written, the plan must:

- Develop recommendations for city-controlled assets by June 2014.
- Develop recommendations for privately owned assets by December 2014.
- Review City policies and ordinances, and amend them as needed to support and encourage green infrastructure by December 2014.
- Identify high-priority locations for implementing green infrastructure.
- Replicate the Green Corridor model, which serves as a showcase for green technologies, and is located on S. 6th Street from Howard Avenue to College Avenue in the 13th Aldermanic District (the Garden District,) to other parts of the city and maximize installation of community gardens, native landscaping, bioswales, green roofs, permeable pavement, and water recycling.
- Link to City sustainable buildings design guidelines.
- Identify incentives and innovative financing approaches for full-scale implementation.

Collaborate with Milwaukee County Parks and land trusts to maximize greenspace for stormwater management

The Milwaukee County Parks (Parks) system was designed to creatively use the County's unique water assets and protect the floodplains and natural habitats of the Milwaukee, Menomonee, and Kinnickinnic Rivers and Lake Michigan drainage area. The parks and riparian corridors serve a critical stormwater management function because they store, infiltrate, and evaporate rain water following rain events.

The City will collaborate and coordinate with the County and land trusts to identify opportunities in the parks and riparian corridors, which are located in neighborhoods that are prone to localized flooding, to implement green infrastructure practices ranging from storage basins or ponds, to bioswales, rain gardens, and stormwater trees, along with other measures intended to reduce stormwater flooding.

Replace and maintain city sewers and work with private property owners to maintain private laterals

To reduce basement backups and sewer overflows, aging grey infrastructure (including wastewater transmission pipes, storage, and treatment facilities) must be updated and maintained to be more resilient for present-day and future climate trends. This strategy includes the following steps:

- Advocate for federal and state funding to accelerate the replacement of aging grey infrastructure and adaptive green infrastructure solutions.
- Assess different cost and schedule scenarios for replacement and maintenance of City-owned sewers.

- Amend the capital improvement plan to address aging infrastructure.
- Develop a policy and/or workforce to find and replace failing private sewer laterals to reduce inflow and infiltration and address sewage leakage.
- Identify options for providing financial assistance to property owners to replace failing pipes.

Complete a Milwaukee TMDL Implementation Plan

Collaborate with partners, including MMSD, Southeastern Wisconsin Watersheds Trust, SEWRPC, municipalities, and non-governmental organizations to implement cost-effective, watershed-based solutions to improve water quality by completing a Milwaukee TMDL implementation plan that addresses all Milwaukee watersheds by 2015 and achieves pollutant load reductions by 2035. The implementation plan should include a habitat restoration component in addition to addressing reductions in pollutants, and should draw upon the April 2010 Watershed Restoration Plans prepared for the Kinnickinnic and Menomonee Rivers.[9]

Identify City facilities to conduct permanent pharmaceutical collection

Improper disposal, such as disposing down the drain or flushing, of prescription and over-the-counter medication contributes to pharmaceuticals being found in Lake Michigan and Wisconsin waters. In addition, wastewater treatment processes are not able to adequately treat these substances; therefore, they are released into local waterways. The effects of such substances are not fully known, although long-term endocrine disruption in fish, fauna, and human health is of concern. The City, in collaboration with MMSD, will review and identify potential City facilities to conduct permanent pharmaceutical collection. A key component of this effort is the requirement of law enforcement presence during collection of narcotics and safe storage of collected substances.

Promote water efficiency and smart water use practices among Milwaukee residents, businesses, and commercial users

As Milwaukee seeks to be a global leader and exporter of water efficient, measurement, and purification technology, it needs to ensure that those same technologies and practices are put to use in Milwaukee neighborhoods.

- Contribute funds to the Southeastern Wisconsin Watersheds Trust mini-grant program to support neighborhood projects in the city.
- Partner with neighborhood organizations to provide resident education and funding for green infrastructure practices, including rain gardens, rain barrels, downspout disconnection, green roofs, and tree planting on private property or vacant lots.
- Develop solutions to provide irrigation access for community gardens, reducing dependency on Milwaukee Water Works and improving success of local food production.
- Develop a water conservation plan for Milwaukee following Wisconsin Department of Natural Resources requirements and guidelines for Great Lakes communities.

Photo: Tina Klose

How We Will Reach Our Goals

The City will coordinate with partners, including the MMSD, SEWRPC, Wisconsin Department of Natural Resources, U.S. Environmental Protection Agency, local governments, and other Great Lakes cities and nongovernmental organizations, to achieve these goals. The City must dedicate its resolve and resources to achieve meaningful results. But this work cannot do the work alone.

Recognize and improve the recreational and aesthetic potential of water resources, including Lake Michigan and area rivers

The recreational potential of Milwaukee's many natural features and parks serves as a connection for residents to experience, explore, learn about, and treasure these water resources. This strategy includes the following components:

- Complete the River Walk system.
- Improve access, including safe piers and entry points to Lake Michigan and rivers, for families and individuals to fish, canoe, and experience Milwaukee's river corridors.
- Use recreational opportunities to connect children to nature and promote greater stewardship and sustainability throughout their lifetimes.
- Use public policies and investment to employ highly visible water features as part of expansion, rehabilitation, and construction of new buildings and infrastructure.

Engage in Active Measures to Protect Lake Michigan

Be a leader among Great Lakes cites, states, and international provinces to protect Lake Michigan and the Great Lakes through targeted legislation and collaborative initiatives, such as:

- Advocate for federal and state legislation to eliminate release of ballast water into the Great Lakes. The transport of aquatic invasive species (AIS) in ballast water has proved devastating to the Great Lakes. Effective efforts are underway to prevent the spread of AIS, particularly from the Great Lakes to inland lakes, but a ban on ballast water release is needed to dramatically slow the spread of AIS.
- Advocate for separation of Great Lakes and Mississippi River basins in Chicago. Access to Lake Michigan from the Mississippi River by AIS, such as Asian carp, is possible through the Chicago Sanitary and Ship Canal that was originally constructed to stop the release of Chicago sewage into Lake Michigan. The canal maintained by the U.S. Army Corps of Engineers is a threat to the Great Lakes ecosystem and requires vigilant monitoring, but the City, in collaboration with the State of Wisconsin and other Great Lakes states and cities, should advocate for the closure of the canal to sever the potential gateway between the Great Lakes and the Chicago River.
- Continue participation in the Milwaukee Water Commons Initiative, a grassroots, multidisciplinary effort to preserve Milwaukee's fresh water assets.
- Advocate for full implementation and enforcement of the provisions the provisions of the Great Lakes Compact, to regulate diversions, water conservation, and the effective use of Great Lakes waters in order to protect the water resources and ecosystem of the Great Lakes Basin.
- Adopt the Great Lakes St. Lawrence (GLSL) Cities Initiative Sustainable Municipal Water Management Principles, demonstrating binational leadership. Implementing this water quality- and quantity-related benchmarking framework will promote the principles needed to measure and benchmark Milwaukee's progress with the other 100 member municipalities of the GLSL Cities Initiative.

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[5] Great Lakes Restoration Initiative. 2010. Action Plan, FY2010-FY2014. February 21. http://www.glri.us/index.html.

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Photo: Tina Klose

Catalytic Projects

Number of City-owned foreclosed homes in Milwaukee

Milwaukee's Inner Harbor Redevelopment project encompasses 970 acres

What is a "Catalytic Project?"

A catalytic project promotes in the community cross-cutting sustainability outcomes that mirror goals and targets in this Sustainability Plan. Specifically, catalytic projects:

- Demonstrate significant potential for meaningful positive impacts on the environment, economy and people.
- Provide great opportunity to significantly advance a broad cross-section of Sustainability Plan goals and targets.
- Complete or demonstrate two or more priority strategies.
- Connect to other strategic priorities within the public, non-profit, and private sectors, thereby creating a broad base of stakeholders and support to promote successful implementation.
- Are able to be sustainable in the long term without complete dependency on public and/or philanthropic support.
- Are scalable to work at a specific neighborhood or area level and can be extended to a city-wide level.
- Are in early development or implementation stages.
- Are financially and politically possible.

In short, a catalytic project encompasses multiple Sustainability Plan goals across several themes, is in the early stages of planning, will be a highly visible demonstration project, and will benefit from collaborative and strategic direction-setting and resource investment from the community.

The Mayor's Green Team, in conjunction with input from the public, has identified two nascent projects in the City of Milwaukee to serve as Sustainability Plan Catalytic Projects: the City of Milwaukee's HOME GR/OWN initiative and the public-private Milwaukee Inner Harbor Redevelopment project.

These two projects present impressive opportunities to demonstrate and implement strategies with wide-ranging relevance to this Sustainability Plan. Each section below identifies strategies to move the initiatives forward, even if funding, policies, and organizational structure are not yet fully in place.

HOME GR/OWN

Current Baseline and Need for Action

The City of Milwaukee owns approximately 900 foreclosed homes and 2,700 vacant lots, most of which are located in low-income neighborhoods. In these same neighborhoods, poverty and lack of readily available healthy food create systemic food access and health issues. Healthy food can be expensive and, in certain areas, difficult to find, disproportionately affecting low-income Milwaukeeans. A study of one typical neighborhood found that two-thirds of corner stores did not sell fresh food.[1] Additionally, more than two-thirds of residents reported inadequate produce consumption[2] and one-third of residents were obese.[3]

The health of historically important neighborhoods has been severely affected by the foreclosure crisis, lack of sufficient economic opportunity for all people, and poor eating habits. HOME GR/OWN re-imagines how urban liabilities, like foreclosed properties and vacant lots, can be transformed into assets that increase the availability and demand for healthy foods, thereby improving health, supplementing incomes through new job opportunities in the city's local food supply chain, and creating useful, safe public spaces in unsafe and disconnected neighborhoods. HOME GR/OWN is also an opportunity to pilot food waste diversion, composting, and stormwater capture, in addition to improving physical conditions of the environment and buildings. Mayor Tom Barrett is committing City resources to jump-start HOME GR/OWN in a target neighborhood, in close collaboration with a wide array of community stakeholders. A new public-private model for improving quality of life will emerge so that all Milwaukee neighborhoods can be better places to live, work, and play. This is the HOME GR/OWN vision.

The City of Milwaukee's HOME GR/OWN initiative is a holistic, place-based approach to neighborhood revitalization. It helps reach multiple sustainability targets in a single neighborhood, to the benefit of a more sustainable community.

Specifically, in the next year, HOME GR/OWN will pilot several home+lot sales, which may include weatherization prior to sale, basic lot improvements, and placement of stormwater best management practices after sale in collaboration with the new property owners. HOME GR/OWN will include several foreclosed-home repurposing projects to result in new community kitchens and/or learning spaces, where residents can increase their awareness about wellness and nutrition. The initiative will also include modifications to slow down traffic on streets, called "street calming." Ultimately, all the activities of HOME GR/OWN will support greater food production and distribution and generate a stronger sense of community.

Lastly, this initial HOME GR/OWN effort is scalable so that upon success in our initial target neighborhood, HOME GR/OWN stakeholders can expand the program to other neighborhoods of need in Milwaukee.

A HOME GR/OWN NEIGHBORHOOD

- A Urban farmer sells produce to Food Hub (D)
- B Foreclosed home repurposed by CBO as social enterprise community cafe
- C Foreclosed home & vacant lot sold for urban homesteading
- D Food Hub aggregates & resells city/neighborhood produce, generationg income for growers. Runs compost operation at (L) - former factory parking lot
- E Foreclosed home kept by City for commercial development
- F High value potential affordable housing site
- G Heavily wooded vacant lot converted to pocket park - no value for farming
- H New community garden controlled by residents of blocks 6 and 7
- I Farm stand generates income; neighborhood meeting spot for blocks 2, 6 and 7
- J Garden site now controlled by adjacent corner store, increasing healthy food in store
- K Vacant lot now controlled by non-profit, sells to Food Hub
- L Former factory parking lot, now compost operation using neighborhood and Food Hub food/garden residuals
- M Vacant factory converted to aquaponics operation. Produce sold to Food Hub. Fish processed and sold by Food Hub.

HOME GR/OWN Goals and Targets

Goal: Increase access to and demand for healthy foods in a targeted low-income Milwaukee neighborhood.

Targets:

- 5 foreclosed structures re-used for residential or commercial end-use that support local food supply chain by July 2014
- 10 vacant lots converted to food-based uses by 2015
- 5 new corner stores serving fresh food and produce by 2015
- Necessary City ordinances/zoning/permitting changes passed by July 2014 that remove obstacles to developing new real estate disposition strategies, repurposing residential properties to non-residential uses, expanding urban agricultural uses on vacant lots, and establishing micro-business ventures in the local food supply chain

These project-related targets will support and be counted toward meeting related targets listed in the Buildings, Food Systems, and Land and Urban Ecosystems chapters. For example, HOME GR/OWN's targets focus on re-using foreclosed and vacant properties for healthy food distribution in a particular neighborhood; the Land and Urban Ecosystems chapter targets address broader reuse opportunities across the city. The HOME GR/OWN initiative will increase access to and demand for healthy food within a neighborhood and will serve as the connective tissue that provides increased opportunities for supplemental income and safer neighborhoods through productive use of vacant properties. This makes HOME GR/OWN truly "place-based" and a model for sustainability at the city block level.

Priority Strategies

HOME GR/OWN strategies intentionally parallel the strategies listed in the Buildings, Food Systems, Human Capital, and Land and Urban Ecosystems chapters of Milwaukee's Sustainability Plan. Note, however, that HOME GR/OWN will apply these strategies in a single neighborhood, with an outcome focused on increasing access to and demand for healthy, local food in that neighborhood. Descriptions of priority strategies of the HOME GR/OWN initiative follow.

Increase the use of city-owned foreclosed land and buildings for growing, processing, and distributing food to catalyze the local food value chain.

Expand City real estate disposition practices to include sale of house+lot packages, sale and leasing of land for growing food, sale of select commercial properties for food hubs and healthy food processing/distribution, and promotion of bundled sale of close-by vacant lots to create appropriate-scale urban farms, sized for both the grower and neighborhood needs.

Increase the availability of healthy foods, including locally grown foods, at traditional neighborhood retail outlets in the targeted neighborhood.

Expand the Milwaukee Health Department's Healthy Corner Store Initiative. Develop strategies to sell small lots of produce to corner stores; for example, develop a food hub that aggregates and distributes locally grown produce to small retail outlets. Attract grocery stores to the underserved neighborhood.

Implementation of HOME GR/OWN Initiative will support goals and targets across a range of sustainability focus areas, including:

- Buildings: Improve the physical condition of buildings.
- Energy: Improve energy efficiency of 2,000 homes in 5 years.
- Food Systems: Increase community food production, processing, and distribution, as measured by an incremental 30 properties used for food production and businesses engaged in food processing and distribution by 2016, and an additional 175 properties by 2023.
- Human Capital: Increased number of new minority business start-ups in Milwaukee within ten years.
- Land and Urban Ecosystems: Reuse vacant and under-used land.
- Mobility: Design city streets for multi-modal travel to accommodate the travel needs of all users of the public way.
- Resource Recovery: Reduce waste sent to landfills by establishing a food waste diversion and composting program.
- Water: Volume of stormwater runoff captured through green infrastructure increased by 10 percent annually.

Photo: Carly McCollow

How We Will Reach Our Goals

HOME GR/OWN was a Top 20 Finalist in Bloomberg Philanthropies Mayors Challenge. As a measure of public support, Milwaukee generated more votes per capita than the winner in the Huffington Post Fan Favorite contest.

Milwaukee received special recognition from the Huffington Post and Bloomberg Philanthropies. As a result, the City is using this publicity to attract funding from other philanthropies and local businesses. Mayor Barrett is committed to contributing City resources to support this effort, including creating the City's first position for a food policy and urban agricultural analyst in 2013.

HOME GR/OWN is a mayoral-led, community-driven initiative that is built on heretofore disparate, yet successful, local programs. We have the land, the human capacity and the political will to transform neighborhoods by creating a healthier local food value chain. The City will create partnerships with businesses and non-profit organizations to provide technical assistance in growing, composting, public health, marketing, and small business development.

Milwaukee has a proven track record in planning and development efforts that engage and embrace local resident involvement. Fundraising and internal policy changes are currently underway. In fact, 85 percent of the City is already zoned so that urban agriculture is an allowable land use.

Implement educational initiatives promoting nutrition and training for small businesses and growers.

Aid in the coordination, expansion, and availability of new grower education programs available to residents, and expand healthy food initiatives and programmatic educational opportunities within the neighborhood, specifically at Milwaukee public and charter schools, local supermarkets, and farmers markets. Use trained and qualified citizen community health advocates to provide neighborhood-level nutrition and health education.

Provide creative opportunities to generate income and commercialize urban agriculture.

Promote and expand non-traditional food outlets, such as community-supported agriculture (CSA), food co-ops, farmers markets, neighborhood farm stands, and green carts, to provide growers with opportunities to easily monetize their healthy food production and processing. This can create new possibilities for residents to supplement income or even eventually lead to primary employment. Create alternate career paths for local youth through the educational system, new farmer training, health outreach, food distribution, and "rent-a-farmer" work opportunities.

How This Supports Job Creation

- Farmer training creates new opportunities for supplementing income.
- Vacant lot and foreclosed property reuse requires deconstruction, weatherization, repurposing from residential to commercial uses, and other skilled services.
- Milwaukee's first food hub, hyper-local distribution, and aggregation of produce create new job opportunities.

How This Supports Education

- Educates residents on how to cook and prepare healthy foods.
- Trains homesteaders to remodel homes and landscape vacant lots.
- Expands Earn-and-Learn activities for Milwaukee youth into the urban agricultural sector.

How This Supports Stronger Neighborhoods

- Returns vacant property, which was a focus of crime, back to productive, cohesive community uses.
- Creates connections between residents and local business through fresh food production, distribution, and consumption.
- Improves public health through better nutrition and access to fresh food.

Inner Harbor Redevelopment

Current Baseline and Need for Action

The Milwaukee Inner Harbor redevelopment project is a public-private effort to revitalize Milwaukee's historic gateway to the City by meeting stringent environmental goals that spur private investment and economic development. This nascent public-private effort is a holistic, place-based approach to revitalizing a working waterfront and surrounding neighborhoods. It will help to achieve multiple sustainability targets in the Inner Harbor, leading to a more sustainable community.

Photo: Institute for Ecological Design

The Inner Harbor Redevelopment project encompasses a study area of 970 acres (the "Inner Harbor"), which has been home to foundries, fuel depots, tanneries, and rail yards. In the 1900s, the area was an engine of the city's industrial growth and also contained the Milwaukee Estuary, which is an inland waterway that is the mouth of the Kinnickinnic, Milwaukee, and Menomonee Rivers as well as a direct physical and ecological link to Lake Michigan. The estuary is now recognized by the U.S. Environmental Protection Agency as an Area of Concern. Familiar to Milwaukeeans for its abandoned structures, Brownfields, coal and salt storage, and scrap metal processing, Inner Harbor redevelopment has been stalled by its visually and environmentally deteriorated state.

The message of the Inner Harbor project is simple: Milwaukee's bright future is inextricably tied to the estuary. The Inner Harbor and the estuary remain at the heart of our port city; the area is full of economic potential, untapped ecological resilience, and the pure urban drama inherent in a working waterfront. If Milwaukee is to transform its industrial identity into that of an international hub for ecologically progressive water technologies, the Inner Harbor should be able to demonstrate to the world the possibilities that are inherent in such economic and ecological vision.

The Inner Harbor neighborhoods have a relatively high degree of educated and creative-class residents. In fact, these neighborhoods have more than 38,000 residents over 25 years of age; 45 percent have a high school diploma or equivalent, 22 percent have an associate's or bachelor's degree, and 7 percent have a master's or other professional or post-graduate degree.[4] Manufacturing-related industries employ 37.5 percent of the population of Inner Harbor neighborhoods, with manufacturing alone accounting for 23.5 percent of total employment; per capita income is $40,349.[5] These characteristics make the Inner Harbor a prime target for redevelopment around the water technology and education-related industries promoted by the Water Council. Given a level of investment comparable to Milwaukee's Historic Third Ward to capitalize on the Inner Harbor's unique assets, the area has the potential to become a vibrant urban district with employment centers and a restored neighborhood fabric built along a working, modern, and progressively operational waterfront.[6]

Although Brownfield remediation, land use, and building re-use are central to this project, the benefits of this project toward the goals and targets listed in the Water and Mobility chapters cannot be understated. The Inner Harbor area will connect multiple neighborhoods in the city and re-introduce Milwaukeeans to this unique, working waterfront.

Implementation of the Inner Harbor Redevelopment Project will support goals and targets across a range of sustainability focus areas, including:

- Buildings: All goals and targets.
- Energy: Improve energy efficiency of 1,000 commercial/industrial businesses in 5 years.
- Food Systems: Increased community food production, processing, and distribution.
- Human Capital: Menomonee Valley Industrial Center Wage Policy, as adopted by the City of Milwaukee and the Redevelopment Authority of the City of Milwaukee (RACM), used as a model for future RACM projects and Sustainability Plan catalytic projects, where feasible.
- Land and Urban Ecosystems: All goals and targets.
- Mobility: All goals and targets.
- Resource Recovery: Reduce residential and commercial waste sent to landfills.
- Water: All goals and targets.

Photo: Tina Klose

Inner Harbor Goals and Targets

Goal: Revitalize the ecology of the Milwaukee Inner Harbor.

Targets:

- 10 acres of protected and revitalized shoreline habitat in design or completed in the study area by 2015
- Net-zero energy performance in the study area by 2023
- Net-zero stormwater runoff in the study area by 2023

Goal: Revitalize the economy and development of the Milwaukee Inner Harbor.

Targets:

- Completion of the University of Wisconsin-Milwaukee (UWM) School of Freshwater Sciences building by 2014*
- 100 acres of Brownfields remediated in the study area by 2023
- 22 jobs per acre of total redeveloped land in the study area created by 2023

Targets under both of these goals will support and be counted toward meeting related targets listed in the Buildings, Energy, Human Capital, Land and Urban Ecosystems, and Water chapters of the Sustainability Plan. Specifically, Inner Harbor Redevelopment project leaders would like to implement sustainable design guidelines for re-purposed and new buildings; incorporate state-of-the-art green infrastructure in the redevelopment area, similar to that being done in conjunction with construction of the new UWM School of Freshwater Sciences; restore and expand natural habitats with accompanying public access; employ multi-modal development tactics so that the Inner Harbor is comprehensively connected to the rest of the City and accessible to all citizens; and work with developers to commit to family-supporting jobs.

Priority Strategies

Inner Harbor Redevelopment strategies intentionally parallel those listed in the Buildings, Energy, Human Capital, Land and Urban Ecosystems, and Water chapters of Milwaukee's Sustainability Plan. Note, however, that these strategies will be applied in the Inner Harbor study area, with outcomes focused on environmental remediation, redevelopment, and new business attraction. Descriptions of the Inner Harbor Redevelopment's priority strategies follow.

Address Legacy of Heavy Industrial Uses

Employ clean-up and institutional controls to address legacy of industries (such as metal working, fuel production, tanning, and paint and chemical manufacturing) prior to contemporary regulatory controls. Develop a Brownfields strategy that protects public health and unlocks investment.

Foster Clean Technology Jobs

Use state-level emphasis on job creation, start-up capital, and entrepreneur development to focus skills development and small business start-ups on commercially zoned land in the Inner Harbor.

Restart Ecological Processes

Improve regenerative natural processes at former industrial sites through strategic intervention, which, in turn, will improve soil and water quality.

Create a High-Performance Built Environment

Redevelopment initiatives will create an opportunity to rebuild roadways, buildings, and open spaces. Reuse land and clean and hold water in redesigned public landscape as first steps toward realizing low-impact development. Design high-performance buildings that save energy and water. Use mixed-use and rail to reduce energy use and carbon emissions in subsequent steps.

The Inner Harbor effort is led by the UWM's School of Architecture and Urban Planning – Institute for Ecological Design. The Inner Harbor project owes its existence to the vision of the Brico Fund and to support from Mayor Tom Barrett, Milwaukee Department of City Development, the UWM School of Freshwater Sciences and other UWM disciplines, the Milwaukee Metropolitan Sewerage District, Rockwell Automation, and many other partners and community stakeholders.

How This Supports Job Creation

- Large-scale redevelopment focusing on environmental remediation and business incubation will draw strategic state and local investment in neighborhood job training and support infrastructure.
- The Water Council promotes Milwaukee's water tech companies as global leaders, promoting job growth in the region and attracting and relocating new water-focused businesses.

How This Supports Education

- UWM School of Freshwater Sciences is training its first generation of post-graduate freshwater-focused professionals.
- Environmental rehabilitation and increased recreational opportunities in the Inner Harbor and estuary will provide opportunities for resident education and outreach on Great Lakes and near-shore habitat.

How This Supports Stronger Neighborhoods

- Surrounded by a mix of neighborhood types, populations, and characteristics, the Inner Harbor presents a prime opportunity to connect fast-growing and dynamic neighborhoods with areas of the Inner Harbor that have not seen neighborhood conditions improve in recent years.
- Building strong educational, commercial, and industrial institutions in the Inner Harbor will increase pedestrians and bring more visitors to the area.

SOURCES & LINKS

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[2] *Ibid.*

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[5] *Ibid.*

[6] Institute for Ecological Design. 2011. *01 Inner Harbor Milwaukee*. University of Wisconsin-Milwaukee School of Architecture and Urban Planning. Page 36.

How We Will Reach Our Goals

The City of Milwaukee's involvement in this effort began in 2010, when the Common Council adopted a redevelopment plan for the area in and around the Inner Harbor Study Area. That plan is essentially a zoning plan, which recommends changes to the zoning of some of the properties and reaffirms the zoning of others. That plan protects the current industrial uses at the Port of Milwaukee and provides a better transition from areas with heavy industrial use to the nearby residential neighborhoods.

The transition area will also help the zoning better coincide with initiatives emanating from UWM's new School of Freshwater Sciences and the Water Council. In 2011 and 2012, UWM's Institute for Ecological Design researched, studied, and provided design concepts for redevelopment. In 2013 and beyond, City departments will focus on building and installing new infrastructure on Greenfield Avenue, assembling land along Greenfield Avenue, and completing the Grand Truck wetland restoration project.

The Inner Harbor stakeholders are targeting nearly $75 million in federal dollars from Housing and Urban Development (HUD) and the Department of Transportation (DOT) to fund localized planning activities that integrate transportation, housing, and economic development. UWM's School of Architecture and Urban Planning will continue its use of student cohorts in design and planning studios to propel Inner Harbor planning forward.

Completion of UWM's School of Freshwater Sciences building will act as a micro-catalyst for development in conjunction with the Port of Milwaukee's economic growth strategy.

Photo: Tina Klose

Implementation & Progress Reporting

Each strategy included in Milwaukee's Sustainability Plan will have its own implementation reporting framework that identifies which person, agency, or organization is responsible; what staff, funding, or other resources are needed; and when specific activities will be completed. This Sustainability Plan includes this information, where it has been identified, in the individual chapters and strategy descriptions. As people begin to work on the strategies, they will continue to develop and revise the individual implementation plans.

Implementing the Sustainability Plan as a whole entails a separate set of roles, responsibilities, and resources. First and foremost, the City needs to track Milwaukee's progress toward the sustainability goals and targets outlined in the sections of the Sustainability Plan, report progress to the community and concerned stakeholders, and identify ways to continue improving sustainability performance. Ideally, the various individuals, City departments, agencies, and organizations working to implement the Plan strategies will coordinate their efforts.

The City's Office of Environmental Sustainability (OES) will be responsible for overall Sustainability Plan implementation, including annual evaluation, reporting, and public engagement. OES will maintain a voluntary Green Team, which may include current members and add new members as appropriate, to serve as a coordinating body. City of Milwaukee Green Team members and OES staff will serve as the official leads for the eight base conditions (buildings, energy, food systems, human capital, land and urban ecosystems, mobility, resource recovery, and water). These individuals will coordinate directly with the relevant City departments and community stakeholders on strategy development and implementation and data tracking.

OES will convene Green Team volunteers and relevant City staff twice a year to discuss progress on the goals and targets, identify obstacles to completing targets, coordinate on strategy implementation and opportunities for resource sharing, and discuss potential overlaps in efforts among the various groups or entities working to improve a particular base condition. The first meeting is expected take place in January 2014.

Prior to the January 2014 meeting, OES and City of Milwaukee Green Team members will finalize which City agency and/or community organization share responsibility for tracking and reporting progress for the eight base conditions. In addition, the OES and City of Milwaukee Green Team members will identify sources of funding and agree upon reporting codes for annual progress reporting (such as use of green/yellow/red symbols or a similar, simple system to indicate performance compared to targets).

The appropriate City department, with the coordination of Green Team representatives and interested community stakeholders, will be responsible for annually collecting and evaluating performance data for each sustainability target. These data will be used to evaluate progress toward the sustainability goals, document the effectiveness of the various strategies, determine where performance is satisfactory, and identify where additional performance improvements are needed. For example, the evaluation may determine the amount of renewable energy used in City buildings over the last year and identify opportunities to increase this amount.

Gathering these data may involve coordinating with City departments, residents, and businesses. OES will consider revisions to goals and targets, as appropriate. For example, if the City achieves a target earlier than expected, the OES, in consultation with appropriate City departments and community stakeholders, may consider creating a "stretch" target to achieve additional progress. Conversely, if progress is lagging, OES may determine what obstacles are preventing progress, whether or not additional resources or strategies are needed, or whether the original target is not feasible and should be revised.

Progress will be reported via the OES website at least annually. Annual progress reports will consist of an updated tracking table, similar to the example below. In addition to the table, annual report information may include details of specific and particularly compelling success stories or topics. Stakeholders may submit success stories for consideration in the annual report.

The City is committed to implementing the Sustainability Plan and creating success, but recognizes it can't do all the work alone. Community stakeholders and members of the public will be critical to implementing changes to create success, making Milwaukee a model for Fresh Coast sustainable living.

ReFresh MKE

Implementation Table

Buildings

Base Condition	Lead City Departments and Partner Agencies	Expected/ Potential Funding Sources	Goal	Target	Annual Progress Indicator 2014	Annual Progress Indicator 2015	Annual Progress Indicator 2016
Buildings			Implement sustainable building practices and standards for development and major redevelopment	100% of new industrial buildings citywide designed and built consistent with Menomonee Valley Sustainable Design Guidelines			
				Green Construction Code of the International Code Council® for commercial buildings adopted by 2016			
				A targeted suite of new housing-start energy-efficiency and stormwater incentives developed by 2016			
			Improve the physical condition of deteriorating and blighted city, residential, and commercial buildings	200 City tax-foreclosed homes sold per year to qualified buyers who must rehabilitate them.			
				At least 75 housing units rehabilitated, with a focus on energy-efficient measures, annually through TIN and other programs, where possible			
				10 buildings adaptively reused (for example, repurposing former schools for new use and former industrial buildings for housing) by 2016			

Implementation Table

Energy

Base Condition	Lead City Departments and Partner Agencies	Expected/ Potential Funding Sources	Goal	Target	Annual Progress Indicator 2014	Annual Progress Indicator 2015	Annual Progress Indicator 2016
Energy			Improve residential and commercial energy efficiency in Milwaukee	The energy efficiency of 2,000 homes improved in 5 years using the Home Performance with Energy Star standards through Me^2; another 10,000 homes improved with no- and low-cost energy-efficiency measures			
				The energy efficiency of 1,000 commercial/industrial businesses improved in 5 years			
				Portfolio-wide, the City's building energy use reduced 20 percent by 2020 (per the City's pledge to meet the Better Buildings Challenge)			
			Replace fossil fuel energy use with more clean renewable energy in City of Milwaukee Facilities	25 percent of the City's electricity generated using renewable resources by 2025 (per the Common Council resolution to achieve the "25x25 Goal")			
			Grow Milwaukee's cluster of energy efficient and clean tech companies to create local jobs and exports	The Smart Energy Hub formalized and an Energy Innovation Center created by December 2014			
			Increase community resilience and customer choice by removing the regulatory and institutional barriers to distributed renewable energy projects (items such as solar arrays and wind turbines)	By December 2014, an Energy Engagement website created to educate the public on clean energy issues			
				Intervention in contested cases before the Public Service Commission, including We Energies rate cases, to support Milwaukee's citizens and businesses interest in affordable and sustainable energy			

Implementation Table

Food Systems

Base Condition	Lead City Departments and Partner Agencies	Expected/ Potential Funding Sources	Goal	Target	Annual Progress Indicator 2014	Annual Progress Indicator 2015	Annual Progress Indicator 2016
Food Systems			Set a city-wide food system policy and action agenda	Clear-cut City food policies published by May 2014.			
				Good food purchasing guidelines for Milwaukee food service institutions developed by 2017.			
			Improve institutional capacity and leadership to enhance the sustainability and resilience of Milwaukee's food system	Milwaukee Food Council's role expanded by December 2014 to formally coordinate City departments, community stakeholders, the nonprofit sector, the private sector, and other major institutions			
				Food charter, which is a statement of values and principles to guide the City's food policy, developed by September 2015			
				MPS, Milwaukee Area Technical College (MATC) and local universities integrated into resident education and Milwaukee food system planning (potentially using Milwaukee Vincent High School's new Urban Agriculture/Urban Foods focus as such a pathway)			
			Increase demand for and access to locally and/ or sustainably grown healthy and nutritious food	Increased community food production, processing, and distribution, as measured by an incremental 30 properties used for food production and businesses engaged in food processing and distribution by 2016, and an additional 175 properties by 2023			
				25 new outlets for purchasing, distributing, and selling locally and sustainably grown food in City neighborhoods with documented food insecurity by 2016 and 100 more added by 2023			
				Number of residents living within a 10-minute walk of a healthy and nutritious food source increased compared to current level, as identified in a food assessment for healthy food access			

Implementation Table

Human Capital

Base Condition	Lead City Departments and Partner Agencies	Expected/ Potential Funding Sources	Goal	Target	Annual Progress Indicator 2014	Annual Progress Indicator 2015	Annual Progress Indicator 2016
Human Capital			Increase economic opportunity for all Milwaukeeans	Green jobs pilot program created in a sustainability area identified as a priority by the community			
				Menomonee Valley Industrial Center Wage Policy, as adopted by the City of Milwaukee and the Redevelopment Authority of the City of Milwaukee (RACM), used as a model for future RACM projects and Sustainability Plan catalytic projects, where feasible			
			Develop ladders of advancement for Milwaukee youth and Milwaukee entrepreneurs	Summer internship placements prioritized in industry areas outlined as priorities in the Sustainability Plan			
				Participation increased in City Youth Employment Programs by 10 percent per year			
				Increased number of new minority business start-ups in Milwaukee within 10 years			
			Promote inclusion and diversity for a sustainable economy	Mayor-hosted Call to Service breakfast campaign for local business and civic leaders			
				Human capital strategies aligned with City block grant-funded programs that create inclusion			

Implementation Table

Land & Urban Ecosystems

Base Condition	Lead City Departments and Partner Agencies	Expected/ Potential Funding Sources	Goal	Target	Annual Progress Indicator 2014	Annual Progress Indicator 2015	Annual Progress Indicator 2016
Land and Urban Ecosystems			Reuse vacant and under-used land	1,000 vacant lots converted to benefit neighborhoods, including uses such as parks, stormwater management areas, food production, and sustainable development, by 2016			
				30 acres of City-owned Brownfield areas redeveloped by 2016			
			Realign policies and codes to support ReFresh Milwaukee goals and targets	Implementation of the policy recommendations included in the comprehensive city-wide and area plans			
			Protect, restore, and maintain Milwaukee's natural resources	Tree canopy coverage in Milwaukee doubled to 40 percent by 2023			
				The acreage of natural areas (including riparian areas, wetlands, stream buffers, environmental corridors, and green stormwater facilities) that are restored or placed under protection increases annually by 10 percent			
			Increase Milwaukeeans' connections to the city's green and recreational spaces	All residents live within a 10-minute walk of a park, greenway, or green or other amenity space			
				The Nature Explore Outdoor Classroom™ concept modeled in Milwaukee as a way to institutionalize urban ecosystem and environmental outdoor education with Milwaukee Public Schools for all youth			

Implementation Table

Mobility

Base Condition	Lead City Departments and Partner Agencies	Expected/ Potential Funding Sources	Goal	Target	Annual Progress Indicator 2014	Annual Progress Indicator 2015	Annual Progress Indicator 2016
Mobility			Expand Milwaukee's mass transit system	New, expanded, and improved access to public transit services.			
				Approved Milwaukee Streetcar plan implemented on schedule (by 2016).			
			Integrate current and new transit services with other elements of Milwaukee's transportation system	Improved transit accommodations on 100 percent of City paving projects that have or are planned to have transit routes.			
				Completion of a multi-modal integration project by 2016			
			Improve pedestrian and biking infrastructure as critical, healthy components of Milwaukee's transportation system	125 miles of additional bicycle network (or 70 percent of proposed new facilities in the City's 2010 Master Bicycle Plan) implemented			
				25 percent of "Safe Route to School" plans developed by 2020			

Implementation Table

Resource Recovery

Base Condition	Lead City Departments and Partner Agencies	Expected/ Potential Funding Sources	Goal	Target	Annual Progress Indicator 2014	Annual Progress Indicator 2015	Annual Progress Indicator 2016
Resource Recovery			Reduce residential and commercial waste sent to landfills	The City's 40 percent waste diversion goal achieved by 2020			
				Food waste diversion and composting program established			
			Develop City policies and education to promote waste as a resource, laying the groundwork for future resource recovery efforts	A City-led, regional by-product synergy program, which targets manufacturing and is focused on industrial waste "resources," established by December 2015			
				Existing state requirements for commercial recycling actively enforced by providing ongoing assistance and education to businesses and guidance on implementation of recycling programs			

Implementation Table

Water

Base Condition	Lead City Departments and Partner Agencies	Expected/ Potential Funding Sources	Goal	Target	Annual Progress Indicator 2014	Annual Progress Indicator 2015	Annual Progress Indicator 2016
Water			Reduce stormwater run-off and clear water from entering sewer system	Baseline measures of impervious surface and green infrastructure established on a citywide basis by June 2014			
				A City green infrastructure policy plan created by December 2014			
				A regional climate change resiliency plan that uses the best available atmospheric science developed, via City collaboration with partners, by 2015			
				Volume of stormwater runoff captured through green infrastructure increased by 10 percent annually			
			Achieve swimmable and fishable waters in Milwaukee watersheds and the near shore of Lake Michigan	Total Maximum Daily Load (TMDLs) studies developed, with City assistance, for the Kinnickinnic, Menomonee and Milwaukee River watersheds and the Milwaukee Harbor estuary			
				All riparian corridors on all waterways and in the estuary preserved and expanded as redevelopment occurs, balancing both the built and natural environments			
			Establish Milwaukee as America's Water-Centric City	Water-centric strategies used on both public and private projects across residential, business, and commercial applications to substantially increase water conservation and energy saved citywide			
			Prevent new AIS from entering Lake Michigan and Milwaukee area waterways	Plan of action adopted by 2018, in coordination with Great Lakes cities, states, federal and international governments, to prevent new AIS from entering Lake Michigan and local waterways			

Implementation Table

Catalytic Projects

Base Condition	Lead City Departments and Partner Agencies	Expected/ Potential Funding Sources	Goal	Target	Annual Progress Indicator 2014	Annual Progress Indicator 2015	Annual Progress Indicator 2016
Catalytic Project: **HOME GR/OWN**			Increase access to and demand for healthy foods in a targeted low-income Milwaukee neighborhood	5 foreclosed structures re-used for residential or commercial end-use that support local food supply chain by July 2014			
				10 vacant lots converted to food-based uses by 2015			
				5 new corner stores serving fresh food and produce by 2015			
				Necessary City ordinances/zoning/ permitting changes passed by July 2014 that remove obstacles to developing new real estate disposition strategies, repurposing residential properties to non-residential uses, expanding urban agricultural uses on vacant lots, and establishing micro-business ventures in the local food supply chain			
Catalytic Project: **Inner Harbor Redevelopment**			Revitalize the ecology of the Milwaukee Inner Harbor	10 acres of protected and revitalized shoreline habitat in design or completed in the study area by 2015			
				Net-zero energy performance in the study area by 2023			
				Net-zero stormwater runoff in the study area by 2023			
			Revitalize the economy and development of the Milwaukee Inner Harbor	Completion of the University of Wisconsin-Milwaukee (UWM) School of Freshwater Sciences building by 2014			
				100 acres of Brownfields remediated in the study area by 2023			
				22 jobs per acre of total redeveloped land in the study area created by 2023			

Appendix A – Public Outreach

Overview of Public Outreach Survey

To engage the public in the process of developing the Milwaukee Sustainability Plan, the Milwaukee Green Team and CH2M HILL created a survey with which to receive public feedback. The survey was offered online at the Milwaukee Office of Environmental Sustainability (OES) website. Hard copies, which could be completed and given to OES, were also handed out at town halls and informal outreach sessions. OES offered the survey in both in English and Spanish. Between July and November 2012, the OES collected 1,011 responses to the survey. The first three questions in the survey requested demographic data about a respondent's zip code, aldermanic district, and age, so that OES could evaluate the survey's reach. The remaining questions were designed to gauge the opinions of members of the Milwaukee public on their understanding of general concepts of sustainability and what sustainability aspects and issues should be addressed by a city-wide Sustainability Plan.

Survey Questions

Members of the public were encouraged to go to the website for the Milwaukee OES and complete the survey. Hard copy replies were also accepted. The survey questions and instructions are included below.

Change Your Future! We Want You to Help Milwaukee Develop a Sustainability Plan Public Survey Question

The Mayor has designated 2012 as the year we gather as a community to develop a Sustainability Plan that helps improve Milwaukee's quality of life, benefiting residents, businesses and our natural environment. Community leaders will spend the next few months listening to Milwaukeeans like you discuss everyday challenges that need attention.
Why should I care about this plan? The Plan works like a road map guiding City government, residents and businesses towards a more sustainable and healthier future, by acting on ideas for improving our environment provided by you! Your input can help change your neighborhood and city!

Please take a few minutes to complete this short survey. Public input is a critical first step in the process to develop a Sustainability Plan.
The first three questions will help us understand if we are reaching a broad representation of Milwaukee residents.

- What is your zip code? _____
- What is your alderman district? _____
- What is your age? _____

1. Choose **up to three** of the statements below that you think best finish this sentence.

   To me, sustainability is:

   ☐ Making Milwaukee a better place for our children and future generations.

   ☐ Leaving the world a better place than you found it.

   ☐ Reducing our impact on the environment.

   ☐ Providing long-term growth and prosperity for Milwaukee.

   ☐ Meeting the needs of the present without compromising the ability of future generations to meet their own needs.

   ☐ Living within your means and not being wasteful.

   ☐ Creating economic development for the next ten years.

   ☐ A nice idea, but it is not important to the future prosperity of Milwaukee.

2. The Green Team is proposing to use this statement as the vision for the sustainability plan: *"Our vision is to create an alignment of economic and environmental interests that improve Milwaukee's quality of life, benefiting residents, businesses and our natural environment through embracing smart, achievable sustainability principles. As a result, Milwaukee will be the Fresh Coast Capitol of North America."*

   Do you agree or disagree with this vision? Choose **one**:

   ☐ Strongly Agree

   ☐ Agree

   ☐ Neither agree or disagree

   ☐ Disagree

   ☐ Strongly disagree

   ☐ Do not understand the statement

   Optional: Describe the reason for your answer to question #2: _____

3. What do you think are Milwaukee's greatest challenges for future prosperity and growth? Choose **four**:

   ☐ Not all children getting good education

   ☐ No ready access to good, healthy food (or too expensive)

   ☐ Unemployment and lack of new jobs

   ☐ Not enough affordable, updated housing for all residents

   ☐ Traffic congestion

   ☐ Not enough "green" jobs

   ☐ Poor public transportation

   ☐ Flooding

   ☐ High utility bills

   ☐ Poor air or water quality

   ☐ Public health

   ☐ Toxic chemicals in soil and water

   ☐ Trash, garbage, recycling

   ☐ Empty lots, damaged, vacant or abandoned buildings or streets

   ☐ Neighborhood crime and graffiti

   ☐ Other_____

4. What does the ideal community provide for its residents? Please rank these items in order from 1 to 10, where **1 is what you believe is the most important** thing for an ideal community to provide and **10 is the least important** in the list.

   ____ Affordable housing

   ____ Garbage, litter and yard debris removal

   ____ Educational opportunities for all

   ____ Safe and healthy neighborhoods

   ____ Greater access to multiple transportation options

   ____ Abundant outdoor recreation opportunities

   ____ Clean air and water

   ____ Employment opportunities

   ____ Clean-up of abandoned or contaminated property

   ____ Improved roads

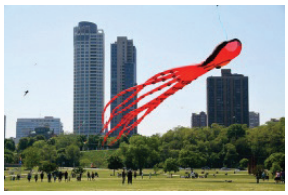
   Optional: Is there another item you believe should be on the list for question #4? Please describe and give it a rank of 1-10: _____

   _____

   _____

5. The pictures below show different ideas about sustainability. Please pick up to four of these ideas that you think Milwaukee should focus on in its Sustainability Plan.

☐ Fresh, local food

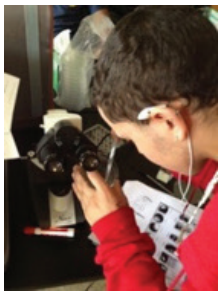


☐ Natural and green spaces

☐ Energy efficiency

☐ Renewable energy

☐ Recycling



☐ Education

☐ Reduced flooding

☐ Public health

☐ Clean Water

☐ Public transit

☐ Climate change

☐ "Green" jobs

☐ Other: _____

6. I think positive change in Milwaukee is brought about by (choose **up to two**):

- ☐ City leaders approving new laws and policies
- ☐ Community involvement and feedback
- ☐ Public demonstrations
- ☐ Voting
- ☐ Participating in aldermanic meetings
- ☐ Improving the built environment – buildings, roads, transit, utilities
- ☐ Working with nearby local governments to share resources
- ☐ Other: _____

7. As the City develops and implements the sustainability plan, would you prefer that the City (**choose one**):

- ☐ Invest a **small** amount of resources (City budget and staff time) **over 5-10 years**.
- ☐ Invest a **larger** amount of resources (City budget and staff time) **over 10 years or more**.
- ☐ Invest a **small** amount of resources (City budget and staff time) **over 5-10 years, and invest a larger amount of resources after 10 years**.

8. I would like to participate in developing sustainability in Milwaukee by (**choose all that apply**).

- ☐ Learning more about sustainability (visit www.milwaukee.gov/sustainability)
- ☐ Helping develop city targets
- ☐ Providing feedback on strategies and projects to reach targets
- ☐ Reviewing the draft sustainability plan when it is complete
- ☐ Volunteering to provide information to the public on sustainability
- ☐ I am not interested in further participation

The City is gathering public input on its sustainability efforts through October 2012. The City's Green Team will use this feedback in preparing the draft sustainability plan later this year. The public will have opportunities to continue to provide input on this process and the draft sustainability plan.

Optional: If you are interested in receiving more information from the City, please provide your email below. Your survey responses will remain anonymous.

Name: _____

Email:_____

Survey Results

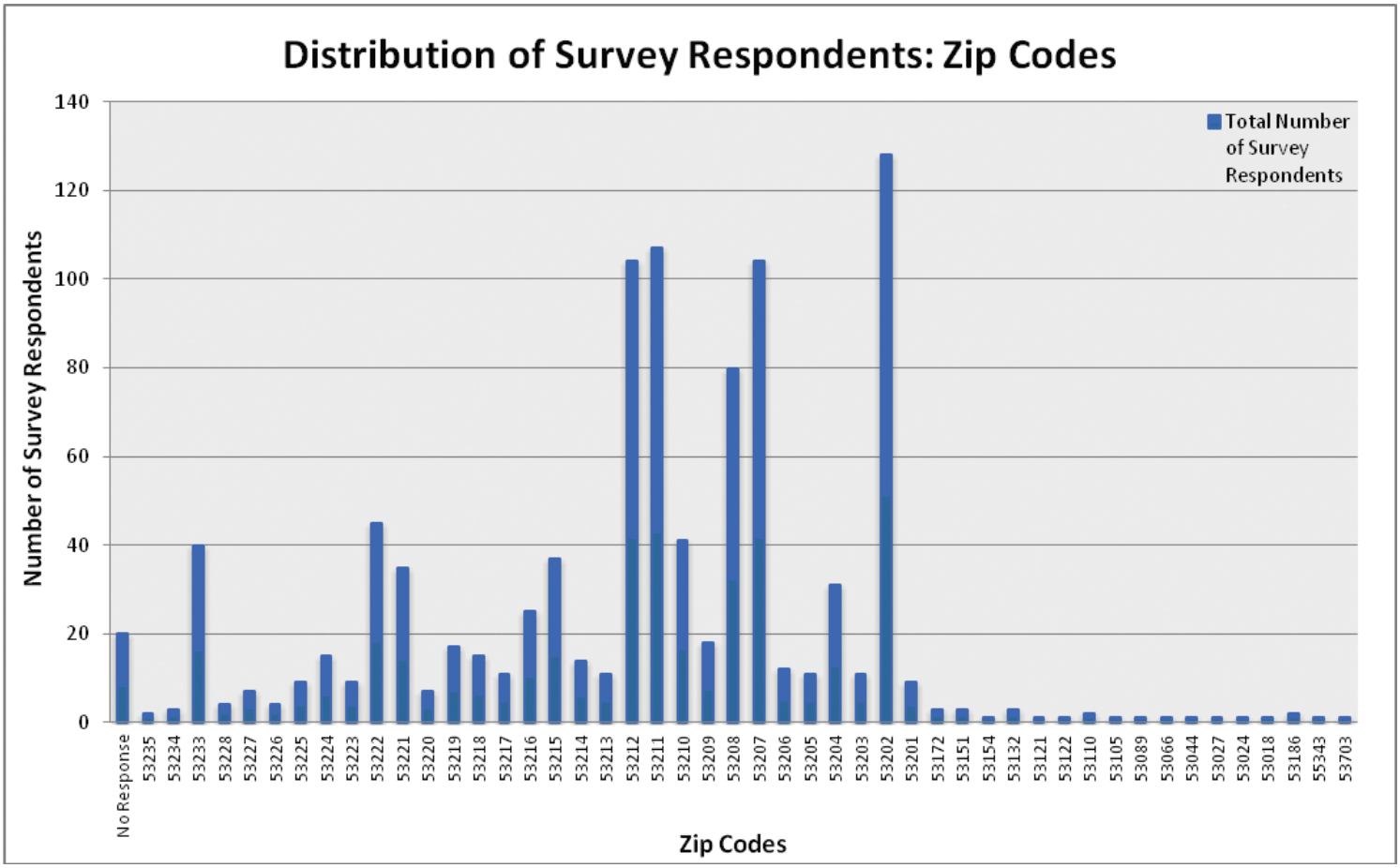
The survey results are briefly described below, with results organized by question. Note that most questions asked respondents to select more than one item from a list of options. As a result, the sum of all responses may be greater than the number of people that took the survey. For example, if respondents were asked to pick up to two options, the total number of responses may be two times the number of people that took the survey.

Zip Codes and Aldermanic Districts

The first demographics question asked respondents for their zip codes and aldermanic districts to allow OES to evaluate the reach of the survey and the geographic distribution of respondents. A total of 991 respondents provided their zip codes. Respondents that did not provide their zip code were coded as "No Response." Figure 1 shows a bar graph of the distribution the zip codes with the number of survey respondents from each zip code. As seen in Figure 1, five zip codes have very high response rates: 53202, 53207, 53208, 53211, and 53212.

A large number of respondents (272 individuals) did not identify a district. For this reason, the zip codes are considered a better estimate of geographic participation in the survey.

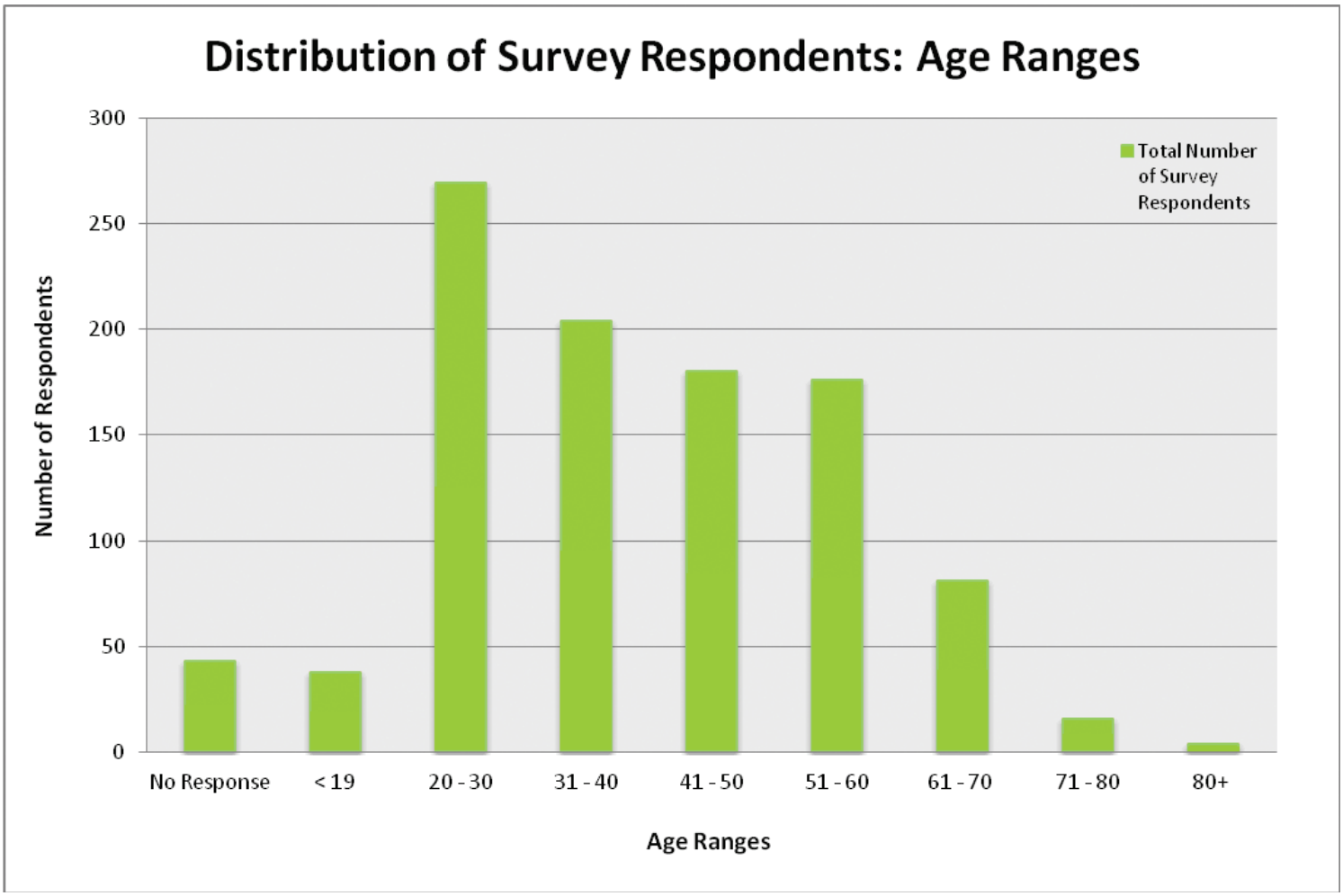
FIGURE 1



Age Range

Respondents were asked to write in their ages to allow the OES to evaluate generational participation in the survey. The responses, grouped by age ranges, are presented in Figure 2. As with the previous demographics questions, a number of respondents chose not to provide age; these were categorized as "No Response." Figure 2 shows that the highest response rates are in the 20- to 30-year-old range and the remaining majority of the respondents are in the 31- to 40- and 41- to 50-year-old age ranges.

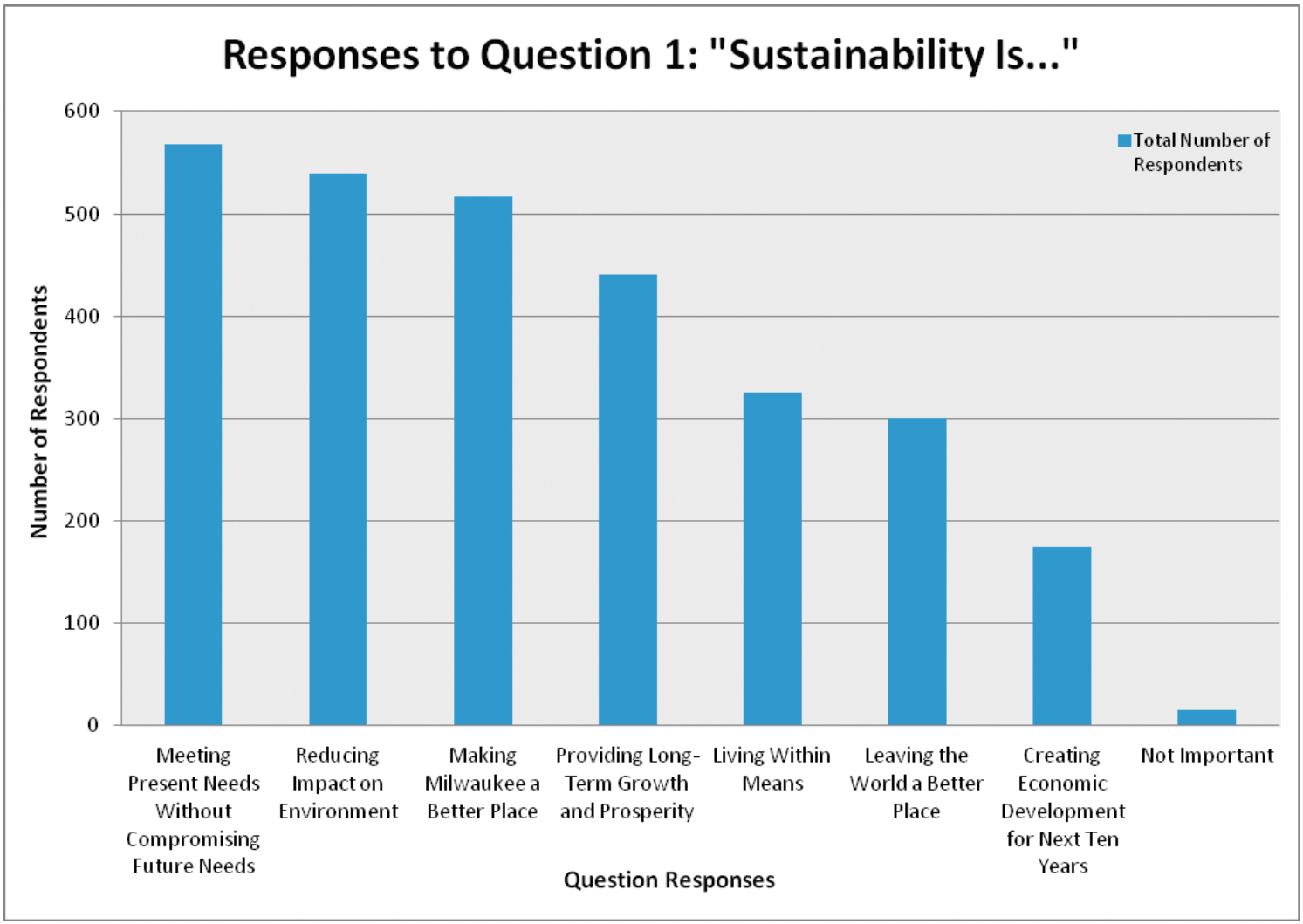
FIGURE 2



Question 1: To me, sustainability is...

Respondents were asked to choose up to three answers from a list of options for defining sustainability. The results are presented in Figure 3. The response with highest preference, with 568 respondents, is "Meeting the needs of the present without compromising the ability of future generations to meet their own needs." The second overall choice, with 539 respondents, is "Reducing our impact on the environment." The third overall choice, with 517 respondents, is "Making Milwaukee a better place for our children and future generations." Consistent themes in the top three options include a long-term perspective (for example, generational considerations) and include social equity as well as environmental considerations.

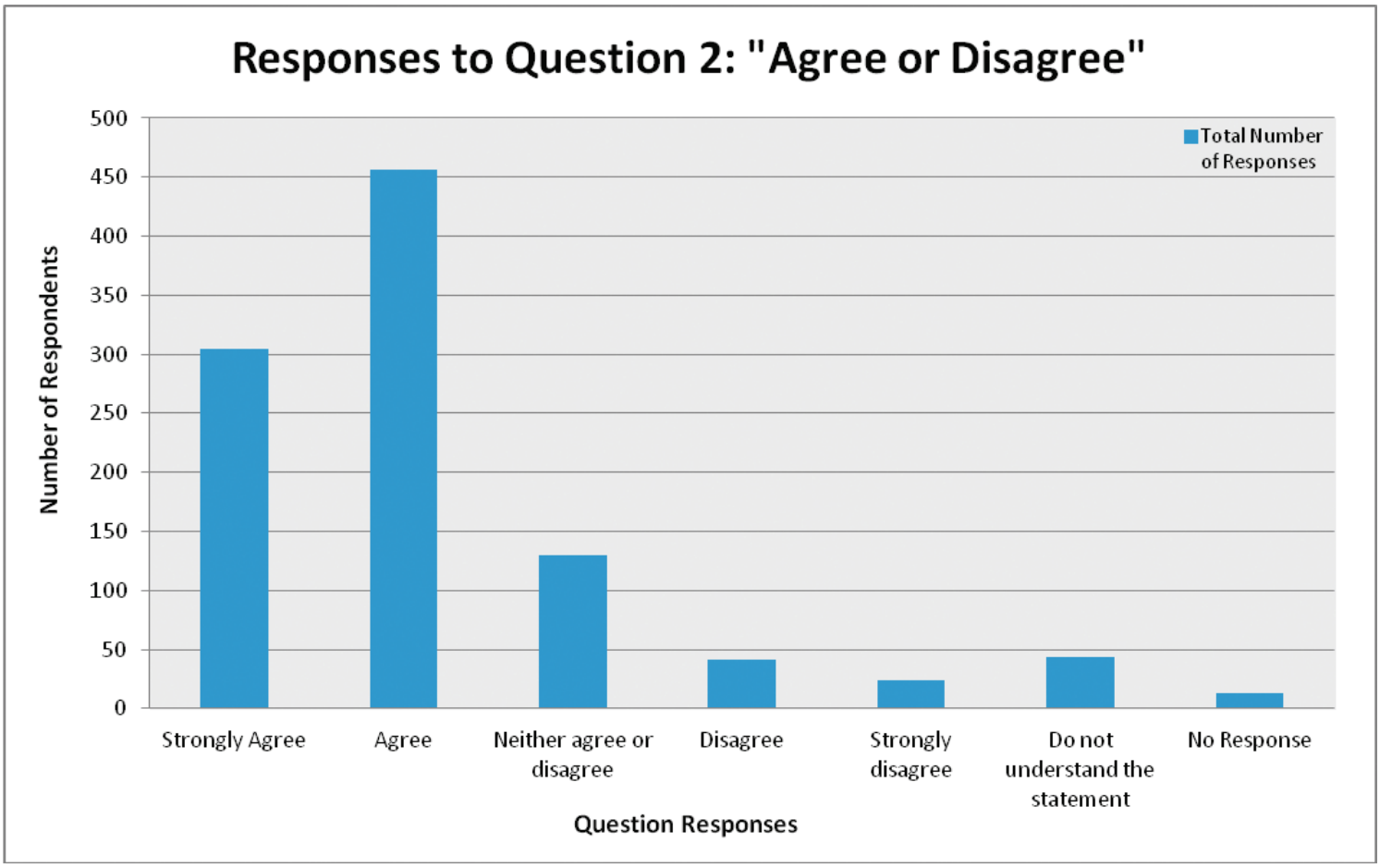
FIGURE 3



Question 2: Do you agree or disagree with the sustainability vision provided?

Respondents were asked whether they agree or disagree with the Mayor's Tom Barrett sustainability vision. The majority of the respondents provided a positive reaction to the statement, as shown in Figure 4. 456 of the respondents "agree" and 304 "strongly agree" with the statement. Of the remaining respondents, 130 people had a neutral reaction, as "neither agree nor disagree," with the statement. Relatively small numbers of respondents expressed disagreement: 41 respondents selected "disagree" and 24 selected "strongly disagree."

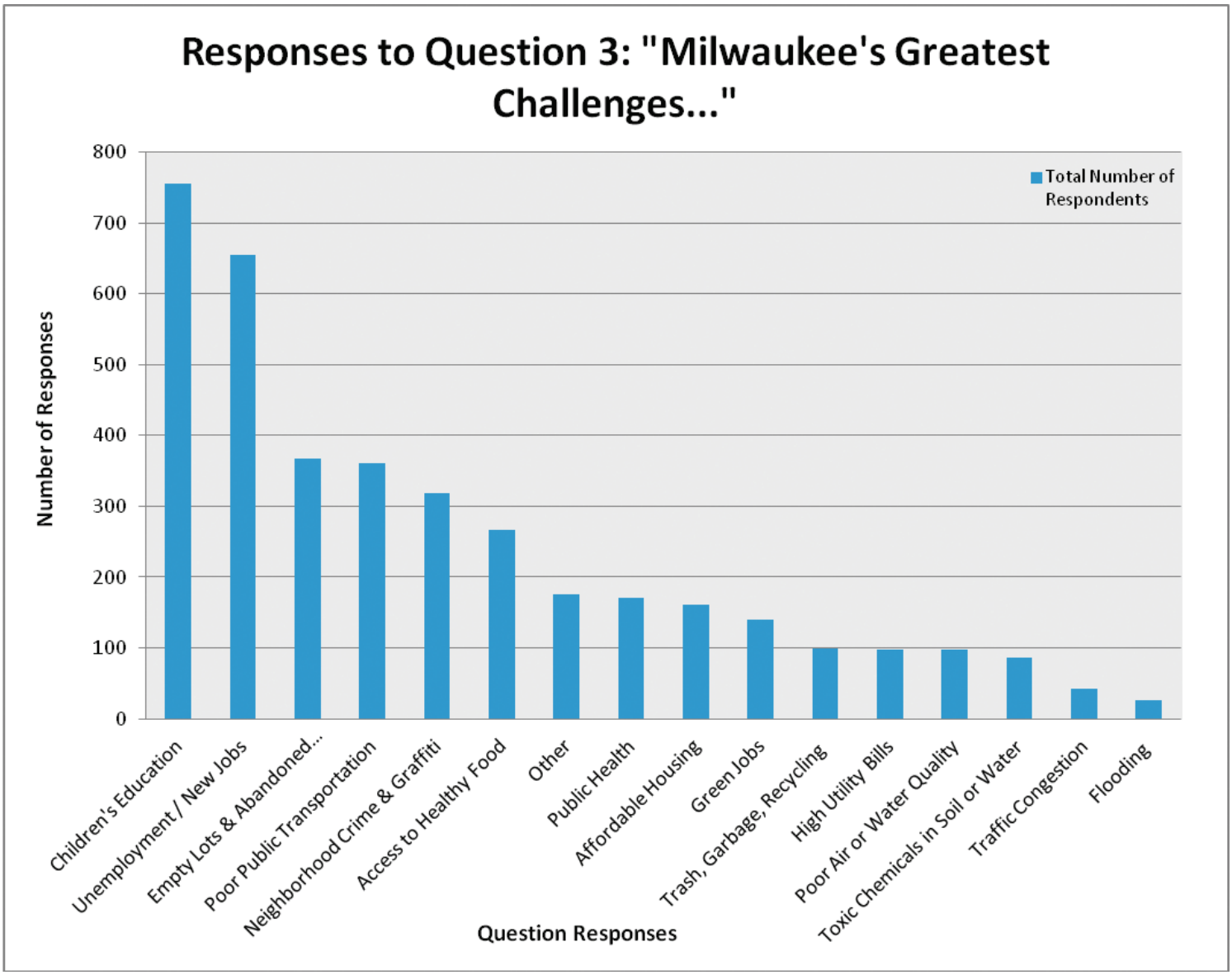
FIGURE 4



Question 3: What do you think are Milwaukee's greatest challenges for future prosperity and growth?

Respondents were asked to choose up to four top answers from a list of 16 potential challenges (including an "other" option, wherein respondents could enter their own suggestion) to Milwaukee's future. Figure 5 shows the responses to Question 3 in order of most frequently selected to least frequently selected answers. The options that responders selected most frequently can be viewed as those identified to be the most challenging to future prosperity and growth. The respondents' first choice, with 755 responses, is "Children's Education." The second choice, "Unemployment/New Jobs," had 654 responses. The third choice was "Empty Lots & Abandoned Buildings" and fourth choice was "Poor Public Transportation," with 368 and 360 respondents respectively.

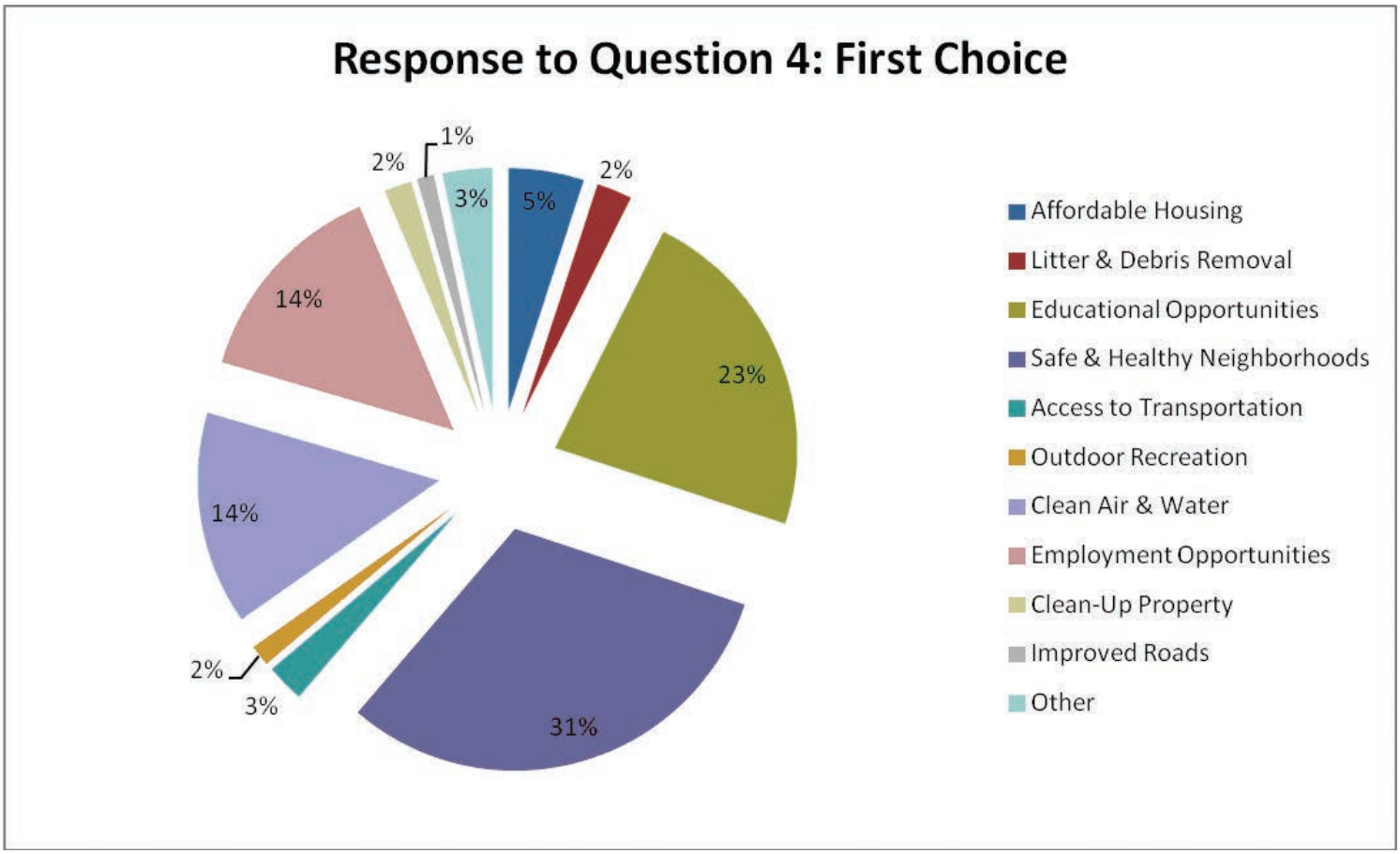
FIGURE 5



Question 4: What does the ideal community provide for its residents?

Question 4 of the survey asked respondents to rank a list of characteristics of an ideal community from 1 to 10, with "1" representing their top choice for a community characteristic from the 10 possibilities and "10" representing their least favorite. Figure 6 shows the percentage of respondents that ranked a particular characteristic first. The characteristic that respondents selected as first choice most frequently is "Safe and Healthy Neighborhoods," with 354 responses (31 percent of the total). 23 percent of the respondents ranked "Educational Opportunities" first; 14 percent ranked "Employment Opportunities" first; and 14 percent ranked "Clean Air & Water" First.

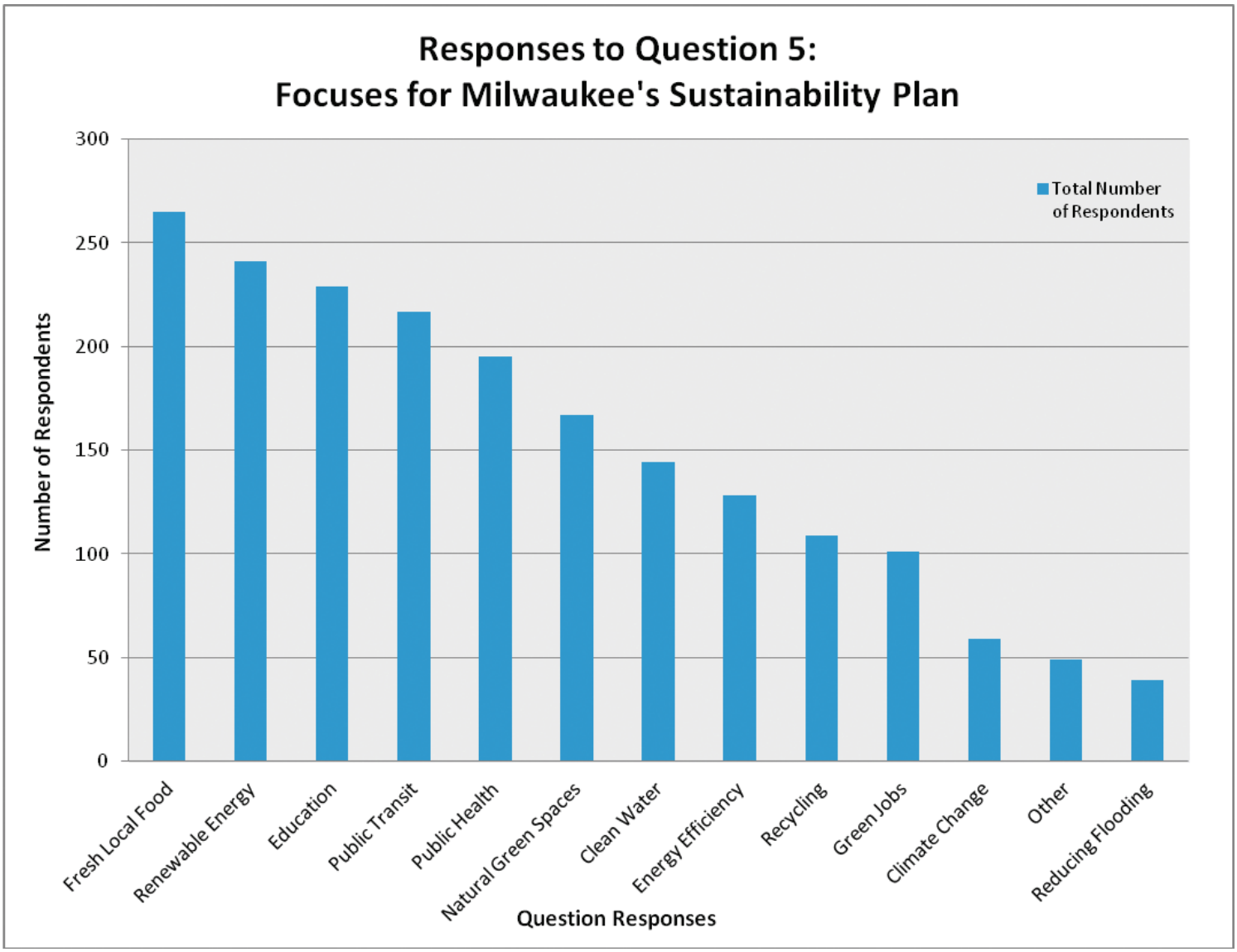
FIGURE 6



Question 5: Ideas that you think Milwaukee should focus on in its Sustainability Plan

Question 5 of the survey asked respondents identify the topics, from a list of 13 (including "other" where the respondents could enter their own suggestion) on which Milwaukee should focus the city's Sustainability Plan. The question included a list of possible topics and asked respondents to choose up to four top answers. Figure 7 shows that respondents' top choice for focus areas is "Fresh Local Food," with 265 responses. The second and third choices for focus areas are "Renewable Energy" and "Education," respectively.

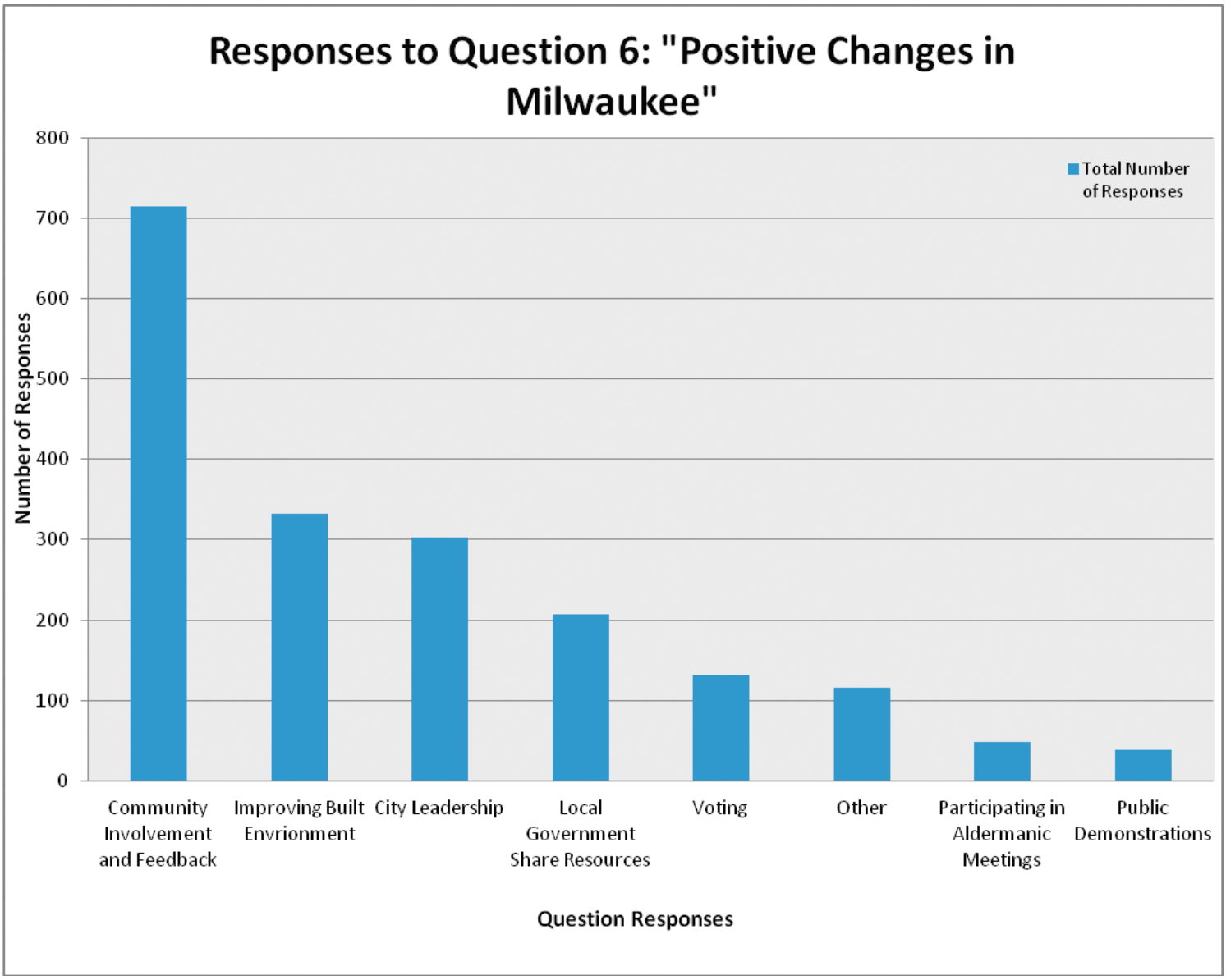
FIGURE 7



Question 6: Positive change in Milwaukee is brought about by____?

Question 6 asked respondents to identify preferences for ways to bring about positive change in Milwaukee. Respondents were asked to choose their top two preferences from a list of eight options, including "Other," where respondents could add their own suggestion. Figure 8 displays the total number of responses for all options. The most frequently chosen way to create positive change in Milwaukee, with 714 responses, was "Community Involvement and Feedback." This option was selected more than twice as often as the second and third options, "Improving Built Environment" and "City Leadership," respectively.

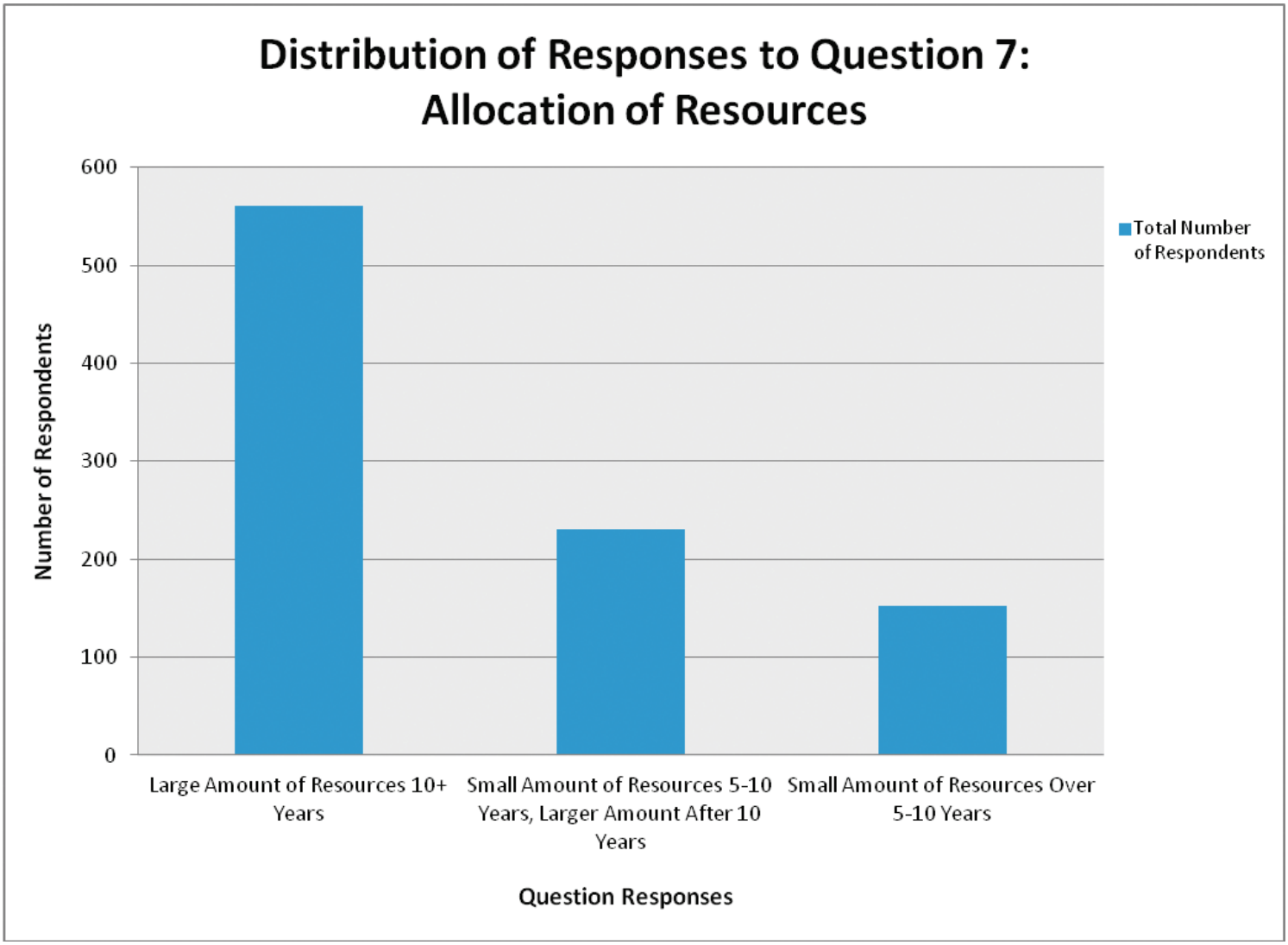
FIGURE 8



Question 7: As the City develops and implements the sustainability plan, would you prefer that the City (choose one).

Question 7 asked respondents to select one of three options regarding the schedule and level of investment the City should consider in implementing the Sustainability Plan. As shown in Figure 9, the majority of the respondents (561) preferred among the three options the allocation of a larger amount of resources (City budget and staff time) invested over 10 or more years. This result is reflected in the overall scale of the Sustainability Plan strategies developed by the Green Team and the timeframe for its implementation.

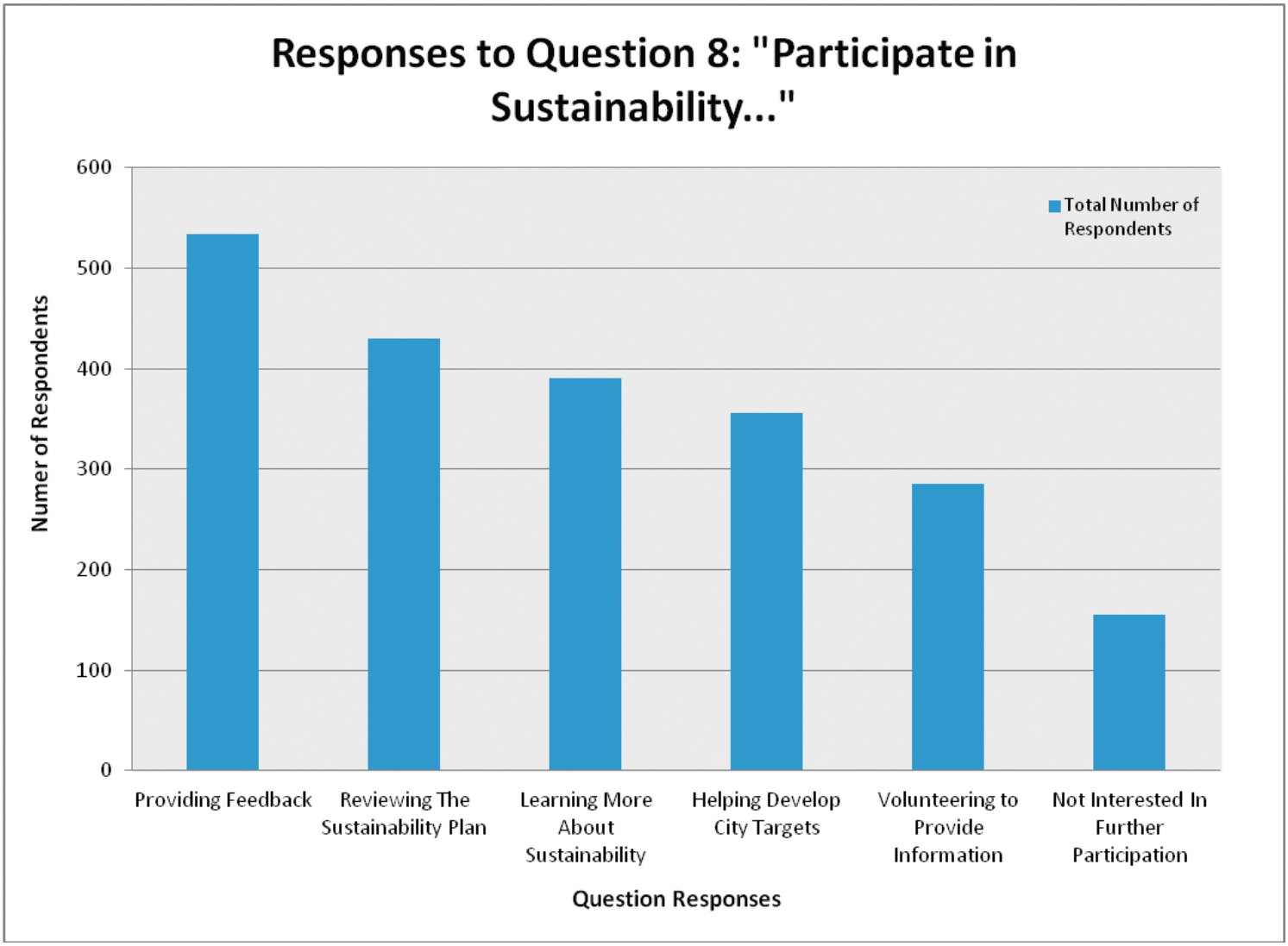
FIGURE 9



Question 8: I would like to participate in developing sustainability in Milwaukee by (choose all that apply).

Question 8 asked respondents to consider their future individual involvement and methods of participation in the ongoing implementation of Milwaukee's Sustainability. Respondents were asked to select as many as apply from a list of six methods. Figure 10 shows the total number of responses for each option. The most frequently selected method for ongoing participation is "providing feedback on strategies and projects to reach targets," with 534 responses. The second most frequently selected method for participation is "leaning more about sustainability on the website," with 391 responses.

FIGURE 10



Top Issue Areas from the Survey

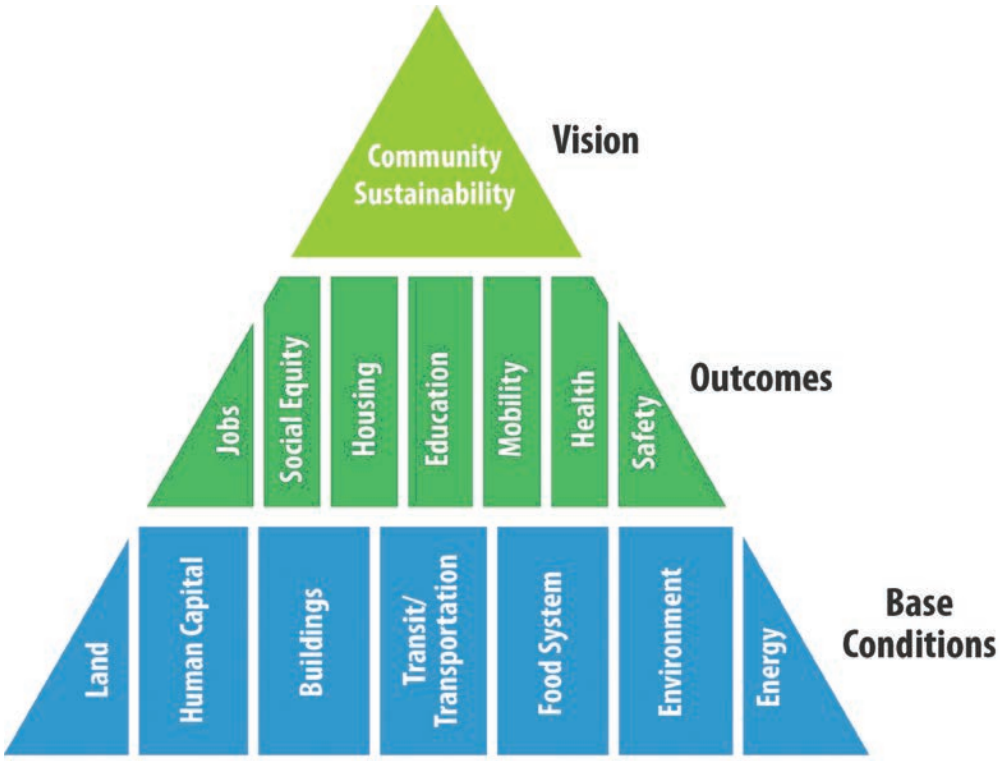
Based on responses to Question 1, the survey respondents are looking for long-term solutions, which will benefit not only the current residents of Milwaukee but also future generations. The responses to Question 2 indicate that the majority of the respondents agree or strongly agree with the sustainability vision established by Mayor Tom Barrett and the Green Team. Responses to Questions 3, 4, and 5 provided insight for possible focus areas for the Sustainability Plan.

The Green Team used the responses gathered through the public outreach survey, as well as in-person input provided at town halls and outreach sessions, to frame Milwaukee's Sustainability Plan. The Green Team met in a half-day workshop in late November 2012 to review the survey responses, identify common themes, and determine the community's desired sustainability outcomes, such as job creation and safer neighborhoods, based on these themes. The common themes and outcomes are shown in Table 1.

TABLE 1

Question 3 – Greatest Challenges	Question 4 – What an Ideal Community Provides	Question 5 – Potential Plan Focus Areas
• Children's Education • Unemployment/New Jobs • Empty Lots & Abandoned Buildings • Poor Public Transportation • Neighborhood Crime & Graffiti • Access to Healthy Food	• Safe &Healthy Neighborhoods • Educational Opportunities • Employment Opportunities • Clean Air &Water • Affordable Housing	• Fresh Local Food • Renewable Energy • Education • Public Transit • Public Health • Natural Green Spaces • Clean Water • Energy Efficiency

The Green Team brainstormed what conditions, social, environmental, and economic, might be necessary to lead to these outcomes or that would positively influence the desired outcomes. The Green Team identified the base conditions over which the City could have direct influence and for which improvements could be measured. The base conditions became the framework for the Sustainability Plan. These base conditions, along with the sustainability outcomes and vision they support, are visually represented in Figure 11.



Overview of Public Outreach Sessions

Background

To complement the public survey data with broader, in-person input, the Green Team held a series of Town Hall meetings and informal outreach sessions with residents, community groups and businesses in 2012 and 2013. The Green Team estimates that the in-person outreach sessions reached 435 people and 85 businesses.

Town Halls

The Green Team partnered with several Milwaukee Aldermen and the Urban Ecology Center to host five official town-hall-style meetings, where community members had the opportunity to provide direct input and Green Team members were personally accessible and on hand for discussion. Each Town Hall began with a Sustainability Planning overview by Green Team Chair Matt Howard. After the overview, attendees could then visit different tables staffed by Green Team members. Each table represented a potential topic area (such as an energy table and a transportation table) for the final Sustainability Plan. Members of the public could provide input at each table on that specific issue area. Notes were taken throughout the meetings. Estimated attendance is shown below.

Date	Venue	Co-Sponsor or Host	Estimated Attendance
July 17, 2012	Bay View Library	Alderman Tony Zielinski	15
July 19, 2012	DNS Water Tower	Alderman Terry Witkowski	15
August 9, 2012	Urban Ecology Center Riverside Branch	Urban Ecology Center	30
August 29, 2012	Urban Ecology Center Washington Park Branch	Alderman Willie L. Hines, Jr. & Urban Ecology Center	30
September 20, 2012	Urban Ecology Center Menomonee Valley Branch	Urban Ecology Center	30

Informal Outreach Sessions

Green Team members hosted numerous individual, informal outreach sessions with resident associations, non-profits, community-based organizations, and business and civic groups. The sessions were conversational and ranged from one-on-one discussions with sustainability experts to broader sustainability discussions. Over 30 such informal sessions were estimated to have occurred in 2012 and 2013, with participation by approximately 300 people.

Business Outreach Sessions

Three business outreach sessions were organized and hosted by Green Team Chair Matt Howard; in addition, one conference call was organized by Green Team Energy Subcommittee lead Erick Shambarger. These sessions were used to gather in-person feedback and reactions to potential Sustainability Plan goals, targets, and strategies. Estimated attendance for each of these sessions is below.

Date	Venue	Business Group	Estimated Attendance
July 10, 2012	Transfer Pizza	Industrial BIDs	10
June 4, 2013	UWM-Zilber School of Public Health	Water Council	40
June 6, 2013	MillerCoors	Manufacturers	25
June 27, 2013	Conference Call	WERC	10

Final Public Comment Period

The Green Team held a final public comment period from June 17 to June 27, 2013, to provide opportunity for input on the draft goals and targets. Specifically, members of the public were provided the opportunity, via the City's sustainability website, to: (1) identify any gaps in the draft goals or targets; and (2) identify any draft goals or targets that should be considered for removal. Fifteen responses from the public were received.

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Green Team

Chair, Matt Howard (City of Milwaukee, Office of Environmental Sustainability)
Vice Chair, Michelle Mason (ASQ)
Larry Adams (Walnut Way Conservation Corp)
Earl Buford (Wisconsin Regional Training Partnership/BIG STEP)
Marcia Caton Campbell (Center for Resilient Cities)
Preston Cole (City of Milwaukee, Department of Public Works)
Pam Fendt (Laborers' International Union of North America)
Kimberly Gleffe (River Revitalization Foundation)
Dennis Grzezinski (Midwest Environmental Advocates)
Juli Kaufmann (Fix Development LLC)
Vanessa Koster (City of Milwaukee, Department of City Development)
Peter McAvoy (University of Wisconsin-Milwaukee, School of Freshwater Sciences)
David Misky (Redevelopment Authority of the City of Milwaukee)
Jeffrey Polenske (City of Milwaukee, Department of Public Works)

Ex Officio

Steve Adams (Southeastern Wisconsin Regional Planning Commission)
Gordie Bennett (Milwaukee County, Department of Administrative Services)
Mike Hahn (Southeastern Wisconsin Regional Planning Commission)
Karen Sands (Milwaukee Metropolitan Sewerage District)
Erick Shambarger (City of Milwaukee, Office of Environmental Sustainability)
Nelson Soler (Multicultural Entrepreneurial Institute)

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Andrea Gardner
Cynthia Nemke
Akima Cornell

City Staff, Writers, Designers and Communications Volunteers

Nicole Budzban (City of Milwaukee, City Clerk's Office)
Libby Chappel (City of Milwaukee, Office of Environmental Sustainability Intern)
Amy Heart (City of Milwaukee, Office of Environmental Sustainability)
Lauren Hildreth (Communications Volunteer)
Tina Klose (City of Milwaukee, City Clerk's Office)
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W. ST. PAUL
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(N. RIVERWALK WAY)

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www.ReFreshMKE.com
www.facebook.com/MKESUSTAIN
Twitter: @ReFreshMKE
Email: sustainability@milwaukee.gov