

CHAPTER 3.0

3.1 INTRODUCTION

CELEBRATION POINTS

ENERGY EFFICIENCY

LOCAL FOOD

RENEWABLE RESOURCES

WASTE

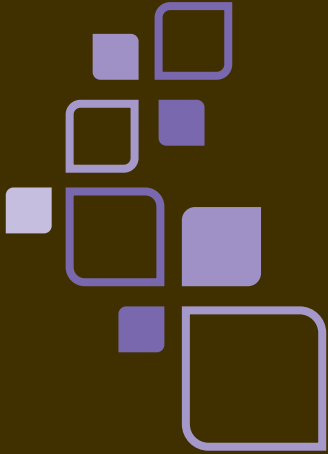
WATER

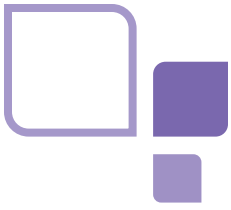
GREEN SPACE

TRANSPORTATION

VITAL NEIGHBORHOODS

**ACTION PLAN:
CELEBRATING PROGRESS**





3.1

ACTION PLAN: CELEBRATING PROGRESS

CHRONOLOGY CRITERIA

- Harnessing Current Energy and Passion
- City schedule of Initiatives
- Skills Building (Logical Progression)
- Available Funding at Federal Level (Seize the Moment)

POTENTIAL CELEBRATION POINTS

- 2011 – Energy Efficiency
- 2012 – Local Foods
- 2013 – Renewable Resources and Advanced Energy
- 2014 – Waste
- 2015 – Clean Water
- 2016 – Transportation
- 2017 – Green Space
- 2018 – Vital Neighborhoods
- 2019 – TBA

ACTION PLAN – CELEBRATING PROGRESS

What is Celebrating Progress?

Celebrating Progress is a vehicle for collective action and engagement. Every year leading up to 2019, Cleveland will celebrate progress toward one clearly defined and actionable area where sustainability and economic development intersect.

The order of the celebration points is flexible, and will be voted on every three years by the SC2019 Stewardship. This will allow flexibility for big changes, unexpected events, or available funding.

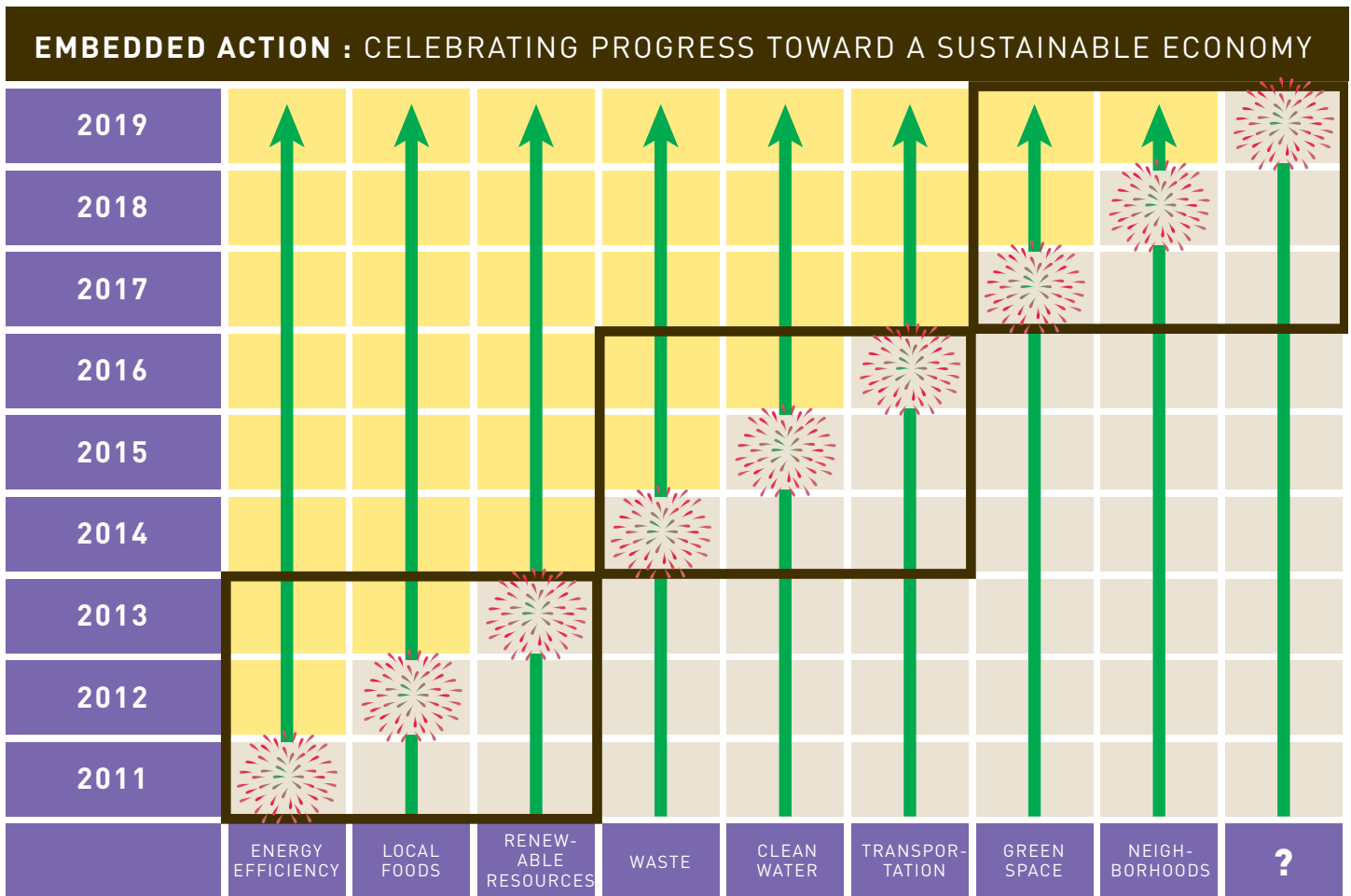
Specific initiatives within Celebrating Progress will all relate to elements of the strategic framework, but they provide an easily accessible access and alignment point for moving forward. The celebration points within Celebrating Progress were chosen to address the most basic conditions for sustainability in a context that resonates with people at all knowledge and interest levels.

Additionally, the order of the celebration points was chosen to correspond to celebrations that are already happening in the city and to major milestone projects that will be completed. For example, the Westside Market will celebrate its 100 year anniversary in 2012 and in 2017 the Metro Parks will turn 100.

In the following pages, the economic argument for each Celebration Point is outlined and its relevance to businesses, government and the community is highlighted. The potential for job creation is emphasized.

NOT A BEGINNING OR AN END

Each Celebration Theme will not start or finish in its designated “year-of” – rather, they will all be on-going, with the focus shifting from year to year. 60% of the media focus and planning for the celebration can focus around the specific theme, and the other 40% will be dedicated to highlighting progress in the other, complementary themes. The celebration point is meant to create new connections and expand our horizons of what is happening here in Cleveland – new ideas, new innovations, new voices, and new partnerships.



WHY CELEBRATING PROGRESS MAKE SENSE:

- It provides a platform and structure for communication/collaboration. A feeling of not know what other people, organizations, etc. are doing has been universally identified as one the biggest barriers to progress. By taking the time to really celebrate one specific area, the community will have a chance to see what others are doing and create new opportunities for collaboration.
- It is an easy marketing hook and platform for telling interesting, compelling stories about Cleveland both to an internal audience (Clevelanders themselves) and to an external audience (the state, the nation, the world).
- It creates a sense of alignment and collective impact. People are motivated to take action when there is a feeling of collective will. Everyone knows that small efforts have a significant cumulative effect – with a common vision and feeling of aligned impact this abstract concept becomes tangible and motivating.
- It creates a pressure to perform, to show-off and an easy way to communicate and demonstrate tangible progress to ultimate goals of 2019. Identifying a specific time that people will be accountable for progress in the eyes of the community will encourage co-opetition in the Olympic sense of competing for the end result of collective benefit – everyone gets more fit.
- It is easy to engage with at different levels of awareness and engagement – from government, to businesses, to organizations, to individuals.

COMMUNITY OUTREACH STRATEGY COMPONENTS FOR CELEBRATING PROGRESS:

One element that will be critical to gaining wide popular acceptance and awareness is to make a significant community outreach effort for each of the celebration points. While each year will have its own outreach strategy there are components common to each year that will need reinforcement in addition to year-specific outreach efforts. Here are some examples of strategies and tactics that could be used through the SC2019 timeline to raise celebration-point awareness, act to engage the community and generate good PR while solidifying the overall SC2019 “brand”:

Deputize community outreach volunteers to go into the community and explain the annual theme

Demonstration projects at all levels

Create “highest-participation” contests between different neighborhoods – give added points for helping others engage

Enlist community leaders to set publicly visible examples

Send SC2019 reps to neighborhood association meetings to explain the theme and its importance

Get buy-in and free media time from radio, tv and print publishers

Create and publish lists of how everyone/anyone can participate

Create a place on the website where people can present their ideas and publicize their efforts – organized by peer or stakeholder groups.

Provide regular progress updates throughout the year (new media, United Way-type “thermometers”, billboards, etc...)

Hold public recognition events

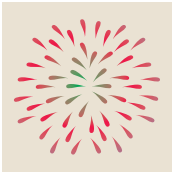
Create a variety of fun eco-promotional items around each themed year (stickers, T-shirts, buttons, etc...)

Establish an annual awards ceremony

Enlist the local churches and community organizations, economic development organizations, environmental organizations, etc.

There are dozens of other great ideas that could be used to raise awareness of these critical themes. Since most of the above ideas could be re-used each year, it would provide a level of annual continuity that could reduce learning curve time and costs as well as setting regular expectations along the 10-year cycle.

For each of the following annual celebration points, task SC2019 with coming up with one or two new outreach mechanisms unique to the theme that can add at least a degree of uniqueness to each year. The other important point is to ensure all the outreach efforts selected are spaced out evenly throughout the year to ensure a steady drumbeat of outreach. Never stop communicating the message and trying to reach new people. Most people will need to hear about the theme five or more times in order to internalize the message. Repetition and community penetration are the keys to successful outreach efforts.



CELEBRATION POINT

ENERGY EFFICIENCY

Energy efficiency can be defined as simply “using less energy to provide the same level of energy service.” While Americans use on average more energy than any other country in the world besides China¹, the need to improve energy efficiency is not simply an environmental issue, but also an enabling factor and basic premise of a competitive and sustainable economy.

Energy efficiency offers a two-fold opportunity for Cleveland’s economy. First, new business opportunities for Cleveland are born out of the need for an environmentally sustainable economy, allowing Cleveland both to retain jobs and create new employment opportunities in traditional sectors such as construction, building and manufacturing. Second, energy efficiency can decrease input and operating costs for the City and Cleveland businesses, while allowing individuals to reduce their expenditures on a household level. This provides an opportunity to increase businesses’ profit margin, free up money for reducing deficit while retaining the government’s public spending allowance, and increase wealth in Cleveland communities.

¹ International Energy Agency, July 2010, <http://www.iea.org/>

While employment in construction in Ohio has declined by nearly 15% between 2000 and 2008, both regional and national statistics demonstrate a clear trend toward a growing job market in the energy-efficient construction sector, one that includes Green Building, Weatherization and Retro-fitting. Relative to conventional

construction, green building has the potential to create 3-4 more jobs indirectly or directly for every million spent. Similarly, the National Association of Home Builders suggests that energy efficient retrofit jobs of a certain capacity could generate three times more jobs than traditional residential remodeling². There are

currently more than a quarter of a million homes in Cuyahoga county that could benefit from weatherization and energy improvements, which would both, respond to the local demand as well as provide local jobs that cannot be outsourced reducing energy use by 25-50%.

² www.sahfnet.org/index_23_1_1.pdf

BUSINESSES AND CITIES

Not only does energy efficiency create new business opportunities and employment, it can help to reduce input and operating costs for local businesses thereby improving productivity and profit margin. Rising prices in oil and other fossil fuel markets in the last decade coupled with a growing global energy demand has led to increases of energy costs for businesses by an average of 60-70% since 2000.³ For the most energy intensive companies, energy costs more than tripled and the U.S. Department of Energy's 2009 Annual Energy Outlook projects a 2014 price of about \$104/barrel, almost 5 times higher forecast than in the 2006 Annual Energy Outlook.⁴ Energy efficient solutions hence allow for significant long-term energy costs reductions for businesses but also for cities, providing more opportunity for local public spending on other enabling conditions for a competitive economy, for example, infrastructure, education or green space.

COMMUNITIES

The same principal applies on a household level. As individual homes reduce their energy consumption either through a change in behavior and/or a more energy efficient living space, the impact on wealth and on poverty alleviation is substantial. While an average household in U.S. spends 5% of its income on energy bills, the average low-income household spends between 15% and 35%.⁵ Home weatherization can lead

to a drop in energy spending in case of average low-income households by 5-14%. Energy efficiency on a household level is extremely relevant within the Cleveland context, as the city has relatively old housing stock and a cold climate for achieving energy savings for low-income people by applying building retrofits, such as replacing windows or upgrading insulation. Homeowners and renters could save up to 4% of their income by investing in retrofits,⁶ increasing wealth and money that can be spent locally and contributing to a more resilient and prosperous economy for Cleveland.

EXAMPLES OF AVAILABLE FUNDING AT FEDERAL/STATE LEVEL

AMERICAN RECOVERY AND REINVESTMENT ACT OF 2009

The U.S. Department of Housing and Urban Development (HUD) and the Department of Energy (DOE) announced a partnership intended to streamline the assistance program for families to weatherize their homes. HUD and DOE will allocate \$16 billion in economic recovery funds to retrofit existing homes. HUD's programs include \$4.5 billion to renovate and upgrade public and Native American housing, as well as \$250 million for energy retrofits of privately owned federally assisted housing. DOE will invest \$5 billion in weatherization funds; \$3.2 billion for a new Energy and Environment Block Grant that cities and states can use to retrofit homes; \$3.1 for the State Energy Program; and other programs.⁷

The State Energy Program

will enable Ohio to stimulate the creation and retention of jobs, save energy, increase energy generation from renewable energy, and reduce greenhouse gas emissions. The program is a collaboration between the Ohio Department of Development and the Ohio Air Quality Development Authority with input from additional state agencies. The total level of State Energy Program funding allocated to Ohio is \$96,083,000.⁸

The Energy Efficiency and Conservation Block Grant

program is one of several energy-related programs receiving funding through American Recovery and Reinvestment Act. A total of \$84,183,300 is available to Ohio, which includes \$59,203,700 that was made available through direct allocation from the federal government to the 10 largest counties and to the 33 largest cities.⁹

ENERGY INNOVATION HUBS: ENERGY EFFICIENT BUILDING SYSTEMS REGIONAL INNOVATION CLUSTER INITIATIVE

a multi-agency funding opportunity to support an Energy Regional Innovation Cluster.¹⁰

3 Pew Center on Global Climate Change, From Shop Floor to Top Floor: Best Business Practices in Energy Efficiency, April 2010, http://www.pewclimate.org/docUploads/PEW_EnergyEfficiency_FullReport.pdf

4 Id.

5 "Unlocking Energy Efficiency in the US Economy", McKinsey Global Energy and Materials, p. 32, July 2009, http://www.mckinsey.com/clientservice/electricpowernaturalgas/downloads/US_energy_efficiency_full_report.pdf

6 "Cleveland, Ohio, Green Prosperity and Poverty Reduction", Political Economy Research Institute, University of Massachusetts, Amherst, June 2009, http://www.peri.umass.edu/fileadmin/pdf/other_publication_types/green_economics/green_prosperity/Cleveland_Green_Proprosperity.pdf

7 http://portal.hud.gov/portal/page/portal/RECOVERY/transparency_resources/HUD-DOE%20Weatherization%20

Fact%20Sheet.pdf

8 http://www.development.ohio.gov/recovery/energy/fundingopportunities.htm#Energy_Efficiency_

9 Id.

10 <http://www.energy.gov/hubs/eric.htm>

CITY INITIATIVES

SHAKER HEIGHTS – GREEN ENERGY PROGRAM

grants toward energy efficiency work in homes.

THE CITY OF CLEVELAND – LED (LIGHT EMITTING DIODE) LIGHTING INITIATIVE¹¹

This initiative is an effort to change out our lighting including streetlights, traffic lights, and indoor incandescent and fluorescent lighting replacements. The effort uses the City’s purchasing power to create jobs, attract business investment, save the city money, reduce the City’s energy consumption, reduce the City’s carbon footprint and spur the creation of a sustainable economy in Cleveland.

GREATER CLEVELAND ENERGY ALLIANCE

This proposal is currently being developed and studied as part of a study being conducted by Clean Energy Solutions. It is to develop an energy conservation program for the private sector that allows for energy efficiency improvements at no upfront capital costs for people participating in the program.

ENERGY EFFICIENCY AND ADVANCED ENERGY SPECIAL IMPROVEMENT DISTRICTS

The City and the First Suburbs Consortium recently won the Efficient Gov.org challenge to create Special Improvement Districts for Advanced Energy and Efficiency programs. The City is seeking to develop a special improvement district that allows for the voluntary property assessment for energy and energy efficiency improvements. This is an important

program to pursue to help bring energy efficiency retrofits to scale along with solar and other advanced energy applications for private property owners.

ILLUSTRATIONS OF CURRENT ENERGY AND MOMENTUM

STATE POLICY

Prompted by the supportive state policy of SB 221 enacted by the Ohio General Assembly in 2008, investor-owned utilities in Ohio are investing in energy efficiency to obtain a portion of their power. This could lead to innovative projects between utilities and community groups to help people save energy in their homes

GREEN BUILDING

The Northeast Ohio Chapter of the U.S. Green Building Council is educating the region’s building and design industries about the benefits of high-performance buildings. The City of Cleveland is phasing in tougher energy requirements for projects receiving city funding.

RETROFITS AND CODES

The Sustainable Cleveland 2019 Green Building Work Group is promoting an aggressive program of building retrofits to save energy and create jobs, as well as new building codes with tougher energy requirements.

DEEPER RETROFITS

Environmental Health Watch’s Green and Affordable Housing Program is piloting “deep energy retrofits,” which can turn ordinary homes into near zero-energy homes.

ENGINE TECHNOLOGY

Ford is manufacturing some of its most

efficient engines in Northeast Ohio.

LIGHTING TECHNOLOGY

Northeast Ohio is a center of advanced lighting research with companies such as GE and TCP.

DONATIONS FOR CARBON REDUCTION

The Cleveland Carbon Fund accepts donations and invests in projects, such as light bulb replacement efforts, that reduce carbon emissions while creating jobs in Cleveland neighborhoods.

ENERGY EFFICIENCY TECHNOLOGIES

Companies such as Ford, Eaton Parker Hannifin and others are developing technologies that are creating some of the most efficiency engine technologies available



¹¹ http://www.city.cleveland.oh.us/clnd_images/PDF/Mayor/LED_Initiative.pdf

RECOMMENDATION FROM THE CLIMATE OVERVIEW

BUILDING TRANSITION

Nearly half of the greenhouse gas emissions in the seven-county region come from energy used in residential and commercial buildings, primarily from burning fossil fuels for lighting, heating and cooling (note that emissions from this sector include emissions from the electricity generation sector). A 90% reduction of these emissions by 2050 will require a major transition of our building stock, creating buildings that are more energy efficient, cheaper to operate, and healthier to live in. Transition steps should include:

RETROFIT AND RENOVATE EXISTING BUILDING STOCK

- Of the 1.2 million existing homes in Northeast Ohio, 900,000+ are 30 years or older.
- Expedite permitting for green renovations; increase contractor education.
- Increase availability of energy-efficient appliances and products in the region.
- Provide incentives for energy conservation and efficiency retrofits and installation of renewable energy.
- Achieve aggressive energy reductions (and energy production) in new buildings
- Between 8,500 and 12,000 new homes are built each year in the region.
- Starting in 2010, all new homes should be constructed to use 60% less energy than homes of standard construction, achieving a Home Energy Rating System (HERS) Index of 40.
- Increase home energy performance year by year to achieve widespread construction of net-zero energy homes by 2050.

EDUCATE AND IMPROVE BUILDING OCCUPANT ENERGY-USE BEHAVIORS

- Encourage programmable thermostats, cold water washing, air drying of clothes, etc..
- Provide feedback about the energy consumption of household devices.
- Provide building energy scorecards.

IMPLEMENT DISTRICT-WIDE SOLUTIONS, INCLUDING EFFICIENT LAND USE PLANNING

- Promote zoning and planning codes that require efficient buildings and siting to maximize passive-solar design or renewable energy production.
- Encourage developments to share highly efficient district energy systems, such as cogeneration.

RECOMMENDATION FROM THE CLIMATE OVERVIEW

ELECTRICITY GENERATION TRANSITION

About half of the greenhouse gas emissions in Northeast Ohio come from the production of the electricity we use. The region has relatively carbon-intensive electricity because more than 70% is generated from the burning of coal.

A 90% emissions reduction from this sector will require a major transition in the way we use and generate electricity, including greatly expanded programs for energy conservation and efficiency, the gradual phase-out of coal-burning power plants, and a shift to clean, renewable power sources tied together by a smart electrical grid. Transition steps should include:

REDUCE DEMAND FOR ELECTRICITY BY PROMOTING EFFICIENCY AND CONSERVATION

- Change regulatory policies so utilities have a greater incentive to promote conservation than sell more electricity.
- Support stronger standards for appliance and lighting efficiency, and offer incentives to encourage rapid adoption of more efficient technologies in homes and businesses.
- Educate consumers about cost-effective ways to reduce power consumption.
- Reduce electricity consumption in buildings through high-performance, green design.

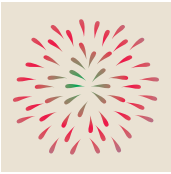
CHANGE THE MIX OF POWER SOURCES, SHIFTING TO MORE EFFICIENT GENERATION AND CLEANER FUEL SOURCES

- Develop efficient plants to produce combined heat and power close to consumers to reduce transmission losses.
- Retire aging coal-fired power plants at the end of their useful lives.
- Rapidly phase in wind, solar, and other clean power sources.

Build a smart power grid to take advantage of intermittent, distributed sources of power

- Make the electric grid more like the Internet—capable of connecting and managing many sources of energy.
- Develop storage capacity (e.g., with compressed air, pumped water, fuel cells) to smooth out power supply.
- Tie electric vehicles into the grid to create a mass network of storage devices.

For details on how to implement the above transition steps, see the climate transition plan for the power sector at www.gcbl.org/energy/regional-agenda/climate-change/transition-plans/electricity-generation-transition-plan



CELEBRATION POINT

LOCAL FOOD

Local food is defined as the “production, process, distribution and consumption of food within a specific region, often defined as 100 miles from farm to fork.” A focus on local food is not only essential for a sustainable economy in Cleveland due to its environmental benefits, but is also an important economic driver. While a focus on local foods can lead to a significant improvement in air and soil quality and a reduction of the city’s carbon footprint, it also represents an economic sector whose resilience can significantly increase local wealth, create new jobs that cannot be outsourced and provide diverse business opportunities for value-added product and services that are imperative for the city’s competitive economic future.

CITY

The local food sector rests at the very foundation of a competitive self-help economy and is grounded in a large local market and strong local supply capacity. At present, the local demand for food is satisfied through imports from other states and only 5% of food is supplied from locally grown and produced products.¹² The remaining 95% spent on food outside of the community represents a significant leakage of resources and revenue, as it leaves the economy and is not circulated back into the local economy. Local spending also has a very high multiplier effect. According to a study by the New Economics Foundation in

London, a dollar retained and spent in the local economy has the potential to generate twice as much revenue within the local economy, increasing income for local businesses and city revenue that has steadily declined due to a decreasing population.¹³ On the whole, Ohioans devote 11% of total consumer spending to food. Following the findings of Ohio Department of Agriculture, localizing only 10% of consumer spending could result in an additional \$10 billion per year in the state economy, based on conservative economic multipliers.¹⁴

¹³ “10 Reasons to Eat Local” http://fogcity.blogs.com/jen/2005/08/10_reasons_to_e.html

¹⁴ Economic Analysis of an Ohio County Local Food System Offers Blueprint for Nation, November 2009, http://www.extension.org/pages/Economic_Analysis_of_an_Ohio_County_Local_Food_System_Offers_Blueprint_for_Nation

The local food sector provides a concrete opportunity to increase local jobs that cannot be outsourced. The Northeast Ohio Local Food Assessment plan cites high potential for Cleveland’s surrounding areas, demonstrating that 25% food localization would provide 10,000 new jobs, produce \$346 million in earnings, and create \$1.4 billion in output. Employment opportunities include, but are not limited to, food production, farming services, food distribution, food manufacturing, meat processing, and food tourism, as well as entrepreneurial opportunities for organic, value added products that can enter into – and command a high price – on a national market.

BUSINESSES AND COMMUNITY

In addition to presenting new business and employment opportunities, a focus on local foods leads to positive economic externalities, which underpin and sustain a competitive and prosperous economy. Improving community health and wellness will reduce costs for employers in the private and public sector, as they provide health insurance for employees and cover health related costs for Cleveland residents. According to the U.S. Chamber of Commerce, at 12%, healthcare is the most expensive benefit paid by U.S. employers.¹⁵ Healthy employees lead to both higher productivity, less sick days and lower labor costs for the public and private sector in Cleveland.

Another important positive externality resulting from a focus on local food is the consequent increase in urban gardens and agriculture, which not only improve air quality and reduce green house gas emissions, but also provide more green space and immediate access to nature, two essential principles to a higher quality of place, an essential factor in establishing a competitive and prosperous economy and a “driver of prosperity” in the emerging economy

EXAMPLES OF AVAILABLE FUNDING AT A FEDERAL LEVEL

THE COMMUNITY FOOD PROJECTS COMPETITIVE GRANTS PROGRAM

by the Department of Agriculture, National Institute of Food and Agriculture is designed to increase food security in communities by

¹⁵ Council on Foreign relations, http://www.cfr.org/publication/13325/healthcare_costs_and_us_competitiveness.html

bringing the whole food system together to assess strengths, establish linkages, and create systems that improve the self-reliance of community members over their food needs. \$4.8 million were set aside for 2010.

USDA GRANTS FOR LOCAL AND REGIONAL FOOD SYSTEMS¹⁶

designed to develop food systems that are economically, environmentally, and socially sustainable

CITY INITIATIVES

CITY'S LOCAL AND SUSTAINABLE PURCHASING ORDINANCE

In May of 2010 Cleveland Passed a cutting edge purchasing policy that uses bid incentives to promote green and local purchasing. This ordinance will give up to a 4% discount on contracts to companies who follow Cleveland's local, sustainable purchasing guidelines.¹⁷

CLEVELAND-CUYAHOGA COUNTY FOOD POLICY COALITION

The coalition is developing working groups on Community Food Assessment, School Nutrition, Land Use and Planning, Institutional Purchasing, Food Waste Recovery, and Rural/Urban Interface with the goal to develop a more equitable, healthy, and sustainable food system.¹⁸

INSTITUTIONAL SUPPORT OF THE LOCAL FOOD MOVEMENT

through developing policies supporting local food production, expanding access to local produce through community gardens, greenhouses and local farmer's markets throughout the City of Cleveland and the region.

¹⁶ <http://sustainableagriculture.net/wp-content/uploads/2010/06/6.18-FINAL-Food-System-Funding-Guide2.pdf>

¹⁷ Cleveland City Ordinance number 1660-A-09

¹⁸ <http://www.gcbl.org/food/regional-agenda/cleveland-cuyahoga-county-food-policy-coalition>

ILLUSTRATIONS OF CURRENT ENERGY AND MOMENTUM

IN 2008 SUSTAINLANE RANKED CLEVELAND AS THE SECOND BEST CITY IN THE NATION FOR ITS LOCAL FOODS/AGRICULTURE MOVEMENT.

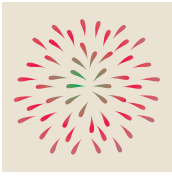
LOCAL FOOD CLEVELAND NETWORK¹⁹

EXAMPLES OF THE LOCAL FOOD MOVEMENT ARE DISCUSSED THROUGHOUT THIS ACTION GUIDE

(See local food case study in chapter 4, Strategic Framework: Restore & Regenerate Priority Area, Chapter 2)



¹⁹ <http://www.localfoodcleveland.org>



CELEBRATION POINT

RENEWABLE RESOURCES & ADVANCED ENERGY

RENEWABLE AND ADVANCED ENERGY

Energy use and production is one of the largest sources of carbon emissions in the U.S., as well as one of the most costly inputs for businesses and highest expenses for American households. Ohio's extremely high carbon footprint due to its history of heavy manufacturing – the fourth highest in the country – is paired with a high level of dependence on regional coal and foreign fossil fuel production. The state currently sends \$1.7 billion each year to other states to purchase coal as an energy input for power plants, largely from Michigan, Iowa and Indiana, while the rising price of oil puts Ohio in a vulnerable position and undermines productivity and competitiveness amongst local industry.

A continued focus on traditional, non-renewable energy sources not only ensures high economic and environmental costs for Cleveland, it also represents a missed opportunity for innovation, economic growth, and renewed competitiveness. Advanced sources of energy – wind, solar, biomass and fuel cells – leverage Cleveland's competitive advantage in manufacturing and respond to the strong local demand, a perfect context in which to develop new business and employment opportunities, as well as cut costs, enhance sector productivity and increase community wealth.

Advanced energy represents a quickly emerging industry which grew more

than three times as fast as the overall economy between 2006 and 2007. Substantial job growth for Cleveland can result from a focus on renewable energy, as renewable energy creates four times as many jobs per megawatt of installed capacity as natural gas and creates 40% more jobs per dollar invested than coal-fired plants.²⁰ Ohio's Department of Development estimates that there are already over 60,000 specialized workers supporting the state's advanced energy industries, in wind, solar, biomass and fuel cell development. Recognizing these

²⁰ "New Energy America", 2004 Apollo Alliance Report, p. 10. http://www.apolloalliance.org/downloads/resources_ApolloReport_022404_122748.pdf

opportunities, Ohio has made first strides toward expanding advanced energy use in the state and passed a law that requires electric utilities to obtain at least 25% of their power requirements by 2025 from advanced energy and energy efficiency sources. Half of this requirement must be renewable energies. The Renewable Energy Policy Project has estimated that a federal renewable energy portfolio standard mandating a 25% reduction in CO₂ by 2025, would create 51,269 wind, solar, geothermal, and biomass manufacturing jobs in Ohio. Securing 30% of that opportunity would result in more than 15,000 new jobs in Northeast Ohio (Pre – Summit Briefing, pp.32).

WIND

Wind power has captured the imagination of many Clevelanders and a large wind turbine gracefully generates electricity alongside the Great Lakes Science Center and Lake Erie. This economic sector has already produced more than 220 businesses and research institutions which are involved in Ohio's wind energy supply chain, and more than 1,000 companies have been identified as eligible to transition into manufacturing components for the wind energy supply chain. Cleveland's unique position as a potential pioneer in offshore wind technology could thrust it into the national or global market, as the city and industry garner expertise and develop technology that can be used to produce offshore wind turbines to withstand harsh Midwestern winters and Lake Erie's frozen surface.

SOLAR

Despite Cleveland's overcast and long winters, solar represents another possible economic driver and there are currently more than 115 businesses and research institutions involved in the solar energy supply chain in Ohio, many of which are located in Cleveland (e.g. Ohio Cooperative Solar, Repower Solutions, Cleveland Solar and Wind etc). Solar innovation harnesses institutional knowledge that stems from a historic manufacturing sector and represents a growth opportunity that responds directly to rapidly growing national demand. The solar photovoltaic's is projected to grow from a \$29.6 billion industry in 2008 to \$80.6 billion by 2018, a prediction premised on that fact that for the past 15 years, the industry has experienced annual growth rates of 30 to 40%. Among the renewable energy technologies, solar photovoltaic

systems (PV) create the most jobs per unit of electricity output and are believed to generate almost eight times as many job-years/GWh as natural gas or coal.²¹

As far as benefits of solar energy for households regards, real life cases demonstrate that there is a high potential of money savings. Although different solar technologies as well as their size, location or amount of sunlight entail different benefits, household solar technologies have proven their ability to cut hot water bills by 50% or generate 70% of annual electricity costs.²²

BIOMASS AND FUEL CELLS

Energy derived from biomass and the production of fuel cells represents another opportunity for innovation amongst existent Cleveland businesses and new entrepreneurial activity. There are currently more than 60 businesses and research institutions in Ohio that are involved in the biomass industry and over 1,300 wood manufacturing companies in Ohio produce residues that are capable of being converted into biomass energy. Fuel cell technology represents a similarly exciting opportunity for Cleveland and Ohio is cited as among the top 10 states in battery technology, fuel cell technology patents. There are currently more than 115 businesses and research institutions in the state are involved in the fuel cell industry. Ohio's Third Frontier Fuel Cell Program has resulted in the creation or retention of 295 jobs with an average

salary of \$61,651. They also report a leverage ratio of 4.5, meaning that for every dollar spent the state attains \$4.50 in benefits.²³ On a national level there is large growth potential for the production of fuel cells, particularly in the areas of heating, ventilation, and air-conditioning (Automotive Electric power generation).

Cleveland is positioned to enter as a highly competitive and productive supplier or part of the supply chain within the Advanced Energy sector, which can also lead to lower energy input costs for Cleveland businesses and households. According to a Deloitte survey, 80% of survey respondents reported that energy costs are a problem for their business' competitiveness while households spend between 5-15% of their income on energy. Lower cost advanced energy produced in Cleveland could lower operating costs for businesses and prevent wealth leakage within communities, helping to alleviate poverty and strengthen the fabric of resilience at the very foundation of a competitive and sustainable economy.

21 Wei, M; Patadia, S.; Kammen, D. (2010), "Putting Renewables and Energy Efficiency to Work: How Many Jobs Can the Clean Energy Industry Generate in the U.S.?" Energy Policy, volume 38, p. 919-931. <http://rael.berkeley.edu/greenjobs>.

22 Costs and Savings of Domestic Solar Energy Systems: Some Facts, May 2010, <http://energy-conservation.suite101.com/article.cfm/costs-and-savings-of-domestic-solar-energy-systems-some-facts>

23 <http://www.fuelcells.org/stateintro.pdf>

EXAMPLES OF AVAILABLE FUNDING AT FEDERAL LEVEL

U.S. DEPARTMENT OF ENERGY

Energy Innovation Hubs²⁴

U.S. DEPARTMENT OF TREASURY RENEWABLE ENERGY GRANTS

Granted under the American Recovery and Reinvestment Act and cover up to 30% of the costs for of solar, fuel cells, small wind turbines, geothermal heat pumps, microturbines, combined heat and power projects undertaken by tax-paying entities.²⁵

FEDERAL ACCELERATED DEPRECIATION, RESIDENTIAL FEDERAL TAX CREDIT

and other tax incentives.²⁶

EXAMPLES OF AVAILABLE FUNDING ON A STATE LEVEL

STATE ENERGY PROGRAM²⁷

ADVANCED ENERGY FUND

The Ohio Department of Development's Energy Resources Division administers the Advanced Energy Fund, which has so far made more than \$41.9 million in investment in nearly 400 advanced energy projects.²⁸ Another funding opportunity administered by the state is the Ohio Bipartisan Job Stimulus Package – Advanced Energy Component approved in June 2008

(\$150 million) for increasing the development, production, and use of advanced energy technologies in the state.²⁹

CITY INITIATIVES

GREEN TECHNOLOGIES BUSINESS GRANT PROGRAM³⁰

This program is designed to attract and cultivate 'GreenTech' businesses. The grants are targeted toward companies with proprietary technologies who have strong growth indicators and can meet the unique needs of the energy, transportation and electronic industries. Eligible applicants include alternative energy companies, green building product manufacturers, recycled product manufacturers, renewable fuels producers, and others. Approved companies will receive up to \$50,000 per year for three years. The program is available to new and existing green technology businesses that create five or more new jobs in the City.

THE CITY & COUNTY OFFSHORE WIND ENERGY PROJECT BEING LED BY LEED-CO.

This is an important initiative to promote the development of offshore wind projects and to build additional manufacturing capacity within the region around offshore wind capacity and other wind related economic development opportunities. Connects to advanced energy, economic development, manufacturing, R&D, and Operation and maintenance, to get our power through power resources and harnessing our natural resources

sustainably. Estimated costs are \$105,000,000

THE CITY LED MUNICIPAL SOLID WASTE TO ENERGY (MSWE) INITIATIVE

A large municipal waste recycling and waste to energy facility is being built at the Ridge Road Transfer Station in the City of Cleveland. This project will reduce the waste that goes to the landfill, thereby reducing waste disposal costs, and it will increase the recycling rate in the City of Cleveland and participating communities in the region.

ENERGY EFFICIENCY AND ADVANCED ENERGY SPECIAL IMPROVEMENT DISTRICTS

The City and the First Suburbs Consortium recently won the Efficient Gov.org challenge to create Special Improvement Districts for Advanced Energy and Efficiency programs. It is seeking to develop a special improvement district that allows for the voluntary property assessment for energy and energy efficiency improvements. This is an important program to pursue to help bring energy efficiency retrofits to scale along with solar and other advanced energy applications for private property owners.

²⁴ <http://www.energy.gov/hubs/>

²⁵ http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=US53F&re=1&ee=1

²⁶ Global Solar Center, http://www.globalsolarcenter.com/government_incentives/

²⁷ <http://development.ohio.gov/Energy/Incentives/GrantsLoans.htm>

²⁸ <http://development.ohio.gov/Energy/Incentives/AdvancedEnergyFundGrants.htm>

²⁹ <http://development.ohio.gov/Energy/Incentives/GrantsLoans.htm>

³⁰ <http://www.city.cleveland.oh.us/portal/page/portal/CityofCleveland/Home/Government/CityAgencies/EconomicDevelopment/EconomicDevelopmentTechnology/GreenTechnologies>

ADDITIONAL POLICIES supporting the advancement of renewable and advanced energy including additional policies around offshore wind development such as a requirement that a portion of the energy supplied in the statewide Advanced Energy Portfolio Standard (AEPS) be achieved through offshore wind. Cleveland's AEPS is 15% by 2015, 20% by 2020 and 25% by 2025

ILLUSTRATIONS OF CURRENT ENERGY AND MOMENTUM

(FROM CLIMATE OVERVIEW)

SOLAR PANEL INSTALLATION JOBS

Ohio Cooperative Solar, one of the Evergreen Cooperatives supported by The Cleveland Foundation, is installing solar power on institutional buildings while building a business with Cleveland residents.

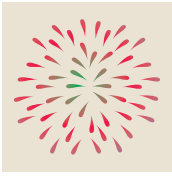
ENERGY STORAGE

The Great Lakes Energy Institute at Case Western Reserve University is researching a variety of renewable energy and energy storage technologies to promote sustainable energy.

The Ohio Fuel Cell Coalition is promoting Ohio as a center of fuel cell development.

INNOVATIVE START-UP COMPANIES

Local companies are exploring new approaches to clean energy, such as Tremont Electric's approach to kinetic energy generation.



CELEBRATION POINT

WASTE

While the term “waste” generally has a negative connotation, this focus area represents diverse economic and environmental opportunities for Cleveland. By reducing the amount of waste the city produces and sends to landfills, Cleveland can improve human health through the elimination of hazardous waste, protect and increase property values and quality of place, as well as save business, government, organizations and the community money. Additionally, innovative ways of dealing with waste can create new business and employment opportunities through either the re-use and recycling of products or the creative design of innovative products or processes that allow for “waste-to-profit” or “industrial symbiosis” models.

BUSINESS

First, existing Cleveland businesses have the opportunity to improve competitiveness through waste reduction. For example, a Cleveland-based manufacturer of office furniture, Taylor Companies, expects to save \$23,000 in waste hauling from two sites in 2010 through their Zero Waste Initiative.³¹ Similarly, Talan Products, a stamping manufacturer, has reduced waste to landfill by 80% in just over a year. The Great Lakes Brewing Company has managed to reduce trash removal fees by recycling cardboard, glass, paper by 40%.³²

In addition to saving money on operating costs through recycling, re-use, zero waste initiatives, and upcycling, Cleveland businesses can reduce costs further – and even turn a profit by redefining their waste and by-products and selling them as inputs to other industrial or commercial operations. The large manufacturing sector in Cleveland has created fertile ground for establishing productive linkages between industrial and commercial users by closing waste loops. This “modern form of industrial collaboration redefines waste and by-products as inputs to other industrial operations and includes sharing utilities and resources, and creating local sources of energy to

generate heat, steam and other inputs for other companies, businesses or factories.” This new design paradigm can create new sources of profit and foster collaboration and associative relationships, which are important components of a successful cluster. Contrary to an isolated firm, cluster participation offers advantages in perceiving new technological, operating, or delivery possibilities through learning, observing and jointly evolving technology, securing component and machinery availability, developing service and marketing concepts, etc. These will encourage a culture of productive relationships between Cleveland business leaders.³³

³¹ Jeffrey J Baldassari for Zero Waste Northeast Ohio <http://www.zerowasteneo.org/profile/JeffreyJBaldassari>

³² “Great Lakes Brewing-up a zero-waste initiative”, EcoCity Cleveland. <http://www.ecocitycleveland.org/ecologicaldesign/sustain/industry/glbco.html>

³³ Porter, Michael, “Clusters and the New Economics of Competition”, Harvard Business Review, November-December 1998

CITY

Landfills are expensive to create and maintain, they generate groundwater pollution and take up vast amounts of land. They also are a serious environmental justice issue because most landfills are placed near lower income communities. Cities benefit from reduced industrial waste and job creation. By minimizing the production of waste and maximizing re-use and recycling of product, Cleveland has the opportunity to improve the environment and reduce its carbon footprint, as well as to save the city money and to create employment for residents. Ohio has currently more than 40 active landfills collecting household garbage and seven of them are located in Cleveland.³⁴ The number of landfills collecting construction waste is even higher. Furthermore, the process of diverting waste from landfills can actually increase employment, as for every 1,000 tons of waste diverted, 4.7 jobs are created compared to only 2.5 jobs for every 1,000 tons of waste disposed.³⁵

Innovative approaches to landfill management have turned out to be extremely successful in New Zealand's city Christchurch. At a local landfill, land-fill gas, including methane, started to emerge. The City Council realized that landfill gas could be used in sustainable projects to generate heat and electricity. Gas from the landfill is now piped 3.7 kilometers underground to a swimming pool and sports complex and converted in two boilers and a co-generation plant to electricity and heat. The payback period of the

project was four years, and resulted in significant carbon dioxide savings (more than 40,000 tons per year), energy savings in excess of \$1 million a year and a revenue from the sale of carbon credits generated from destroying a greenhouse gas, methane. Council received 200,000 credits from the government's Projects to Reduce Emissions Program and these credits worth \$3.5 million will be used to fund the Sustainable Energy Strategy for Christchurch 2008–2018.³⁶

Seattle is another pioneer in the zero waste field initiatives. With its recent ban on single-use restaurant packaging, it hopes to reduce waste to landfills 6,000 tons of food service-ware and leftover food. The ordinance requires restaurants, coffee shops, food courts, cafeterias and other food service businesses to stop throwing away single-use food-service ware and packaging including napkins, paper bags, wooden coffee stir sticks, clamshells and hot and cold beverage cups and lids among others. Restaurants are asked to use compostable or recyclable materials instead. Similar regulations for single-use food service packaging are being tried in San Francisco and are planned in Toronto.³⁷

COMMUNITY

A reduction of hazardous waste will improve the health of the community by reducing residents' exposure to toxins and contamination. By decreasing the amount of waste that is produced, transported and placed in landfills, property values can be maintained and even increased, so as not to undermine Cleveland's quality

of place, which is a key driver to economic prosperity. Waste reduction on a household level also lowers individual costs and creates a sense of commitment and stewardship within the community to protect and value the place in which people live, work and play.

AVAILABLE FUNDING AT FEDERAL LEVEL

SUPERFUND

U.S. Environmental Protection Agency (EPA) Program established to address abandoned hazardous waste sites. It allows the EPA to clean up such sites and to compel responsible parties to perform cleanups or reimburse the government for EPA-lead cleanups.³⁸

COMMUNITY ACTION FOR A RENEWED ENVIRONMENT (CARE)

by EPA is a competitive grant program that offers an innovative way for a community to organize and take action to reduce toxic pollution in its local environment. Through CARE, a community creates a partnership that implements solutions to reduce releases of toxic pollutants and minimize people's exposure to them. By providing financial and technical assistance, EPA helps CARE communities get on the path to a renewed environment. One example is the Neighborhood Leadership for Environmental Health Initiative which has been implemented in Cleveland since 2009 through a collaboration between Environmental Health Watch and The Neighborhood Leadership Institute.

34 Municipal Landfills, 2005, http://www.dispatch.com/live/export-content/sites/dispatch/local_news/stories/extras/landfillgraphic.pdf

35 "The Baltimore Sustainability Plan", April 2009, City of Baltimore, p. 56 www.baltimorecity.gov/sustainability

36 <http://www.ccc.govt.nz/thecouncil/howthecouncilworks/energyefficiencyatthecouncil/projects/wastetorenewableenergyburwoodlandfill.aspx>

37 <http://earth911.com/news/2010/07/06/seattle-bans-single-use-restaurant-packaging-from-landfills/>

38 <http://www.epa.gov/superfund/about.htm>

EPA 2010 AND 2011 ENVIRONMENTAL RESEARCH GRANTS³⁹

ENVIRONMENTAL JUSTICE SMALL GRANTS PROGRAM BY EPA

The program annually awards funding to community-based organizations, and local and tribal organizations working with communities who are facing environmental justice issues.⁴⁰

State Environmental Justice Cooperative Agreements - The EPA supported projects are designed to build broad, results-oriented partnerships that work to improve environmental and public health in communities disproportionately exposed to environmental harms and risks. These projects are designed to be replicable in other communities facing similar challenges. In 2009, EPA selected five state projects to receive funding up to \$160,000 each, totaling \$800,000.⁴¹

CITY INITIATIVES

COMMITMENT OF BUSINESSES AND ORGANIZATIONS taking on zero waste challenges.

THE CITY LED MUNICIPAL SOLID WASTE TO ENERGY (MSWE) INITIATIVE

This is a large development project that allows for the development of a large municipal waste recycling and waste to energy facility at the Ridge Road Transfer Station in the City of Cleveland.

GREEN VENUES PROGRAM

which is highlighting waste reductions, recycling, composting and others excited methods of eliminating waste.

ILLUSTRATIONS OF CURRENT ENERGY AND MOMENTUM (FROM THE CLIMATE OVERVIEW)

ZERO WASTE

Reducing waste cuts consumption and carbon emissions. Local efforts, such as Zero Waste Northeast Ohio, are helping companies think more radically about waste reduction, while helping them save money and spur innovation.

COMPOSTING FOOD WASTE

Nationally, food scraps account for about 12% of all wastes. Local companies, such as Rosby Resource Recycling, are finding business opportunities in providing food waste composting services, which can reduce methane emissions from landfills (as a greenhouse gas, methane is much more potent than carbon dioxide).

CLEAN FUELS

Supported by the Earth Day Coalition's Clean Fuels program, local entrepreneurs are expanding availability of biofuels, such as pure vegetable oil made from waste cooking oil.

CLEAN OIL

Local innovators are developing other ways to conserve petroleum, such as Lube Stop's EcoGuard re-refined motor oil.

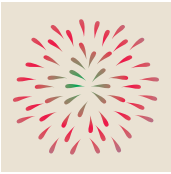
TOURISM

An initiative to make Cleveland a "Green Venue" can promote efficiency and waste reduction while boosting the visitor economy.

39 <http://www.epa.gov/ncer/rfa/>

40 <http://www.epa.gov/Compliance/environmentaljustice/grants/ej-smgrants.html>

41 <http://www.epa.gov/Compliance/environmentaljustice/grants/ej-sejca-grants.html#overview>



CELEBRATION POINT

WATER

Fresh water resources represent an invaluable local asset that has shaped Cleveland's identity, both in the way that the city has perceived itself and how it has been recognized outside the region. While Cleveland's location on Lake Erie – the 12th largest body of fresh water in the world – provides Cleveland with a distinct comparative advantage, the city's reputation has also been blemished by the historic Cuyahoga River fire in 1969 that resulted from excessive levels of pollution caused by heavy manufacturing and industrial contamination. Cleveland has the responsibility to protect the 13,000 trillion gallons of fresh water directly off its shores in order to maintain the city's water supply and ensure that its residents will have clean and readily available water resources for generations to come, but it also has the opportunity to leverage this invaluable asset as a driver of sustainable economic growth and prosperity for the local economy.

BUSINESS

Numerous economic opportunities can emerge from Cleveland's access to a large body of fresh water and its first-hand and unique experience with environmental remediation. There is a growing demand for industries that have expertise in handling and purifying water, as well as the capacity to develop innovative water pollution abatement technologies, namely those that are dependent on freshwater inputs: bio-technology, aqua-culture, water conservation and pollution

prevention technologies. According to Freedonia Group, Inc., a Cleveland-based industry market research firm, the demand for water purification has recorded an average annual increase of 4.8% between 2005 and 2010, and in 2010, the demand for consumer water purification and air cleaning systems is projected to increase by 4.7% to \$1.7 billion in 2010.⁴²

42 <http://www.google.sk/url?sa=t&source=web&cd=1&ved=0CBUQFjAA&url=http%3A%2F%2Fwww.allbusiness.com%2Fmarketing%2Fmarket-research%2F3902248-1.htm&ei=KxhQTP2PLjK0ILQqJYB&usg=AFQjCNGWaInLRg-Br1xoFRllp5G-cAUzbw&sig2=EtQ30jYG5jX3kW8Lhrqzig>

In addition to enhancing the aesthetic beauty of the city and positioning Cleveland as a Green City on a Blue Lake, Lake Erie provides employment and business opportunities that grow out of the local need and capacity for specialized higher education and environmental research that can produce innovative methods to prevent fresh water pollution and reduce levels of toxins and pollutants in existent bodies of fresh water. Currently, the Great Lakes Science Center is seeking to develop a Freshwater

Institute focused on education and research about the Great Lakes. The GreenCityBlueLake Institute and the Cuyahoga County Planning Commission are advancing the concept of Global Water Ventures of Cleveland. This focus could help to establish Cleveland as a center for developing new water-related products and services, encouraging new investment and job opportunities. Tourism is another sector that would allow Cleveland to utilize and commercialize its most abundant natural asset, without depleting or contaminating it in the process, and serving as a draw for outdoor enthusiasts who sail, fish, swim or seek a healthy lifestyle.

CITY

Water creates economic opportunities derived from seeking sustainable solutions and underpins the city's comparative advantage both, within the region and the country. An economic analysis conducted by the Alliance for Water Efficiency estimates that total economic output per million dollars of investment in water efficiency programs is between \$2.5 and \$2.8 million. It estimates that a direct investment of \$10 billion in water efficiency programs can boost U.S. employment by 150,000 to 220,000 jobs.⁴³

By increasing efficient water use, Cleveland has the opportunity to create new revenue streams and reduce the cost of the public utilities for businesses and residents. For example, while rainfall can be an indirect cause of water pollution, a result of urban runoff and sewage into lakes and rivers in and around the city, Cleveland can decrease its investment in the creation and maintenance of traditional infrastructure by retrofitting and

redesigning urban areas to absorb and filter water through bioswales and other low-cost ecosystem services. Wise water use not only saves an invaluable natural resource, it also saves electricity that would otherwise be required to pump, treat, and distribute wasted water, another way of lowering input costs and increasing business productivity.

COMMUNITY

Finally, by caring for and improving water resources, Cleveland reduces costs and makes the city a more desirable place to live. For example, liberating watercourses through daylighting can restore environmental health, while also increasing the city's aesthetic beauty. Daylighting streams and conserving water resources can revitalize surrounding green space and neighborhoods and provide new amenities and provide greater access to nature for Cleveland residents, greatly increasing quality of place and quality of life for Cleveland residents, a main driver for a prosperous economy.

FEDERAL FUNDING

THE AMERICAN RECOVERY AND REINVESTMENT ACT

The law provides for additional funding for drinking water and water pollution control infrastructure projects and the National Clean Diesel Campaign in Ohio. Additional stimulus resources for water and sewer projects are still available.⁴⁴

NONPOINT SOURCE MANAGEMENT PROGRAM - CLEAN WATER SECTION 319

States partner with the federal government to receive this funding and then allocate funds throughout the state accordingly. Grant money

that supports a wide variety of activities including technical assistance, financial assistance, education, training, technology transfer, demonstration projects and monitoring to assess the success of specific nonpoint source implementation projects.⁴⁵

CLEAN WATER STATE REVOLVING FUND (CWSRF)

Through the program, each state, including Puerto Rico, maintains revolving loan funds to provide independent permanent sources of low-cost financing for a wide range of water quality infrastructure projects. The federal government provides funds to establish or capitalize the programs with 20% state matching funds. CWSRF programs are currently funding projects that address agriculture runoff, leaking on-site septic systems and urban nonpoint source pollution, including stormwater runoff and brownfield contamination. Funding of nonpoint source and estuary efforts now reaches more than 600 projects annually.⁴⁶

CITY INITIATIVES

- Initiatives to improve the Cuyahoga River with the Cuyahoga River Remedial Action Plan (RAP) and other related activities.
- Development and deployment of such innovative products such as the Green bulkheads.
- Work on the Cuyahoga Valley Initiative is a critical component of improving the vitality and opportunity in the Cuyahoga River Valley.

43 <http://www.americanrivers.org/newsroom/press-releases/2008/green-infrastructure-ohio.html>

44 <http://www.epa.ohio.gov/arra.aspx>

45 grant money that supports a wide variety of activities including technical assistance, financial assistance, education, training, technology transfer, demonstration projects and monitoring to assess the success of specific nonpoint source implementation projects

46 <http://www.epa.gov/owm/cwfinance/cwsrf/final.pdf>

ILLUSTRATIONS OF CURRENT ENERGY AND MOMENTUM

(FROM CLIMATE OVERVIEW)

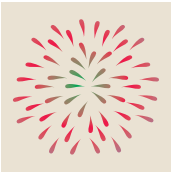
WATER CONSERVATION

Using less water can reduce carbon emissions by reducing the amount of energy needed to pump and treat water. Local campaigns to “Drink Local, Drink Tap” further reduce wastes from packaging and shipping bottled water.

GREEN INFRASTRUCTURE

Rather than addressing problems like stormwater pollution with costly, energy-intensive infrastructure, the Northeast Ohio Regional Sewer District is exploring “green infrastructure” alternatives that work with nature. A common job title of the future might involve ecological restoration.





CELEBRATION POINT

GREEN SPACE

The diverse environmental, economic and social benefits of Cleveland's green space underpin the sustainable development of the city. The expansion of parks and natural areas, community gardens, urban farms, green roofs, landscaped boulevards, bike paths, trails, schoolyards, recreational areas, and other public open green space in Cleveland can help to establish a broad swath of green space and build on the city's surrounding Emerald Necklace. Cleveland has the only national park in an urban setting in the United States and it is the sixth most visited national park in the country.

Green space improves the quality of place and quality of life for its residents, a main driver in economic prosperity and a crucial factor in retaining and attracting residents to a city plagued with depopulation. In addition, stewardship of green spaces, such as parks and natural areas, enhance the city's potential to attract tourism and to increase its profile as a green-tourist destination. Green space also lowers the city's footprint, improves air quality, preserves natural habitat and biodiversity, as well as strengthens the resilience of neighborhoods and increases property values. It provides the opportunity for the utilization of ecosystem services, saving the city and Cleveland

businesses money on operating costs and environmental remediation and improving productivity and competitiveness.

BUSINESS

Green space can enhance labor productivity and economic competitiveness amongst Cleveland businesses. Studies show that consumers are willing to spend up to 12% more on premium goods purchased at stores surrounded by good landscaping, and that people are generally more drawn (because of aesthetics) to businesses that are located within close proximity of a green space area. Green roofs are not only aesthetically pleasing, but can

also lower operating and/or utility costs, cutting the amount of storm water runoff by as much as half and lower ambient air temperature by reducing heat that radiates off the roof, lowering energy costs. They also provide insulation, absorb carbon dioxide and produce oxygen, naturally filtering air and extend the life of a roof by many years and lowering costs even further for Cleveland businesses.

In addition to making businesses more appealing to the consumers and lowering operating costs, green spaces can also serve as productive landscapes that can be used for local food production, urban farms, and other value-added activities that

respond to local demand, capitalize on local capacity, and have the potential to produce as new value-added/ specialized products or processes in Cleveland that can be replicated in other cities in the rust belt.

CITY

Municipal governments in the U.S. such as Chicago, Sacramento and New York, are saving large amounts of revenue by investing in urban forest cover, conserving valuable city revenue that would otherwise be spent on environmental remediation. Chicago's urban forest canopy, which covers roughly 11% of the city's total land, saves the municipal government more than \$1 million every year. Similarly, in the Sacramento metropolitan area, urban forest removes more than 200,000 metric tons of carbon dioxide from the atmosphere each year, saving taxpayers as much as \$3 million annually in pollution mitigation costs. According to the city "it's cheaper for [Sacramento] to plant trees than to generate more electricity," Finally, the removal of air pollution by New York City's existing tree cover saves taxpayers as much as \$10 million each year. The money that is saved can be invested in green infrastructure, research and development in new, clean technologies and/or public transportation, bolstering the enabling conditions for a competitive and sustainable economy.

Due to the high level of foreclosures in the Cleveland Metropolitan Area there are vast swaths of land with vacant buildings, vacant land and brown fields. The approximately 3,300 acres of vacant land and 15,000 vacant buildings within city limits are at risk of becoming targets of illegal dumping and litter, creating an

overall perception of neighborhood neglect . On the other hand, there are currently over 165 community gardens and 40 market gardens in Cleveland! Cleveland has the opportunity to convert vacant land from a liability to an opportunity to strengthen neighborhood resilience and "re-imagine" Cleveland as a Green City on a Blue Lake .

Storm water is another challenge for urban areas and parks in Cleveland. The 22,000-acre Emerald Necklace surrounding the metro area has become the region's catch-basin for storm water runoff. Not only does this cause considerable damages to park properties, the runoff is also accelerating the erosion of hundreds of miles of waterways within the parks system, flushing around 45,000 tons of silt out into Lake Erie each year. Erosion-control problems can be found in at least 13 of the 17 reservations that make up the park system. The repair costs per single site can reach up to \$500,000, all eventually covered by tax payers.⁴⁷ Storm water runoff projects across the city and the county should therefore form an integral part of the green space projects to safeguard the sustainable development of the city.

COMMUNITY

The amount of green space in Cleveland will have a significant impact on property values and can greatly improve its quality of place, a key driver to a prosperous and competitive economy. Green space has been shown to improve the value of property by up to 11.3% and a Roadside Study by the University of Washington found that the value of property decreased by \$4.20 for

each foot of distance from a green space . Quality of life and community health are also important variables associated with green space, which can help to reduce crime and strengthen social communities. According to a research by the Robert Wood Johnson Foundation⁴⁸ having more parks and more park area within a community is associated with higher physical activity levels. Counties with more public land and recreational water acreage also had a lower proportion of the population reporting insufficient physical activity. Another finding was that perceived park aesthetics, condition and safety may be associated with park visitation and physical activity levels within parks. Convenient, consistent, and safe access to open and well-maintained green space provides opportunities for recreation– from sitting, resting, and gardening to creative play, nature exploration, and sports – that are critical to the health and livability of any community.



⁴⁷ http://blog.cleveland.com/metro/2010/04/storm_run-off_is_a_drain_on_th.html

⁴⁸ http://www.activelivingresearch.org/files/Synthesis_Mowen_Feb2010.pdf

AVAILABLE FUNDING AT FEDERAL LEVEL

BROWNFIELD AND LAND REVITALIZATION GRANTS : ASSESSMENT, REVOLVING LOAN FUND, & CLEANUP GRANTS

Communities in 40 states, four tribes, and one U.S. Territory will share \$78.9 million in Brownfield grants to help clean up, revitalize, and sustainably reuse contaminated properties, turning them from problem properties to productive community use. The grants, awarded by EPA, will provide funding to eligible entities through brownfields assessment, revolving loan fund, and cleanup grants. Since the beginning of the Brownfields Program, EPA has awarded 1702 assessment grants totaling \$401.0 million, 262 revolving loan fund grants totaling \$256.7 million and 655 cleanup grants totaling \$129.4 million.⁴⁹

EPA'S CLEAN WATER ACT SECTION 319

Buildings that incorporate green roofing elements may be eligible for grant funding under the EPA's Clean Water Act Section 319, which addresses nonpoint source pollution to lakes, rivers, and streams.

2010 CLEAN WATER AND DRINKING WATER STATE REVOLVING FUND 20% GREEN PROJECT RESERVE

Not less than 20% of the funds made available under both funds will be used by the State for projects to address green infrastructure, water or energy efficiency improvements, or other environmentally innovative activities.⁵⁰

EXAMPLES OF

49 http://epa.gov/brownfields/pilot_grants.htm

50 <http://www.efc.unc.edu/projects/subsidization/GPRGuidance.pdf>

AVAILABLE STATE FUNDING

THE CLEAN OHIO GREEN SPACE CONSERVATION PROGRAM⁵¹

supports funding of projects aimed at preservation of open spaces, sensitive ecological areas, and stream corridors.

CITY INITIATIVES

IMPLEMENTATION OF THE RE-IMAGINING A MORE SUSTAINABLE CLEVELAND REPORT through the development of strategies, policies and procedures that further reinforce the recommendations outlined in the report.

CELEBRATE THE CLEVELAND METROPARKS 100TH ANNIVERSARY

Works to connect existing green space and parks through the trail network including the **City of Cleveland Bikeway Master Plan** and the **Tow Path Trail**.

STORMWATER PROGRAM

This program is one of the most important developments for local water quality. An agency with professional staff and construction budget will deal with stormwater on a watershed basis and address water quality problems.

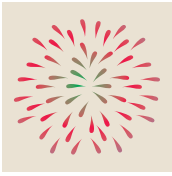


51 <http://clean.ohio.gov/GreenSpaceConservation/>

CLIMATE & GREENSPACE

COOLING CITIES

Programs, such as ReImagining a More Sustainable Cleveland, are studying how to turn vacated urban land into green corridors that restore ecological functions, including the cooling function of trees which reduces energy consumption. Local roofing firms are expanding into the installation of green roofs, which offer more cooling and insulation benefits.



CELEBRATION POINT

TRANSPORTATION

Cleveland's economic identity is historically tied to the automobile industry, as its manufacturing sectors formed part of the industry supply chain. While automobile manufacturing has in the past been a source of prosperity in Cleveland, the rapid decline in automobile manufacturing in the region (21.5% between 2000 and 2008) and the rising price of oil (and carbon) make the city's current dependence on cars economically, environmentally and socially unsustainable.

At the moment, transportation is the single largest contributor to the nation's carbon footprint, greater than emissions from industry, homes or commercial building and accounts for the U.S. 93% increase in oil demand since 1990. With one of the highest levels of automobile dependence in the nation, Cleveland has higher per capita carbon emission from transportation than the national metropolitan average. It is surprising to note that 90% of low-to-medium income working families in the city take a private vehicle to work, while only 4% take public transit, 3% take a bike or walk. New transportation networks, which include more efficient public transit systems, pedestrian and biker friendly infrastructure for the city as well as ride-sharing programs represent an opportunity for lowering costs, increasing community health and the potential for new

sources of wealth, employment and competitiveness.

BUSINESS

While the traditional automobile sector is rapidly declining, there is room and opportunity for research and development on more fuel-efficient cars, advanced materials manufacturing and other innovative products and production processes that respond to local need and that could help to define the way Cleveland traditional industry fares in a low-carbon, renewable energy future.

CITY

A more efficient and user-friendly public transit system is not only a way to reduce Cleveland's carbon footprint, improve air quality and community health, it also represents an opportunity for a high return on investment in terms of potential

employment and governmental revenue. For every \$1,000,000 that a city spends on public transportation, an average of 36 jobs is created. The United States spends about \$47 billion a year on public transportation, supporting almost 1.7 million jobs and a good range of skilled and semi-skilled blue and white-collar occupations.

Currently, Ohio is one of the states investing the least amount in public transportation, spending less than 1% of total transportation spending on public transit. This is less than \$1.42 per capita per year on public transit, "far less than its peer states of Michigan (\$19.91), Illinois (\$38.12), and Pennsylvania (\$66.14)". Other cities have not only benefited from significant environmental benefits of investing in public transportation, they have also earned revenue from

ridership in innovative public transit systems. For example, the light rail in Portland established a project payback period of just over 8 year and has since achieved additional \$76 million in annual revenues for the city.

COMMUNITY

New transportation options are not only necessary to position the city for a future in which carbon, and therefore gasoline, will become increasingly expensive and scarce, but also play a crucial factor in increasing resident's health through an improvement of air quality by a reduction in cars and the opportunity for people to walk and bike. An improvement in energy-efficient, convenient and democratically accessible public transportation options is imperative for a high quality of life and in order to ensure inclusion and diversity amongst the city population. The lowest income families are the most negatively impacted by high transportation costs, with the average low-to-medium income family in Cleveland spending an average of \$10,023 a year on transportation, more than education or food. Without access to public transportation, bike paths and walking paths, certain demographic sectors are marginalized and disenfranchised leading to higher poverty levels and exclusion, eventually undermining a productive and sustainable Cleveland economy.

EXAMPLES OF AVAILABLE FEDERAL FUNDING

THE AMERICAN RECOVERY AND REINVESTMENT ACT OF 2009

In August, 2009, EPA awarded \$25 million in Recovery Act grants through the SmartWay Clean Diesel Finance Program to support projects that reduce diesel emissions and maximize job creation and preservation through the creation of national, state or local innovative finance programs. An additional \$5 million will be awarded in the near future.

TRUCK FINANCING PROGRAMS

These financial assistance programs provide innovative loans to help small trucking firms lower their fuel costs and their carbon footprint by purchasing newer used trucks and idling and emissions reduction technologies.⁵²

TRANSPORTATION FOR LIVABLE COMMUNITIES INITIATIVE

The Northeast Ohio Areawide Coordinating Agency helps communities in Northeast Ohio obtain federal funding and technical assistance for planning transportation projects that strengthen community livability.⁵³

SAFE ROUTES TO SCHOOL PROGRAM

A federal program that is enacted in Ohio through the Ohio Department of Transportation (ODOT). Many communities receive funding for various programs that encourage school-age children to walk or bike to school. For the next Safe Routes to School funding round, applications

will be accepted for infrastructure, non infrastructure and school travel plan projects.⁵⁴

THE HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP)

is a Federal Highway Administration (FHWA) program that funds highway safety projects aimed at reducing highway fatalities and serious injuries. Though bicycle and pedestrian projects are eligible for funding, HSIP has been largely overlooked as a resource for these projects.⁵⁵

EXAMPLE OF STATE FUNDING

OHIO DEPARTMENT OF TRANSPORTATION TRANSIT GRANT PROGRAM⁵⁶

CITY INITIATIVES

- Support the promotion of the intense infrastructure that we have in place for the region, which can support the further development of economic activity in the region. The Rail, Highway and road, Port and Air port are all critical assets to the region. In addition to these assets there is a need to continue to highlight the logistic capacity of the region and assess to major markets in the U.S. and Canada from this location.
- Development of connecting existing green space and parks through the trail network including the City of Cleveland Bikeway Master Plan and the Tow Path Trail.

⁵⁴ <http://www.dot.state.oh.us/Divisions/TransSysDev/ProgramMgt/Projects/SafeRoutes/Pages/default.aspx>

⁵⁵ http://www.bikeleague.org/resources/reports/highway_safety_improvement_program.php

⁵⁶ <http://www.dot.state.oh.us/Divisions/TransSysDev/Grants/Pages/Transit.aspx>

⁵² <http://www.epa.gov/smartway/transport/what-smartway/financing-clean-diesel-info.htm>

⁵³ <http://www.noaca.org/tlci.html>

- Support of the comprehensive analysis and development of the Cleveland, Columbus and Cincinnati rail connections that focuses on the efficient and convenient transportation between these economic and population centers in the state. Focus the development on leveraging connections such as the Cleveland Hopkins Airport Intermodal center planned to be developed at the Airport.
- Development of strategies for expanding the deployment and use of electric, electric hybrid and other alternatively powered vehicles throughout the region by developing strategies for large institutions and governments to purchase vehicles such as the City of Cleveland has initiated over the past five years.

ILLUSTRATIONS OF CURRENT ENERGY AND MOMENTUM (FROM CLIMATE OVERVIEW)

IDLE REDUCTION

Cleveland is leading other local communities to adopt ordinances to reduce unnecessary idling of motor vehicles, which in turn reduces fuel consumption and air pollution.

COMPLETE STREETS

Local sustainable transportation activists are advocating for a regional and statewide policy to ensure that transportation projects serve all modes of transportation.

BIKES

Demand for better bicycle facilities continues to grow. A growing bike service sector could follow.

CAR SHARING

CityWheels is pioneering short-term car rentals that can make full-time car ownership unnecessary, while helping people make the transition to more environmentally friendly forms of transportation for most trips.

ELECTRIC VEHICLES

A local company, Myers Motors, is making an attention-getting two-seat electric car.

RAIL JOBS

The revitalization of passenger rail in Ohio will be supported by \$400 million in federal stimulus funds.



RECOMMENDATION FROM THE CLIMATE OVERVIEW

TRANSPORTATION TRANSITION

The transportation sector produces 28% of the greenhouse gas emissions in the seven-county area. Significant reduction will require a major transition in how we move around, including the development of more fuel-efficient vehicles and increased use of transit, bicycles, and walking. In addition, it will require the redevelopment of compact urban and suburban places where more people can live a convenient “low-mileage lifestyle” that is less dependent on driving cars.

We can accomplish this transition, if we work steadily in the coming decades. The result will be communities that offer healthier transportation choices, cleaner air, and attractive, walkable places. Here are suggested transition steps:

- Provide better transportation options, reducing the need to travel by car.
- Adopt zoning and other land-use policies that encourage the development of compact, walkable places designed around transit.
- Improve public transit service, bike facilities, car-sharing and car-pooling programs, and pedestrian environments.
- Further reduce the demand for driving cars by instituting flexible work weeks, employer-sponsored transit passes, congestion pricing, and other forms of demand management.
- Reform regional transportation plans so that the development of more sustainable transportation options becomes a priority.
- Increase efficiency of vehicles.
- Accelerate the transition of the vehicle fleet to more fuel-efficient vehicles with local and state incentives, such as tax incentives, cash-for-clunker programs, and preferential parking for hybrid, electric, and other low-emission vehicles.
- Educate motorists about “eco-driving” and anti-idling techniques that save gas.

- Allow vehicles to be driven more efficiently with improved traffic management to reduce congestion delays.
- Increase public transit efficiency by transitioning to hybrid and fuel-cell buses.
- Encourage the transition to cleaner truck and ship engines.
- Reduce the carbon intensity of fuel that still needs to be burned
- Increase the number of fueling points for alternative fuels, such as biodiesel, as well as charging stations for electric vehicles.
- Require public fleets to use biofuels, hybrids, and other low-emission vehicles.
- Develop specific carbon intensity limits for fuels.
- Make motorists pay more of the true costs driving.
- Incorporate the costs of air pollution, congestion, health problems, climate change, and other “externalities” into the costs of driving.

For more details on how to implement the above transition steps, see the climate transition plan for the transportation sector of Northeast Ohio at:

www.gcbl.org/energy/regional-agenda/climate-change/transition-paths/transportation-transition-path



CELEBRATION POINT

VITAL NEIGHBORHOODS

Neighborhoods are the building blocks of a great urban area. They are the real places of daily life — places where people interact face to face, where transactions are made, and where a sense of identity and history is created. They are also the places where most people can live decent lives with the least environmental impact. By bringing opportunities together in close proximity, neighborhoods reduce the need for transportation. And by fostering the development of a vibrant public realm for all to share (great streets, meeting places, parks, libraries, public transit, etc.), neighborhoods can make affordable, low-consumption lifestyles more convenient and attractive. Thus, in many ways, dense, mixed-use, urban neighborhoods are the foundation for future sustainability on Earth.

BUSINESS

Even as the Internet allows more people to work anywhere, attractive urban neighborhoods are becoming more important for business. Innovation is promoted by a social environment with a density of interactions and rapid exchange of ideas, and educated workers of the “Creative Class” seek out cities with walkable neighborhoods, cultural attractions, and green space amenities. The real estate development market is increasingly looking for opportunity in lively, 24-hour cities. Inner-city locations, with their diverse mix of buildings types, are fertile places for business start-ups needing low-cost space. Historic preservationists

point out that the restoration of old buildings creates more jobs than new construction. Indeed, there is an emerging “restoration economy” that offers new business opportunities in urban revitalization and ecological restoration.

CITY

Cleveland neighborhoods have experienced decades of disinvestment and population loss. Many of the underlying causes, including the dynamics of urban sprawl, regional political fragmentation, highway investments, and federal housing and tax policies, are largely beyond the control of the city. But numerous initiatives are working hard to

counter the outmigration, improve neighborhoods for current residents, and rebuild the city’s tax base with new residents and jobs. Cleveland has one of the strongest networks of nonprofit community development corporations (CDCs) in the country. Working with the city departments and nonprofit funding organizations, such as Neighborhood Progress Inc., the CDCs are increasingly focusing investments in neighborhood centers with the strongest market potential, such as Detroit Shoreway, where a new Arts District is attracting new residents and businesses. With underutilized infrastructure and some 3,000 acres of vacant land, the city certainly has room for re-growth.

Innovative planning initiatives, such as the Re-Imagining a More Sustainable Cleveland, are also helping city residents envision a future city that incorporates more green space and ecological restoration into redevelopment strategies. There is an exciting opportunity to transform the old industrial city into a greener and more livable city of the future.

COMMUNITY

Urban neighborhoods can be important places of social and economic diversity. A redevelopment challenge for Cleveland is to rebuild the city in ways that reduce concentrated poverty — by improving the prospects of existing residents and attracting higher-income residents back to the city. Numerous initiatives, from educational reform in the Cleveland Municipal School District to programs to improve access to healthy food to neighborhood safety projects, are underway to do this. Now that the worst cases of industrial pollution have been controlled, city neighborhoods also are being viewed as settings for healthy lifestyles, since walkable streets are a cure for obesity.

EXAMPLE OF FEDERAL FUNDING

COMMUNITY DEVELOPMENT BLOCK GRANT PROGRAM⁵⁷

by the U.S. Department of Housing and Urban Development, is a flexible program that provides communities with resources to address a wide range of unique community development needs. The program provides annual grants on a formula basis to 1209 general units of local government and States.

Typical CDBG-Funded ED Activities are:

- Loans for Businesses and Commercial Real Estate Development Project (Individual project loan or creation of loan program)
- Business Incubators
- Façade Improvement Programs
- Microenterprise Assistance Activities
- Economic Development Infrastructure Projects
- Job readiness, skills training, and job placement programs

CURRENT MOMENTUM

Recognizing that livable cities are key to economic prosperity, numerous initiatives are working to redevelop the urban core of Cleveland and other metropolitan areas in Ohio. Statewide and regional initiatives include the “Restoring Prosperity” policy agenda of Greater Ohio and the Brookings Institution and the “Regional Prosperity Initiative” led by the Northeast Ohio Mayors and City Managers Association. In the city, the City Planning Commission, NPI, and other organizations have plans for target reinvestment areas in the city, and new neighborhood districts (such as the Flats East Bank and the Avenue District) are ready to be built. Meanwhile, programs such as the Evergreen Cooperatives are creating new business models for city residents. And there is tremendous grassroots interest in building neighborhood economies with business involved in local food, renewable energy, and alternative transportation.



⁵⁷ <http://www.hud.gov/offices/cpd/communitydevelopment/programs/>