

Omaha Master Plan  
Jim Suttle, Mayor Report #302

# Environment Element



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## Omaha's Environment Vision

*Omaha is a vibrant city that recognizes the necessity for a healthy natural environment, a strong economy, and social equity to establish a high quality of life for all people in the community. The Omaha community will use its strengths of generosity, citizen support, and cooperative spirit to ensure that actions taken in creating a thriving city today will ensure the ability of future generations to meet their needs.*



*Downtown Omaha from Carter Lake Park*

# Introduction

## Background

Cities like Omaha are often at the forefront of experiencing the public costs of pollution, degradation of ecosystems, and limited resources. Omaha is facing many of the same environmental issues as other communities and regions: dealing with pollutants in water, air and soil; concern with the increasing costs of energy needed to sustain our way of life; damage to ecosystems on which we depend; and loss of natural areas that support our quality of life. Omaha is experiencing the costs of correcting and mitigating specific environmental problems, including flood damage to susceptible developed areas; streams, rivers, and lakes affected by pollutants in stormwater; neighborhoods where lead from ASARCO, lead in paint, and superfund sites threaten the health of residents; and levels of ozone in the air affecting the health of people in the community. In many cases, federal requirements to address environmental issues spur local actions. Solutions can be costly, as Omaha is experiencing in the projected cost of \$1.5 billion to correct CSO (Combined Sewer Overflow) problems over the next 15 to 20 years.

Cities have a responsibility to look toward the long-term future for the collective good of the community. Work at the local scale often lends itself to testing new ways of developing and building, providing infrastructure and services, purchasing and conducting operations, and supporting sustainable practices while dissuading actions that diminish the ability of the community to thrive in the future. The overarching direction of this plan is to resolve current environmental issues while taking a proactive approach to the community's future.

The Environment Element is not only a guide for City actions and policies; it is a vision for the long-term environmental health and sustainability of the Omaha community and the natural resources and ecosystems on which it depends.

## Community Support

In recent years, the number of various individuals and organizations in the Omaha community and metropolitan area who have an interest in environmental issues has increased significantly. Interests range from green building to community gardens; sustainable living practices to protection of wooded hillsides. The work of groups as diverse as those promoting active living or those setting urban design standards is connected to environmental issues and the need for a shared community vision.

Various coalitions of these groups have formed to coordinate efforts promoting the health and protection of our environment. It was this spirit of cooperation and a shared desire to address the important environmental issues facing Omaha that brought the City of Omaha and the Omaha by Design organization together to develop this Environment Element of the city's Master Plan.



*Attendees listen to a presentation on Walkable Communities at the Community Health kick-off meeting*

## City Charter / Master Plan

Article IV, Section 7.04 of the Omaha Municipal Code calls for the city’s Master Plan to establish policies, goals and standards that “...at a minimum address the areas of land use; the provision of urban services, including transportation, parks and recreation, utilities, public facilities, and disposal of solid and liquid wastes; housing and community development; economic development, environmental protection; development management; urban design; historic preservation; and any other areas, necessary to guide the physical development of the city.”

Although other master plan elements—including Land Use, Parks and Recreation, Urban Design, Urban Development, and Stormwater—have touched on various environmental issues, development of this Environment Element more comprehensively incorporates the issues to serve the purposes called for in the City Charter. The Environment Element provides a unifying vision and approach to connect the issues.

## Plan Organization

Interconnectedness is characteristic of issues in the Environment Element. It was necessary to organize the issues into sections to create a framework of topics that would allow for public and advisory committee focus and input. Therefore, a number of issues are repeated in several sections, though they may be addressed through different approaches relevant to the individual section.

For organizational purposes, five broad topics were identified: Natural Environment; Urban Form and Transportation; Building Construction; Resource Conservation; and Community Health.

### *Natural Environment*

Natural Environment involves many of the topics that are traditionally considered “environmental issues.” Included in these issues are natural resources (land, water, and air/climate), natural features and ecosystems, wildlife habitat, the landscape, and experience-based qualities of environment, such as sound and visual quality.

### *Urban Form and Transportation*

The Urban Form and Transportation section addresses how urban form--the pattern and density of the city’s development--relates to conservation of the natural environment, consumption of energy for transportation, and to the ability to have choices of transportation modes. Transportation issues include reducing dependence on the private automobile, increasing the use of active transportation and transit, and encouraging transit-oriented development.

### *Building Construction*

Building Construction concerns the design, construction, and operation of buildings in ways that promote efficient use of energy, resources, and water; site-planning for sustainability; and ensuring indoor environmental quality. New construction, building renovation, and infill development/ redevelopment in existing areas of the city are addressed. Both residential and non-residential building types are addressed.

### *Resource Conservation*

Resource Conservation addresses the city’s sustainability and adaptability for future conditions in the use

of energy and material resources, renewable and sustainable energy systems, and a sustainable economy. Resource Conservation also includes the quality and supply of water, land, and air resources.

### *Community Health*

Community Health issues include the design of sites and neighborhoods for active living; economic opportunities throughout the community; access to essential services for all neighborhoods; and access to affordable and healthy food. Safety issues include crime prevention, design for safe active transportation modes, and natural hazards such as flooding or severe storms/wind.

## **Development of the Plan**

Partnerships were critical in the development of this plan. Staff and volunteers from the City of Omaha, Omaha by Design, and facilitators from several local design and engineering firms worked together to develop and implement the process. City Planning provided staff resources in writing the plan; Omaha by Design provided project management. Financial support was provided through the Metropolitan Area Planning Agency (MAPA), the Papio-Missouri River Natural Resources District (P-MNRD), and the City of Omaha Public Works Department.

City of Omaha and Omaha by Design designed a process intended to elicit public and expert input as a critical part of developing the plan. The initial Environment Omaha kickoff meeting, with an inspiring presentation by Michael Kinsley of the Rocky Mountain Institute, was sponsored by Omaha by Design. Each section of the plan began with a similar open house meeting for the public. An overview presentation initiated each meeting, and the public was invited to provide verbal and written comments and input on various topics under the section. Comments could also be provided online at Omaha by Design's Environment Omaha website.

Advisory Committees were formed for each goal section to provide expertise in the topics under the section. The task of the Advisory Committees was to review input, identify issues, provide direction for developing the goals and objectives, and review and recommend implementation policies and strategies.



*Public open house meeting*

The Core Committee was created to provide review and endorsement from a broad cross-section of community representation. As a draft for each goal section was completed through the Advisory Group process, it was sent to the Core Committee for review. The Core Committee also reviewed the final draft in its entirety.

As drafts were completed, they were posted on the Environment Omaha website for public review and comments. An on-line application called "Pass the Potatoes" was also initiated to broaden the reach of public participation and allow citizens to mix their own creative ideas into the process.

## Trends, Issues and Opportunities

Our society is recognizing that certain behaviors and approaches are not sustainable into the future—resources on which our society depends approach their limits, and the capacity of the ecosystem to tolerate disruption and damage is diminished with the result that human health and well-being is compromised. Costs to individuals and society of remediating and mitigating environmental problems and limitations are becoming evident. This recognition has led to a search for alternatives on a hierarchy of scales ranging from a regional and ecosystem basis to the level of individual actions.

Increased awareness and concern about the environment, combined with the ability to share information through web-based media has given communities, interest groups, and individuals the ability to make connections and share knowledge in an unprecedented way. The trial and error experiences of communities that have taken a lead toward becoming sustainable can serve as advice to those seeking solutions. Information on the costs and benefits of various actions and directions has increased exponentially. This section briefly describes some of the national and local issues that have been identified, trends that need to be recognized, and opportunities that can be taken for our community to become more sustainable.

### Human Health and Safety

#### *Environmental and Human Health*

The quality of the natural environment has a direct impact on the health and quality of life of the human community. Clean air, water and land are necessary for human health and well-being. Both the presence of nature and access to nature for residents in the community are closely linked to community health.

#### *Hazard Mitigation*

Natural hazards—floods, tornados and damaging wind, blizzards and other severe weather conditions—can be damaging and life-threatening. Mitigation is needed to reduce or eliminate the vulnerability of people and property from natural hazards and their effects.

#### *Neighborhood Design*

Neighborhoods characterized by higher density, well connected street networks, and easy access to shops and services are associated with higher levels of walking. A “walkable” neighborhood encourages interactions between and among neighbors thereby increasing a sense of community, which in turn may influence positive mental and physical health in local residents.<sup>1</sup> Higher development densities also provide benefits in terms of reduced dependence on automobiles by improving the feasibility of public transit as well as the active transportation modes of bicycling and walking. The use of public transit and active transportation provides the opportunity for people to easily incorporate everyday physical activity into a healthy lifestyle.



*Benson neighborhood*

### *Open Space and Recreation*

Access to large, attractive public open space and nature in cities helps offset the effects of stress, benefits memory and attention, supports emotional well-being, and promotes smarter choices, such as healthier eating.<sup>2</sup> Recent studies indicate that exercising in “green” space significantly boosts mental health.<sup>3</sup>



*Hummel Park Trail*

### *Safety and Crime Prevention*

Health-promoting physical activity—neighborhood walks, active transportation, and activity in public parks—is affected by the perception of safety from crime. The design of public spaces and streets, neighborhood activity and police presence are all factors in safety within a neighborhood.<sup>4</sup>

### *Climate Change Effects*

Climate experts are particularly confident that climate change will bring increasingly frequent and severe heat waves and extreme weather events. These changes have the potential to affect human health in several direct and indirect ways, some of them severe.<sup>5</sup> Other health effects may include an increase in allergens with an associated impact on asthma.<sup>6</sup>

Mitigation and adaptation strategies in response to the likely impacts are desirable from a public health perspective irrespective of climate change.<sup>7</sup>

### **Conservation of Resources**

Resources involve the energy used in our economy for developing and providing goods and services, materials used for creating those products, and other public natural resources such as air and water. Inherent within the idea of using resources is the concept of how to manage waste that may be a result.



### *Energy*

Energy is fundamental to our community’s ability to produce goods and services, to construct buildings and heat and cool them, and to transport ourselves and products that we use in our daily lives. Much of the energy used to support our current way of life is from carbon-based sources including petroleum oil, coal, and natural gas. To varying degrees those sources are associated with air and water pollution, and reliance on those sources sends dollars out of the local economy.

Concurrent issues—impending limitations on the availability of inexpensive oil, sometimes referred to as “peak oil,” and

climate change arising at least in part from greenhouse gas emissions—are converging into an urgent need to reduce our reliance on oil and other carbon-based energy sources.

Efficiency and conservation are often the most cost-effective options for reducing energy use. Retrofitting existing buildings to reduce energy use, designing efficient land use patterns that also reduce the costs of public services, and supporting low carbon infrastructure, including expanded transportation choices, are all strategies with the added benefit of improving the quality of life in the community. (APA report: Integrating Energy and Climate Change into Planning.)<sup>8</sup>

Beyond optimizing efficiency, approaches such as renewable energy sources, distributed energy systems, and development of “smart grid” technologies all have potential in the transition to sustainable energy. In addition, “Relocalization” and “Transition” movements are focusing on local economies and social capital—developing approaches such as local food systems and energy production through small-scale distributed systems to improve the resilience of cities and towns in the face of higher costs and instability in the supply of oil.<sup>9,10</sup>

### *Water*

The rationale for water conservation may not seem immediately evident when a community has access to seemingly abundant natural water resources as Omaha does in relying on the Missouri River and the Platte River for water. However, periodic droughts experienced in the past can be expected to occur again; resilience in the community’s ability to thrive during water scarcity is created by water conservation practices.



*Missouri River*

In addition, addressing water demand improves the efficiency of city and water utility operations; water conservation reduces energy needed and costs for treating water, moving water and wastewater around, and, to a lesser extent, treating wastewater.

Water conservation strategies in homes, businesses, civic places, as well as in landscaped areas and parks, will also save money for residents, businesses, and government and other public agencies.

### *Materials and Waste*

Maximizing the productivity of material resources used by individuals, businesses, and other organizations will result in minimal waste with the benefit of reducing material that is buried in a landfill or otherwise disposed.

The Rocky Mountain Institute<sup>11</sup> promotes the concept of “natural capitalism” as an approach toward minimizing waste and pollutants and maximizing productivity of resources. From the RMI website:

“The concept of ‘natural capital’ recognizes that the human economy is based on natural resources and ecological services, and that economic practices need to recognize the full value of those services in order to prevent scarcity, degradation, pollution, and waste.”

The Four Principles of Natural Capitalism:

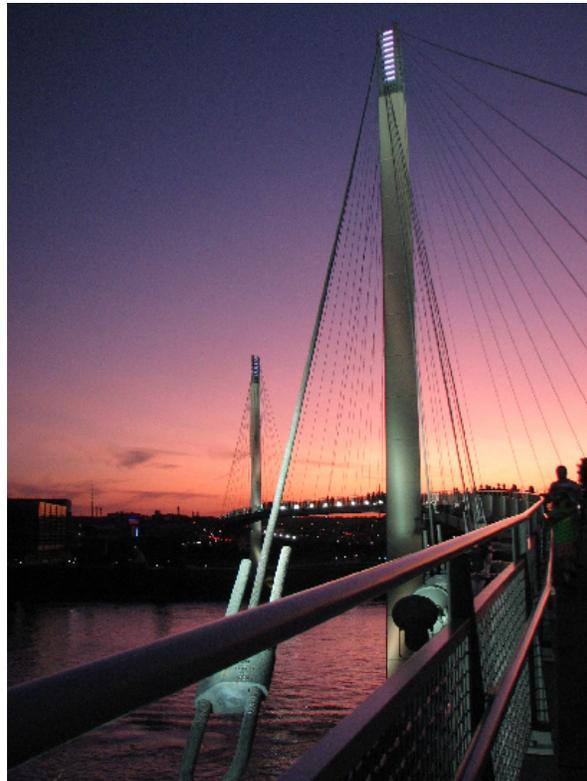
1. **Radically Increase the Productivity of Natural Resources**  
Evaluate systems and processes in which the resource is integrated to identify efficiencies and large-scale solutions; this creates productivity.
2. **Shift to Biologically Inspired Production Models and Materials**  
The concept of waste is eliminated by modeling nature’s designs of closed loop systems. Every output either is returned harmlessly to the ecosystem as a nutrient, like compost, or becomes an input for another manufacturing process.
3. **Move to a “Service-and-Flow” Business Model**  
The value of a good may be provided instead as a continuous flow of service. An example is providing illumination rather than selling light bulbs. This aligns the interests of providers and customers in ways that reward them for resource productivity.
4. **Reinvest in Natural Capital**  
Business opportunities to restore, sustain, and expand natural capital are mounting as human needs expand, the costs of deteriorating ecosystems rise, and the environmental awareness of consumers increases.

## **Economic and Social Factors**

### *City Branding/Image*

Cities across the U.S., including many in the Midwest and Great Plains, have developed sustainability and environmental plans and pursued different types of environmental initiatives with which the cities have become associated. Chicago has taken a lead in establishing green roofs and in reducing light pollution; Dallas is transitioning to green building standards for all new construction; Minneapolis is expanding its urban light rail system and using biofuel for buses in their transit system; and Kansas City is at the center of an interconnected system of public and private natural areas, greenways and trails.

As Omaha area residents, organizations, businesses and governments work together on environmental initiatives that they have brought to this plan, our community can be recognized and promoted.



*Sunset at Bob Kerrey Pedestrian Bridge*

### *Green Economy*

Shifting the economy to clean, renewable energy sources, implementing energy efficiency, and protecting and conserving the natural environment are some of the areas in which “green job” growth is projected. A list of green economy areas may include:

- ❖ Manufacturing and construction for generating and storing renewable energy
- ❖ Material conservation and efficiency planning
- ❖ Recycling existing materials
- ❖ Energy efficient product manufacturing, distribution, construction, installation, and maintenance
- ❖ Education, compliance and awareness
- ❖ Natural and sustainable product manufacturing
- ❖ Energy efficiency retrofits for buildings

The web-based organization, Green for All, says that green jobs tend to be local, can rebuild a strong middle class and provide pathways out of poverty, and transform old jobs as industries transition to a clean energy economy.<sup>12, 13</sup>

Amory Lovins of the Rocky Mountain Institute has said, “Energy efficiency is one of the highest-return and lowest-risk investments in the whole economy... We should therefore be talking not about cost, burden, and sacrifice, but about profits, jobs, and competitive advantage... Profitable energy efficiency can drive the business-led journey beyond oil and coal to cheaper, cleaner, inexhaustible, secure, all-American, climate-safe resources.”<sup>14</sup>

### *Attraction and Involvement of Young Professionals*

The Greater Omaha Young Professionals Council has taken a lead on specific sustainability issues such as the perception and use of the metro area’s public transit system. Those who are active in sustainability issues and in the city’s future bring an energy and vitality that not only improves the city’s livability, but attracts other vibrant individuals to live and participate in the community.<sup>15</sup> Omaha will benefit by being responsive to those concerns and interests.

### *City, Utility, and Other Public Service Costs Minimized*

Development patterns that increase density, especially when coordinated with public transit, can reduce per capita costs of public services. Expansion and extension of utilities and streets can be minimized and avoided; the economic sustainability of public transit will improve as more people find the convenience of transit more attractive than being dependent on, and bearing the cost of, a private auto.

Redevelopment and restoration of density in older areas of the city, done strategically to support public transit nodes and to fit into and enhance existing neighborhoods, will also reduce per capita public service costs. Existing infrastructure and services—streets, sewers, energy utilities, parks—may be used more fully, thereby increasing efficiency on a per capita basis. In some cases redevelopment can provide the funds to replace or renovate the existing facilities.

As the City adopts energy and water conserving practices, its costs of operating and maintaining public buildings such as libraries, fire stations, and community centers will be reduced. Maintenance costs for parks and other

public landscapes will also be reduced by the use of native and ecologically-adapted plant species; attractive public landscapes created by the use of native plantings can also contribute toward an attractive city image.

### ***Quality of life***

Sustainability requires that our collective decisions allow our economy and community members to continue to thrive without destroying the natural environment upon which we all depend. A healthy environment is integral to the city's long-term economic and societal interests.

Natural features contribute to the image and quality of life of a community; those factors in turn contribute to the community's economic health and the desirability of that community as a place to live.

### ***Ecosystem services***

Healthy ecosystems provide substantial environmental services such as water purification and recharge, nutrient recycling, oxygen production, climate moderation, and assimilation of waste and pollutants. Conserving and restoring natural areas helps to ensure that the essential ecosystem services are continued into the future; those services will contribute toward the healthy condition of Omaha's environment.<sup>16</sup>

### ***Local responsibilities***

Local governments are responsible for meeting State and Federal environmental standards and regulations. By setting out a community vision and a context, this plan strengthens local efforts by identifying various policies and strategies that together will further progress toward meeting those local responsibilities.

### ***Environmental awareness***

People need an awareness of the natural environment and ecosystems and how our actions affect the natural environment to better ensure that they make appropriate choices for avoiding damage to the natural systems that sustain them. A community-based plan offers—in addition to an overall vision, information, examples of other communities, and sources of further study—ideas and opportunities in which individual and collective efforts can take action.

# Environment Plan

This is the heart of the Environment Element. Through public meetings and other public input, the Advisory Committees, and the Core Committee, concepts were established setting out the direction for the plan. This section sets out a vision for Omaha described through the framework of five topic areas—Natural Environment, Urban Form and Transportation, Building Construction, Resource Conservation, and Community Health.

This section begins with Guiding Principles, the basic values upon which the Goals, Objectives, and Implementation actions and policies were developed.



*American Linden fall color at N.P. Dodge Park*

The second section discusses the ways in which concepts in the plan are integrated toward sustainability, toward connected issues and goals in other planning areas, and into the context of larger ecosystems as well as larger political jurisdictions.

Discussion in the third section arose as comments from the public and discussions within the Advisory Committees and the Core Committee consistently brought up the need for certain actions and products related to environmental issues in the plan. As these needs repeatedly came up throughout the planning process, they became by reference “Overarching Themes.” Specific implementation strategies throughout the five topic areas reflect these themes.

Those introductory pieces set the context for the primary purpose of the Environment Element--the goals, objectives and implementation actions developed through the Advisory Committees and the Core Committee for each of the five goal areas. Brief background sections introduce the main themes at the beginning of each section.

## Guiding Principles

### *Community Ownership*

All community members, including individual citizens, community-based groups, businesses, schools and other institutions, must be aware of their impacts on the environmental, economic, and social health, must take responsibility for reducing or eliminating those impacts, and must take an active part in community efforts to address sustainability concerns.

### *Need for a Shared Vision and Direction*

Many community groups, government entities, and private organizations and businesses have an interest and a role in working toward an environmentally sustainable community. A plan developed through a cross-section of community interests provides a guide toward a common vision; it can help to identify how actions contribute toward the vision and goals.

### *Roles of Individual Citizens, Government, Community Groups, Private Enterprise*

Many organizations and entities were involved in development of the plan; many levels of community participation contributed ideas and suggestions. Implementation can only happen through a similar effort. Some solu-

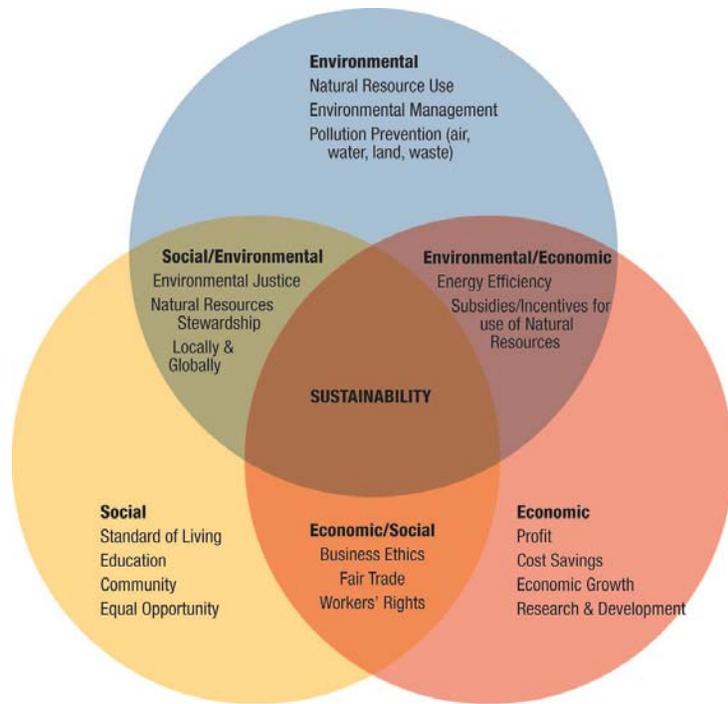
tions require individual actions; some require government to establish specific policies and practices as well as funding. Some actions will be pursued by community organizations or non-profit agencies; private businesses will implement others. Many (if not most) actions will happen most effectively through collaboration and cooperation.

## Integrated Concepts

### *Sustainability Concept Integrated in the Plan*

The concept of “sustainability” in city plans and actions arose out of recognition that a society that consumes natural resources at a rate that depletes them for future generations is not sustainable. The concept also gives recognition to the interconnection of the well-being of the natural environment with the economy of a community and the social well-being of its citizens. The definition of “sustainability” is evolving, but the basic definition is that a sustainable community is one that meets the needs of the present without compromising the ability of future generations to meet their needs

A more detailed list of characteristics of a sustainable community is the following example developed by the Ontario Round Table on Environment and Economy:



*Sustainability Components*

A sustainable community is one which:

- ❖ Recognizes that growth occurs within some limits and is ultimately limited by the carrying capacity of the environment;
- ❖ Values cultural diversity;
- ❖ Has respect for other life forms and supports biodiversity;
- ❖ Has shared values amongst the members of the community (promoted through sustainability education);
- ❖ Employs ecological decision-making (e.g., integration of environmental criteria into all municipal government, business and personal decision-making processes);
- ❖ Makes decisions and plans in a balanced, open and flexible manner that includes the perspectives from the social, health, economic and environmental sectors of the community;
- ❖ Makes best use of local efforts and resources (nurtures solutions at the local level);
- ❖ Uses renewable and reliable sources of energy;

- ❖ Minimizes harm to the natural environment;
- ❖ Fosters activities which use materials in continuous cycles; and, as a result, a sustainable community;
- ❖ Does not compromise the sustainability of other communities (a geographic perspective);
- ❖ Does not compromise the sustainability of future generations by its activities (a temporal perspective).

Source: The Natural Step<sup>17</sup>

### *Interconnected Issues*

Natural features exist in interconnected systems—such as the water, air, and nutrient cycles—that collectively support life. Our built environment and the community as a whole are integrated into the natural systems; the long-term functions and sustainability of the community are dependent on the design of the built components being influenced by the natural system.

The urban forest provides an example:

- ❖ Trees slow the rate at which storm water runs off developed areas as well as reducing the amount of storm water—this is part of the water cycle.
- ❖ Trees absorb air pollutants such as carbon dioxide and give off oxygen—beneficial to the air/atmosphere.
- ❖ Trees provide cooling shade in the summer—reducing energy needed to provide comfort in extreme weather.
- ❖ Trees are an essential component of most wildlife habitats (prairie habitat being an exception)—beneficial to quality of life for humans.
- ❖ Trees beautify the urban landscape—providing a critical component of urban design.

In this example, a well-designed action taken toward improving the visual quality of the city is connected to improving water and air quality, reducing energy consumption, and providing wildlife habitat.

Another example of interconnected systems where a solution provides multiple benefits is the concept of compact, “walkable” neighborhoods:

- ❖ Locating neighborhood services in close proximity to residents reduces the need for auto travel—reducing energy consumption and air pollution.
- ❖ Walkable neighborhoods provide the opportunity for people to integrate active living into their everyday lives—improving health of the community.
- ❖ Compact development, where it is concentrated in suitable locations, allows the opportunity to preserve natural features as a framework—beneficial to the natural environment.

Similar connections appear throughout the Environment Plan where a solution for one issue in a section may be repeated as a solution for a different issue in another section.

### *Integration with other Master Plan Elements*

This Environment Element addresses a very comprehensive scope of issues. A review of the topics indicates that this plan includes goals and actions related (at a minimum) to transportation, land use, development density

and patterns, and parks and open space. As discussed in the Introduction, the Environment Element provides a unifying vision and approach to connect the issues.

Other adopted master plan elements have touched on various environmental issues. A few examples include: the Land Use Element listed certain Natural Features and established a specific level of protection and mitigation for each of those features; Parks and Recreation recognized the value of wildlife habitat in public parks and called for creating an open space network that included trails; Urban Design identified the value of the urban forest and called for using native plantings in visible road right-of-way expanses; Urban Development set out development standards for specific areas with sensitive environmental characteristics, and Stormwater established standards to reduce the impacts of development on stormwater quality and quantity.



*Oak canopy*

City Planning has reviewed the other Master Plan Elements and found that they are consistent in direction. The Environment Element strengthens and more specifically addresses a number of issues. If needed, those elements will be amended to be consistent with the Environment Element. In case of a conflict, the most stringent will be applicable.

Updates may be made from time to time as needed. A review of the plan should be done every five years at a minimum, and updated to reflect current issues, information, and direction.

### *Ecosystems (and Other Systems) and Political Jurisdictions*

Natural systems may span across urban, suburban, rural and wild landscapes and incorporate elements and functions at the parcel, community, and regional scales. As an example, pollutants generated in one community will affect other communities' air quality. The visual quality of development in one community is associated with the image of an adjacent community. The Papio Creek system is an example as well; the watersheds of the creek tributaries span portions of land in Washington, Douglas and Sarpy counties, with activities affecting stormwater from communities in those counties having an effect on water quality and on flooding downstream in other communities.

The nature of ecosystems spanning political jurisdictions was often noted in discussions of issues and implementation strategies, with a recognition that effective policies and strategies can only come about through various political jurisdictions working together in a coordinated effort.

## Overarching Themes

### *Community Education and Promotion*

Creating a community that values environmental quality requires actions and choices that are made by individuals and households, as well as by neighborhood groups and other organizations, non-profits, businesses, and various levels of government. However, for many of us, information overload—too much or contradictory information—or a lack of information can make it difficult to do “the right thing.” Information needs to be coordinated between and among relevant organizations, focused on critical facts, and targeted to the audiences who will make choices and take actions.

### *Partnerships: Roles of Government, Information and Advocacy Groups, Private Entities*

Local government and other public and private organizations have abilities and interests that may complement each other’s efforts. Partnerships have the potential to exponentially improve the success of those efforts. Many of the actions identified in the Plan call for partnerships to pursue those actions.

City government is responsible for developing and amending local codes, regulations, and standards as well as funding the development/construction, maintenance, and operation of city facilities and infrastructure; various city departments have responsibilities as set out in the Omaha Municipal Code. Douglas County has jurisdiction over certain areas, such as health regulations. Other local/regional agencies such as the Metropolitan Area Planning Agency (MAPA) and the Pappio-Missouri River Natural Resources District (P-MNRD) have jurisdictions that span multiple local government territories; those agencies may take a lead in organizing around multi-jurisdictional issues. Many issues are inter-governmental or inter-departmental in nature; coordination and collaboration will be necessary to implement the strategies.

A number of implementation strategies in the Environment Element call for actions that may involve non-profit agencies, businesses, neighborhood groups, and/or individual citizens. These actions will likely be taken independently and informally; community-based groups may be involved in organizing and coordinating certain efforts.

### *Data Collection: Information, Inventories, Base Line, and Trends*

Data measurements are necessary to quantify the scope of problems and issues, to analyze factors having a role in the issues, and to measure the progress and success of actions taken toward goals. Many environment-related issues have not been measured in quantifiable terms; natural environment issues are particularly characterized by a complexity that makes quantitative measurement problematic. Other measurements may exist in scattered contexts but are not published or updated collectively in a way that allows for analysis and monitoring. While some data, such as community health statistics, have a history that allows for trend analysis, most of the information needed to measure the scope and evaluate progress of environmental issues is not easily available. A major effort is needed in this area.

### *Measurable Quantifiers: Indicators and Monitoring*

As local communities take seriously the process of becoming sustainable, there is a need to set measurable as well as “aspirational” indicators of progress. In this plan, measurable goals/indicators are intended to provide benchmarks which if reached indicate the likelihood that the prime concerns of a section will be addressed. Many of the measureable goals are based on a measurement of improvement from existing conditions; in those

cases, the baseline measurement and source are identified. In other cases baseline conditions have not yet been measured; research of those conditions will be the next step. In any case the measurable goals may be updated as baseline condition data and other information become available.

In addition to the measurable goals/indicators, other specific indicators may be developed in conjunction with an implementation action plan. Identifying indicators of progress and reporting on the direction and rate of progress have become hallmarks of city sustainability planning. Indicators are measurements that recognize the interconnectedness of environmental, economic and social conditions.

According to Sustainable Measures, a website<sup>18</sup> devoted to helping communities develop meaningful, effective indicators, the following are characteristics of effective indicators:

- ❖ Effective indicators are relevant; they show you something about the system that you need to know;
- ❖ Effective indicators are easy to understand, even by people who are not experts;
- ❖ Effective indicators are reliable; you can trust the information that the indicator is providing;
- ❖ Lastly, effective indicators are based on accessible data; the information is available or can be gathered while there is still time to act.

Monitoring of indicators needs to be done frequently enough to allow for evaluation of progress that a community is making and to provide for timely adjustment in implementation actions if necessary to reach goals and objectives. Most communities set up an annual process for reviewing indicators and reporting progress.

### *Action Plans*

An overall action plan is needed to provide guidance and structure to effectively implement the Environment Element. An action plan should be geared to organize the actions to be taken, the entities that are responsible or may have a part in implementing an action, costs that may be associated, and a time frame for the implementation tasks. The action plan should set out indicator metrics in addition to the goal metrics that are incorporated into the plan. It will also identify the connection of the strategies to respective goals and objectives as well as the connections to other Master Plan elements.

### *Implementation: Priorities, Time Frames*

An evaluation of proposed strategies and policies is necessary to identify priorities, to set out a logical order for implementation of related activities, and to coordinate with activities that are outside of the plan's purview. Factors to consider in identifying priorities may include (but are not necessarily limited to):



*Levels of Indicators (Dialogue Consultants)*

- ❖ Existing capacity in the appropriate entities to carry out the action, or the need to pursue strategies necessary to build capacity;
- ❖ Initial inventories/baseline studies that are critical prior to taking action in many cases and to provide a basis from which to measure progress;
- ❖ Effectiveness--how far does an action go toward the solution;
- ❖ Multiple benefits that may result from a specific action;
- ❖ Funding amounts and sources of funding;
- ❖ Timing--programming actions that are logical steps in a process;
- ❖ Opportunities that may arise for a project that has not been programmed in the short term, or that provide an alternative source of support.

Time frames need to identify short, intermediate, and long-term expectations for proposed actions. Short-term generally includes projects that are within one to three years, intermediate may be three to ten years, and longer term may be ten years or more. Setting out a capital funding program with cost estimates and anticipated funding sources is usually critical to obtain or program funds to implement projects.

### *Office of Sustainability*

The establishment of an Office of Sustainability is one of the principal needs that came out of the Natural Environment section; this office would serve as a coordinator and conduit for the responsibilities listed above.



*Bob Kerrey Pedestrian Bridge*

# Natural Environment

## Background

### *Problems and Opportunities*

The health of natural ecosystems and the benefits to humans of a healthy environment was a priority issue for the Natural Environment Advisory Group. The quality of the natural environment has a direct impact on the health and quality of life of the human community. Clean air, water and land are necessary for human health and well-being; the Advisory Group asserted that we have an imperative to ensure that those conditions provide for the continued well-being of future generations. In addition, the presence of nature and access to nature for residents in the community is closely linked to community health. Studies continue to document the benefits of contact with nature to physical and mental health in many urban contexts, with recommendations for incorporating environmental sustainability.<sup>19</sup>



*Bur Oak in fall color*

Healthy ecosystems provide substantial environmental services such as water purification and recharge, nutrient recycling, oxygen production, climate moderation, and assimilation of waste and pollutants.<sup>20</sup> Conserving and restoring natural areas helps to ensure that the essential ecosystem services are continued into the future; those services will contribute toward the healthy condition of Omaha's environment.



*Orchard Creek Restoration*

The importance of integrating natural features such as the Papio Creek system and other Missouri River tributaries into the development pattern of the city was a critical issue for the Natural Environment Advisory Group. Conserving those features allows establishment of an open space network for recreation, trails providing access, and wildlife habitat. A number of cities and regions have developed plans for open space networks—called green infrastructure plans—to conserve ecosystem values and functions.<sup>21</sup>

The Natural Environment Advisory Group identified the designed landscape of the community as a significant connection to the natural setting. The design of Omaha's built environment incorporates natural aspects such as landscaping that may in part recreate ecosystem functions. Plants that are native or are ecologically well-adapted can best provide benefits such as water purification and nutrient recycling while requiring less water and nutrients in order to thrive. Well-designed landscapes using native plantings can also help to enhance Omaha's image and sense of place - both essential to our quality of life.<sup>22</sup>

### *Issues and Directions*

Public comments and discussions by the Natural Environment Advisory Group considered many important issues and directions. A sampling and summary of the issues includes:

- ❖ Natural features such as streams, bluffs, woodlands, wetlands, prairie remnants, and other natural open spaces need to be preserved and integrated as open space in the community; education is needed on the value of natural areas and what homeowners and other citizens can do to protect those areas.
- ❖ Stronger requirements and enforcement are both needed to protect trees and natural areas during construction.
- ❖ Conservation and preservation efforts toward natural features need to use a systems-based approach and those efforts should be implemented on a regional scale; coordination and partnerships between and among various entities may produce the best results in preserving natural areas.
- ❖ Education and demonstration projects can show ways of using native species appropriately in urban landscapes, and public lands such as right-of-ways and passive park areas provide opportunities for naturalized landscapes and native grasses; barriers to the use of native species need to be changed.
- ❖ An Urban Forest Plan is needed to develop the urban forest and improve management of it to ensure diversity of species and reduce vulnerability to disease and pests.
- ❖ Demonstration projects can be used to show how changing intense maintenance practices can improve the quality of the natural areas and reduce maintenance costs.
- ❖ Wildlife needs to have habitat preserved, restored and connected through corridors for movement.
- ❖ Urban conflicts with wildlife need to be reduced; wildlife/traffic conflicts need to be addressed, and buildings need to be designed and retrofitted to minimize their potentially hazardous impact on migrating birds.
- ❖ All neighborhoods should have access to open space; vacant lots and other open spaces have the potential to be part of an open space network throughout the City.
- ❖ Appropriate remediation is need for soil contamination; Brownfields sites can be redeveloped to enhance neighborhoods and provide economic development opportunities.
- ❖ Stormwater quality is required to meet state and federal standards; natural treatment alternatives should be pursued for solutions regarding water quality and to prevent and reduce floods.
- ❖ Stormwater fees should be implemented to make people responsible for their contribution to water run-off.
- ❖ Lighting needs to be effective and non-intrusive on night skies (avoid light pollution); a number of cities have model programs or ordinances.
- ❖ Visual elements that detract from the community's appearance such as billboards and very large-scale gas station canopies need to be controlled.
- ❖ The potential for burying power lines in strategic locations should be evaluated.



*Little Bluestem landscaping at the National Park Service site*

## Concepts

The Natural Environment Advisory Group used the following concepts to develop the overall statement, measurements, goals, objectives, and strategies contained in the following sections:

- ❖ The quality of life in Omaha is enhanced through connections with the city's natural setting.
- ❖ Integrating natural features into the urban fabric provides an opportunity for recreation and open space that benefits the community.
- ❖ Natural systems-oriented solutions to urban infrastructure will be the most effective in the long-term.
- ❖ Putting a priority on the health and integrity of the natural environment will benefit people in the community.
- ❖ Development that is done with a goal of regenerative impact on the environment will provide significant benefits to the community.

## Natural Environment Overall Statement

Omaha will place the highest value on the natural ecosystems and environmental features that create the setting for the city's built environment and contribute to the city's identity and quality of life. Omaha recognizes that the health and well-being of the people in the community depends on the health and well-being of the natural environment. Integrating the city's urban development into natural ecosystems in ways that respect and maintain the "natural capital" functions and qualities of those ecosystems will result in long-term cost savings and improve the quality of life for people in the community. Omaha will realize these benefits by:



*hikers enjoying the view from Hummel Park bluff*

- ❖ Preserving and restoring important natural features, views that enhance the city's setting, and other connections with nature that improve the community's quality of life.
- ❖ Applying a systems-oriented approach to urban solutions (e.g., using natural systems such as the water cycle to influence the design of urban stormwater systems).
- ❖ Designing the urban pattern of development to integrate natural features into an open space and recreation network that extends throughout the community.
- ❖ Prioritizing the health and integrity of the natural environment and the associated benefits to people when making decisions.
- ❖ Striving for a regenerative impact on the environment at all scales of development, from individual sites to the whole community, which will minimize energy consumption, support renewable energy, provide food on a local scale, and ensure that air and water are clean.

## Measurements

1. By 2020 all Omaha residents will be within one-half mile of public open space.
2. Support the Nebraska Department of Environmental Quality in an accelerated TMDL development process that addresses potential pollutant sources in a fair and reasonable manner based on sound technical data and scientific approach to achieve attainment of the State Surface Water Quality Standards in Omaha lakes and streams by 2025.
3. Reduce the number of air quality related health alert days to 20 by 2015 and 10 by 2020.
4. By 2020, reduce night sky luminance to less than 200% NNSL (Natural Nighttime Sky Luminance) in public parks and open spaces and 20% below 2012 levels everywhere else.



*Grasses provide the setting for a picnic shelter*

## **Natural Environment Goal Summary**

### LAND

Ensure that land use and development patterns safeguard natural ecosystems and resources while providing for the long-term health of the community's economy and social climate and the people in the community.

### VISUAL RESOURCES

Preserve natural areas and views that contribute to a scenic setting and distinctive character for the city and metropolitan area. Minimize adverse impacts of air and light pollution on daytime views and night-sky views, balanced with providing for public safety.

### NATURAL HABITATS

Preserve, protect, and restore natural communities, ecosystems and their processes and habitat throughout the city and metropolitan area and provide for the needs of native species in balance with human habitation.

### URBAN LANDSCAPES

Promote the use of native plants in landscaping; eliminate noxious/invasive plants; ensure the health of the city's plant community; and improve the value of the urban landscape for non-pest wildlife.

### AIR AND CLIMATE

Ensure that all areas of the community have a level of air quality that promotes both the health of the people in the community and the natural environment. Enhance the microclimate throughout the community. Take responsible actions to minimize the community's impact on climate change and to mitigate changes that are predicted for the Midwest region's climate.

### ACOUSTIC ENVIRONMENT

Ensure that sounds and noise levels within the community promote a high quality of life and health for metropolitan area residents and avoid harmful effects of noise pollution on wildlife.

### WATER

Preserve and restore natural hydrologic features and their functions; provide opportunities for people to experience and connect with natural water features; reduce the impact of urbanization on stormwater quality and quantity; ensure the safety and security of the community's water supply; and ensure that water supply and demand is balanced and sustainable both for the community's long-term needs and in consideration of potential climate change impacts.



*Red Oak fall color*

## LAND

Ensure that land use and development patterns safeguard natural ecosystems and resources while providing for the long-term health of the community's economy and social climate and the people in the community.

### Objectives:

#### 1. Protect and preserve lands that are sensitive to disturbance or that provide unique ecological, cultural or aesthetic features.

- 1.1. Establish an ongoing inventory process to identify and evaluate sensitive areas (e.g. steep slopes, ravines, bluffs and wooded areas – see Natural Habitats 2.5) and both cultural and aesthetic features. (Natural Habitat Inventory)
- 1.2. Establish development guidelines that shape development patterns in areas with steep slopes, highly erodible types of soil, and other sensitive features to ensure that those areas are protected. Emphasis should be on applying conservation development principles to protect those areas by maintaining them as open space.
- 1.3. Form partnerships to increase the effectiveness of land conservation, site restoration and land management.
- 1.4. Develop mechanisms to protect and preserve sensitive areas and unique ecological, cultural or aesthetic features (e.g., by way of legislation, zoning overlays, acquisition plans, coordination with other government agencies and NGO's).
  - ❖ Expand the use of conservation easements.
  - ❖ Monitor and evaluate the effectiveness of protection mechanisms that are utilized.
  - ❖ Review, update, and/or create environmental overlay districts for areas of special natural environmental significance or sensitivity.
    - ◆ North Hills environmental overlay district (update)
    - ◆ Elkhorn Valley environmental overlay district (create)
    - ◆ Cunningham Lake environmental overlay district (complete)
    - ◆ Any other area that meets the criteria of an environmental overlay district

#### 2. Create and conserve open space as integrated, connected green infrastructure in dense neighborhoods throughout the community.

- 2.1. Develop a green infrastructure plan to create interconnected, multi-functional open space throughout the community.
  - ❖ Apply principles of connectivity, multi-functionality, equitability and accessibility, health and safety, ecological functionality and integrity, feasibility and stewardship promotion.

- ❖ Identify and acquire land to create neighborhood parks, community gardens, and green play spaces.
  - ❖ Incorporate natural streams and waterways and connect with trails and green streets
  - ❖ Identify partnerships with neighborhood groups, non-profits, and private entities for management and maintenance of open space.
  - ❖ Provide for active transportation, storm water treatment and management, wildlife corridors and habitat, healthy food supply, and an amenity for livable, dense urban neighborhoods.
- 2.2. Develop resources to promote effective community gardens and local food production.
- ❖ Ensure that city codes do not contain roadblocks that discourage community gardens and local food production and work with Douglas County offices to eliminate obstacles.
- 3. Implement infrastructure and development patterns that are compact and contiguous to existing developed areas.**
- 3.1. Adopt City development and design guidelines and incentives to promote urban development patterns that will minimize the overall amount of land consumed for new development.
- 3.2. Increase infill development and higher density redevelopment in strategic areas, using open space as a common neighborhood amenity.
- 3.3. Continue and strengthen incentives to support infill and redevelopment.
- 3.4. Promote and support community-oriented uses of vacant and unused land in developed areas that enhance the surrounding neighborhood, such as community renewable energy systems and infill development.
- 4. Reclaim, restore and/or redevelop land that is degraded by erosion, contamination and pollution, improper filling or dumping.**
- 4.1. Create and maintain an inventory of Brownfield properties.
- 4.2. Coordinate with appropriate organizations, agencies and others to secure and utilize resources for reclaiming and restoring damaged land.
- 5. Improve soil quality for the health of the urban plant community.**
- 5.1. Develop and implement guidelines designed to preserve topsoil, improve soil conditions, avoid soil compaction, minimize the loss of soil and reduce erosion.

## VISUAL RESOURCES

Preserve natural areas and views that contribute to a scenic setting and distinctive character for the city and metropolitan area. Minimize adverse impacts of air and light pollution on daytime views and night-sky views, balanced with providing for public safety.

### Objectives:

1. **Protect unique and scenic vistas in the city and metropolitan area from encroachment or destruction.**
  - 1.1. Recognize that visual resources exist in the context of the region and metropolitan area.
  - 1.2. Manage and control changes to the natural environment that impact views.
  - 1.3. Use mapping tools (e.g., GIS, 3D modeling, etc.) to evaluate the impact of proposed uses, development, or other changes to the City's visual setting.
  - 1.4. Identify unique and scenic views for Omaha and create design and management plans for those areas. Plans should include:
    - ❖ Design guidelines for visible physical changes within, or in proximity of, important views.
    - ❖ Design guidelines and regulations for billboards, signs, lighting, buildings and other structures.
    - ❖ Design guidelines for landscaping within those areas.
    - ❖ Additional guidelines, standards, recommendations or other relevant measures may also be included.
2. **Minimize visual clutter and enhance visual quality for both natural and built areas.**
  - 2.1. Evaluate impacts to nearby visual conditions when reviewing development proposals.
  - 2.2. Control lighting, signage, and other structures that impact visual conditions;



*Sunset view from the east side of Cunningham Lake*

- 2.3. Work with interested entities to evaluate the potential visual and auditory impacts of alternative energy system equipment and structures, and establish guidelines that promote their use while minimizing conflicts with both neighboring properties and public views
- 2.4. Collaborate with local utilities and other partnerships in order to:
  - ❖ Identify priorities, develop policies and pursue special funding for relocating and/or burying overhead utility distribution lines in strategic areas;
  - ❖ Support and participate in OPPD's collaborative process for locating transmission lines;
  - ❖ Coordinate with utilities when planning for and installing utility structures along boulevards, parkways, and parks.
3. **Adopt and promote standards for the appropriate use of lighting to enhance aesthetics and safety while allowing views of the night sky.**
  - 3.1. Establish lighting standards and practices that minimize impacts on wildlife.
    - ❖ Coordinate with professional ecologists.
    - ❖ Encourage reduction in the operation and orientation of lights that may adversely affect wildlife.
    - ❖ Develop lighting information and guidelines for residents.
    - ❖ Work with business districts, commercial/office building owners and managers, and school districts to minimize lighting that may result in bird-building collisions and light trespass.
  - 3.2. Develop information and design guidelines for building, site, and parking area lighting to avoid excess or redundant lighting and to avoid light trespass on adjacent property.
  - 3.3. Coordinate with public utilities on strategies to reduce excess lighting on public property (e.g., right-of-ways).
  - 3.4. Encourage energy conservation by eliminating lighting that is unnecessary for buildings and sites, and by promoting lighting that uses alternative energy sources.

## NATURAL\_HABITATS

Preserve, protect, and restore natural communities, ecosystems and their processes and habitat throughout the city and metropolitan area and provide for the needs of native species in balance with human habitation.

### Objectives:

**1. Promote compact land use patterns integrated with conservation of natural habitats and natural aquatic systems to provide corridors for wildlife movement and protect the sustainability of natural biotic communities.**

1.1. Design recreation corridors to be sufficiently large so as to also function as corridors for wildlife movement.

1.2. Include professional ecologists, wildlife biologists and botanists as resources to provide input on the existing urban/suburban park and trail plan and when developing more detailed plans for constructing phases of the system.

1.3. Create a plan for an integrated, open spaces network that establishes connections to greenways and makes the natural environment accessible to neighborhoods throughout the community.

- ❖ Incorporate a hierarchy and variety of open space.

- ❖ Establish minimum standards for walking distance to open space in neighborhoods (based on Smart Growth recommendations).

- ❖ Coordinate with school districts and other partnerships for educational opportunities and for habitat enhancement.

- ❖ Explore the potential for day-lighting streams and restoring riparian habitat while attempting to remain consistent with other local efforts.

- ❖ Include ways in which residents and property owners can extend and connect to the greenway network by appropriate native landscaping and other actions that support native wildlife.

- ❖ Identify partnerships to implement the plan.



*Blue Heron*

2. **Protect and restore important plant and wildlife communities when making land use and development decisions.**
  - 2.1. Ensure that land use decisions that affect important plant and wildlife communities consider both the amount of area needed and the necessary habitat characteristics for protecting those communities.
  - 2.2. Develop an Environmental Assessment Handbook/Checklist for developers and planners to use as a guide for designing and reviewing development. The guide should address:
    - ❖ The protection of natural features
    - ❖ Incorporating the services of natural systems
    - ❖ Implementation of appropriate conservation design practices that have been developed with input from a professional ecologist.
  - 2.3. Give priority to preserving unique ecological and landscape features in planning for public improvements and in the design of private development.
    - ❖ If a natural feature would be negatively affected by a proposed development or public infrastructure, design alternatives should be evaluated. Value should be assigned to the educational, aesthetic, and “natural systems” functions of natural features when alternatives are considered.
    - ❖ Construction specifications for public and private projects should specify the source of soil to avoid impacting environmentally sensitive areas, including the Loess Hills and steep bluffs.
  - 2.4. Ensure that mitigation requirements exceed state and federal requirements and is at a level that is more than that which was destroyed when preservation of a protected natural feature is not possible.
  - 2.5. Require that the restoration and mitigation of natural features and ecological systems be science-based in order to restore the function of destroyed or damaged features.
    - ❖ Require that restoration and mitigation plans include both a time limit and a monitoring and maintenance schedule.
    - ❖ Review and update the “Protection of Natural Features” table identified in the appendix, which is also on page 60 of the Land Use Element of the Master Plan, and ensure that the changes are consistent with the goals, objectives and strategies of this plan. After updating and improving the definitions of the natural features, ecosystems and mitigation criteria, codify the table in the applicable City ordinances (e.g. Zoning and Subdivision Ordinances) and remove the table from the Master Plan.
  - 2.6. Include adequate, science-based buffers around natural or restored ecosystem conservation areas and natural features in order to minimize potential harm and degradation from urban development.

2.7. Include professional ecologists on planning teams whenever natural ecosystems are a component of a planning study and when proposed actions may potentially affect flora and fauna.

3. **Preserve and restore native plant communities as a valued community resource, as habitat for native biota, and as a means to maintain ecosystem processes.**

3.1. Take a regional approach toward preserving and protecting natural features and ecosystems. Omaha should coordinate efforts with other area communities and interested entities to develop a strategic plan for conservation and protection of the area's natural ecosystems.

3.2. Develop a complete Natural Resources Inventory and a Natural Habitat Master Plan.

- ❖ Use the best available information regarding the location and characteristics of existing natural ecosystems for the Omaha area. Develop GIS maps with a database of information about the mapped features.

3.3. Establish a local Land Trust to own land, accept donations and conservation easements, and/or manage natural areas and open spaces that are important to the community.

- ❖ Create partnerships and combine resources to maximize the effectiveness of the Land Trust.

- ❖ Coordinate with Non-governmental organizations (NGOs), such as the Nebraska Land Trust, to provide for conservation and management of locally important lands as well as regional ecosystems.

3.4. Develop a natural area preservation/restoration project in a highly visible place to create an iconic landscape for Omaha.

- ❖ Identify locations with the potential for landscape restoration, focusing on sites that are associated with visitor attractions and entryways to the City.

- ❖ Create public art opportunities that relate to the natural environment.

- ❖ Develop partnerships with street and highway agencies

to create a strategic plan for implementing prairie landscape plantings on rights-of-way and to develop appropriate strategies to manage the native landscape.



*Northwest Park seed harvest*

- 3.5. Develop an urban ecology handbook for the community. The handbook should, at a minimum, include:
- ❖ Alternative development approaches that preserve and promote the natural habitat and flora and fauna of the area.
  - ❖ Concept of “carrying capacity” for a community and a systems-based approach to the functions of the community.
  - ❖ Design standards that incorporate a systems-based approach to building, site and neighborhood development.
4. **Prevent pollution, damage, and adverse changes to aquatic habitats; pursue and encourage restoration of natural hydrology and aquatic habitats.**

- 4.1. Create a system to coordinate between the local, state, and/or federal levels for reviewing, permitting, mitigating, and monitoring impacts to natural features. Design the system to:

- ❖ Streamline the process between the jurisdictions
- ❖ Ensure that activity falling under the process is satisfactorily addressed for all jurisdictional entities.



*Wetland wildlife*

5. **Minimize the impact of noise, lights, hazards, and other disturbances on wildlife in the design of infrastructure and development.**
- 5.1. Ensure that collaborative efforts are taken when evaluation the impact of building development and building operations on wildlife, particularly migrating birds, because of Omaha’s location being directly within migratory routes of many species.
- ❖ Guidelines for building design and management/operation should be developed and promoted to reduce mortality and injury to birds from bird-building collisions.
  - ❖ Initiate a “Lights Out” campaign to encourage building owners and managers to minimize lighting at night, particularly during bird migration seasons.
6. **Establish land management and maintenance practices to restore and sustain natural communities, habitats, and ecosystem processes.**
- 6.1. Use mechanisms such as conservation easements to local or regional land trusts to ensure long-term protection, management, and maintenance of natural features and ecosystems.

- 6.2. Establish and adopt environmentally responsible strategies for the maintenance and management of natural systems and features. Strategies should be based on flexibility, adaptability and intelligent implementation. Maintenance practices should accommodate the seasonal cycles of plants and wildlife.
- 6.3. Develop information and education resources regarding best management and maintenance practices for natural systems and natural features.
  - ❖ Develop brochures, on-line manuals, workshops and other information resources for property owners regarding appropriate management and maintenance practices.
  - ❖ Identify and promote information resources to provide an understanding of the functions of trees for native birds and wildlife, and of the effect that tree removal and replacement may have on birds and other wildlife species
7. **Provide appropriate and strategic access to natural areas for the community's residents.**
  - 7.1. Opportunities for connection and appreciation of the natural environment must be built into the urban fabric
  - 7.2. Promote educational partnerships throughout the community to ensure that people understand and care about natural areas. Use modern communication methods such as websites, podcasts, and social media, as well as tangible demonstration projects and hands-on practical training.
8. **Manage human and wildlife interaction to improve biodiversity and native species in the community.**
  - ❖ Minimize human impacts that reduce the number and type of native species.
  - ❖ Minimize human/urban wildlife conflicts.
  - 8.1. Support education and regulation toward reducing the harm that unrestricted movement of pets has on native songbirds and small animals.
    - ❖ Develop an educational initiative explaining the negative impact of irresponsible pet ownership.
    - ❖ Provide information for the management and protection of the “urban mammal” population as well as for birds.
    - ❖ Enter into partnerships that support stronger penalties for owners that allow their pets to roam and prey on native species.
    - ❖ Support feral cat management and protection strategies that are designed to protect native bird species.
    - ❖ Work with local merchants to educate customers and encourage proper bird feeding and housing that will promote native bird species.

## URBAN LANDSCAPES

Promote the use of native plants in landscaping; eliminate noxious/invasive plants; ensure the health of the city's plant community; and improve the value of the urban landscape for non-pest wildlife.

### Objectives:

1. Create a distinctive image and sense of place for Omaha by emulating native prairie, wetland, and woodland areas and by using Native and Ecologically Well Adapted Non-Invasive Plants (NEWANIP) in landscapes.
  - 1.1. Work with landscape architects, landscape designers, botanists, horticulturists and nurseries/plant suppliers to develop a palette of native species recommended in urban landscapes and develop design guidelines for property owners. Incorporate the use of new propagation techniques that improve the health of plant material.
  - 1.2. Coordinate various City landscape planting and design standards to ensure that they are consistent.
    - ❖ Update the City's "Standards for Urban Landscaping," the urban design components of the city's zoning code, "Green Streets for Omaha," and the "Streetscape Handbook" to ensure consistency among them.
    - ❖ Collaborate with the community, professional ecologists, wildlife biologists, botanists, landscape architects, landscape designers, horticulturists and urban foresters in this effort, and include the use of new propagation techniques that provide for healthy plant material.
  - 1.3. Use NEWANIP along greenway corridors as they continue to be developed. As repairs and stabilization projects are done on existing corridors, replace disturbed areas with NEWANIP.
  - 1.4. Promote the principles of conservation landscaping in public/private spaces. Continue to work with other entities in developing demonstration projects that promote the use of NEWANIP.
  - 1.5. Educate and promote a community appreciation of the benefits of using suitable native species in the urban landscape. Promote the aesthetic of NEWANIP.
  - 1.6. Landscape non-active areas in parks and public open space with Native and Ecologically Well Adapted Non-Invasive Plants (NEWANIP) and incorporate restoration of ecosystems where feasible.



*Wildflowers at Benson Park by the lagoon*

- 1.7. Work through partnerships to create activities, programs and promotional events promoting the use of NEWANIP:
  - ❖ Plan and coordinate through public and private resources;
  - ❖ Pair with education and landscaping information, and
  - ❖ Include activities such as workshops, demonstration projects, and other events to encourage people to use NEWANIP.
- 2. Reduce stormwater runoff and improve water quality by using NEWANIP with deep root systems characteristic of native prairie in landscaping and by preserving/restoring vegetated buffer zones along waterways.

- 2.1 Promote the utilization of NEWANIP in post-construction, stormwater best management practices to reduce stormwater run-off in urban landscapes.
- 2.2 Promote the principles of conservation landscaping in public/private spaces.
- 2.3 Use landscape stream buffers designed to provide plant and wildlife habitat, bank stabilization, and improve water quality.



*Orchard Park rain garden*

- 3. Strategically use ecosystem restoration/enhancement projects, urban forestry, and landscaping to:
  - ❖ Offset the heat island effect of urban development
  - ❖ Offset the city’s greenhouse gas emissions
  - ❖ Mitigate the effect of higher temperatures predicted to result from climate change.
- 3.1 Evaluate the effectiveness of large-scale planting of trees and other ecosystem restoration/enhancement projects to offset the city’s greenhouse gas emissions.
- 3.2. Manage the urban forest and plant community for long-term health of the ecosystem and the aesthetic value to the community. Identify critical areas for preservation; manage to prevent problems; and evaluate opportunities to reduce the city’s carbon footprint.
- 3.2 Promote the protection of existing trees for their shade and heat island reduction effects.

4. **Recommend and implement the use of NEWANIP and landscape maintenance practices that will reduce air and water pollution while also allowing for fewer resources to be used in maintenance.**
  - 4.1. Compile information and guidance toward reducing the maintenance costs of fertilizing, mowing, etc. and for best management practices for natural areas and native landscaping. Coordinate with entities such as the Extension Service to promote the information to the public and to property owners.
  - 4.2. Investigate integrated pest management (IPM), organic practices, phosphorus restrictions, and other environmentally-responsible practices for use on public right-of-way and property. Monitor the results of those practices and adopt those that prove environmentally safe and effective.
  - 4.3. Develop a maintenance manual for native landscapes and provide training for park and right-of-way maintenance workers and contractors.
  - 4.4. Develop a plan for conversion of high maintenance turf to low maintenance native landscaping in public right-of-way and City of Omaha property where appropriate; identify funding sources for replacement and maintenance of public landscaping.
    - ❖ Establish outreach programs that engage partnerships and volunteerism by neighborhoods in right-of-way landscape planting and maintenance.
    - ❖ Provide training and education opportunities specifically for volunteers.
5. **Improve the health of the urban landscape through practices that improve soil quality and use stormwater as a valued asset.**
  - 5.1. Minimize land development practices that result in conditions that make plant survival difficult.
  - 5.2. Develop design guidelines for landscaping in stormwater best management practices to ensure healthy and attractive landscapes.
6. **Develop landscape/structure design and operation practices for the urbanized environment that will reduce noxious, nuisance and/or invasive plant and wildlife species.**
  - 6.1. Amend the weed control code to allow for planting NEWANIP and work with Douglas County to provide the same allowances.
  - 6.2. Coordinate through partnerships to provide information resources on preventing and removing problem species.

## AIR AND CLIMATE

Ensure that all areas of the community have a level of air quality that promotes both the health of the people in the community and the natural environment. Enhance the microclimate throughout the community. Take responsible actions to minimize the community's impact on climate change and to mitigate changes that are predicted for the Midwest region's climate.

### Objectives:

1. **Maintain or improve air quality compliance with the National Ambient Air Quality Standards to continue designation as an "Attainment Area."**

- 1.1. Limit land use or site incompatibilities that may result from air pollutants and odors.
- 1.2. Continue to collaborate with the EPA and other metropolitan communities to accomplish voluntary reduction of ozone levels through targeted education, community outreach, and incentives. Targeted strategies need to address:
  - ❖ Emissions from coal-fired plants and from automobiles.
  - ❖ Citizen awareness regarding ozone creation through volatile organic carbon (e.g., paint).
  - ❖ Transportation strategies to reverse the trend toward increases in Vehicle Miles Traveled in the Omaha metropolitan area.
  - ❖ The use of alternative energy and improvement in the efficiency of the city fleet, MAT, and other public modes of transportation.

2. **Minimize urban heat island effects.**

- 2.1. Incorporate microclimatic factors in site planning and design
- 2.2. Develop and implement urban heat island reduction plans in priority areas.
  - ❖ Identify existing urban heat island areas where strategies will have the greatest impact.
  - ❖ Use available modeling techniques to evaluate the effectiveness of the urban forest in shading and cooling within the urbanized area.



*Street trees provide shade for parking*

- 2.3. Adopt incentives for the use of green roofs; eliminate disincentives and obstacles in city codes and ordinance.
- 2.4. Adopt green roof design guidelines that follow “Industry Best Practices.”
- 2.5. Promote the use of roofing materials that will increase and maximize the albedo (reflectivity of solar radiation) of structures.



## ACOUSTIC ENVIRONMENT

Ensure that sounds and noise levels within the community promote a high quality of life and health for metropolitan area residents and avoid harmful effects of noise pollution on wildlife.

### Objectives:

1. **Minimize noise impacts of transportation corridors and other noise-producing land uses in the community.**
  - 1.1. Review and improve guidelines for reducing noise impacts in land use planning, in evaluating the relationship of land uses, and in the design of mixed-use developments.
    - ❖ Update the City's noise ordinance to better address noise impacts, particularly in mixed-use areas.
    - ❖ Assess current standards for buffers and screens scaled to the intensity of uses in the zoning code.
    - ❖ Assess the placement of development in relation to natural areas and the impacts of noise levels on habitats. Monitor effectiveness and adjust guidelines as needed.
  - 1.2. Minimize adverse noise impacts along major transportation corridors and airport zones.
    - ❖ Continue to require noise buffers in developments along major roadway corridors. Monitor effectiveness and adjust design standards as needed.
    - ❖ Maintain up-to-date mapping of noise contours by creating and maintaining information through current technology.
  - 1.3. Address the impact of traffic noise in planning for street rights-of-way, street widening projects, and adjacent development.
    - ❖ Consider noise impacts on human beings and wildlife in roadway design.
  - 1.4. Give priority to vegetative screens and living walls in the design of sound barriers because of the beneficial effects of plants on ozone issues and air quality.
2. **Increase the quality of public spaces and important civic areas by incorporating sound in their design.**
  - 2.1. Enhance public spaces with features that create appropriate sounds or at least mask sounds that make objectionable noise.
  - 2.2. Institute pilot projects to test effectiveness of using sounds to mask objectionable noise.

## WATER

Preserve and restore natural hydrologic features and their functions; provide opportunities for people to experience and connect with natural water features; reduce the impact of urbanization on stormwater quality and quantity; ensure the safety and security of the community's water supply; and ensure that water supply and demand is balanced and sustainable both for the community's long-term needs and in consideration of potential climate change impacts.

### Objectives:

1. **Base stormwater management plans on the characteristics of each watershed.**
  - 1.1. Conduct/support studies to evaluate the characteristics of watersheds and sub-watersheds as a basis for stormwater plans for areas in Omaha's jurisdiction that are not addressed in the current Papillion Creek Watershed Plan
  - 1.2. Ensure that the City's stormwater management programs follow the Papillion Creek Watershed Stormwater Management Policies
  - 1.3. Omaha should work through partnerships with other communities and entities for the purpose of managing stormwater.
  - 1.4. Periodically review Omaha's Stormwater Design Manual and implement enhancements that increase its utility as environmental conditions change.
2. **Prevent damage to aquatic ecosystems (rivers, streams, lakes, wetlands, and springs or seeps) resulting from development practices or from changes in hydrology as a result of development. Restore aquatic systems where feasible.**
  - 2.1 Identify potential aquatic ecosystem restoration projects and implement them through a variety of funding sources.
  - 2.2. Require conservation, restoration and/or mitigation of aquatic ecosystems as part of development and redevelopment projects which will drain into these creeks.
  - 2.3. Work with the Corps of Engineers to develop preferred techniques that may be used to streamline the regional and specific 404 permit process.
3. **Improve water quality in the metropolitan area's rivers, lakes, streams, and wetlands to meet or exceed state and federal regulations.**



- 3.1. The City should implement a long term control plan consistent with the consent order with the state of Nebraska Omaha CSO Program (omahacso.com)
- 3.2. The City will include efficient, practical utilization of “Low Impact Development” techniques in stormwater management for infrastructure and building projects. Continue to seek funds to implement low impact development demonstration projects and monitor the effectiveness of those projects.
4. **Minimize the potential for flooding as well as the potential cost of damage and loss of life in case of flooding. Control stormwater volumes that contribute to flooding, and prevent or reduce development within the floodplain.**
  - 4.1. Support studies to update flood mapping for all watersheds.
  - 4.2. Use “full build-out” flood elevations for development.
5. **Minimize the demand for water supply by promoting and adopting conservation measures.**
  - 5.1. Collaborate with entities such as the Metropolitan Utilities District and the Cooperative Extension Service to create demonstration projects, to develop local techniques for landscaping to reduce the consumption of potable water, and other conservation measures.



*Family kayaking at Cunningham Lake*

# Urban Form and Transportation

## Background

### *Problems and Opportunities*

The city's overall development pattern and how developments are designed significantly affect the distance and the way that people travel. The Urban Form and Transportation Advisory Committee focused on promoting development patterns--higher residential densities and mixed uses--that make active transportation such as walking and bicycling easy and even preferable and that support a choice to use public transit rather than requiring a dependence on driving and parking.

Compact, higher density development patterns shorten the distance people must travel to reach work, shopping, or other points of interest. Compact development allows people to conveniently walk or cycle to some destinations within a reasonable time. Higher densities also supply the potential ridership that can support more frequent transit service and a greater variety of routes. At the same time, well-designed density and compact development can contribute to vibrant, economically healthy neighborhoods and to centers that offer a variety of goods and services, social gathering places, recreation/entertainment opportunities and attractive character.



*Mixed-use development*

In Omaha, projects such as Midtown Crossing have demonstrated the opportunity to add to a neighborhood's revitalization through higher density mixed-use redevelopment projects. Opportunities also exist to redevelop older auto-oriented shopping centers into well-designed mixed-use areas with increased residential densities that improve the feasibility of public transit service and benefit the surrounding neighborhoods. At the same time, an awareness of the public costs associated with various development patterns and densities is needed to establish support for measures that promote the health of the existing City and avoid outward sprawl.

According to the Funders' Network for Smart Growth and Liveable Communities "Transportation energy usage, the number one user of petroleum fuels, could significantly be reduced through more compact and mixed use land development patterns served by a variety of transportation choices."<sup>23</sup>

The Urban Form and Transportation Advisory Committee looked at the opportunities for creating a more effective transportation system in Omaha by adopting design standards for Complete Streets<sup>24</sup>. The concept is focused on providing for pathways of movement that are pleasant, safe, and effective for active transportation while strategically including transit routes as well as accommodating automobiles.

In 2008 82% of workers in the Omaha area drove to work alone and nearly 10% car-pooled. Approximately 1% of the Omaha metropolitan area population reported using public transportation in their work commute,

just over 2% walked, and 1% used “other” means such as bicycling.<sup>25</sup> Although private autos seem to provide many people with convenience and independence, auto dependence is also associated with certain problems and costs:

- ❖ Traffic congestion
- ❖ Parking congestion
- ❖ Traffic accidents
- ❖ Road and parking infrastructure costs
- ❖ Automobile costs to consumers
- ❖ Inadequate mobility for non-drivers
- ❖ Excessive energy consumption
- ❖ Pollution emissions<sup>26</sup>

Benefits and opportunities resulting from increasing and strengthening diverse transportation modes in the Omaha metropolitan area may include:

- ❖ Consumer Benefits - Consumers can save money and time by avoiding the need to chauffeur non-drivers. Improved walking and cycling conditions allow people to combine utilitarian and recreation trips, providing cost savings and health benefits.
- ❖ Efficiency - Increasing transportation diversity helps reduce traffic congestion, facility costs, environmental impacts and consumer expenses.
- ❖ Equity - People who are physically, economically or socially disadvantaged can have basic mobility and affordable transportation.
- ❖ Livability - In places where walking and cycling are safe and pleasant, communities become more “livable,” and property values and commercial activity are increased.
- ❖ Resilience and Security - A diverse and flexible transport system can accommodate changes such as energy supply disruptions and fuel price increases, poverty, and transport system stresses such as disasters, major sport and cultural events, and infrastructure construction projects.
- ❖ Economic Development - Economic development is promoted by reducing transport problems and costs (traffic congestion, road and parking facility costs, accident damages, energy consumption) and by improving employee access to jobs.<sup>27</sup>

Another area of opportunity seen by the Urban Form and Transportation Advisory Committee was optimization of the function and use of the transportation system as a whole, planning the system through a regional scope. The Advisory Committee recognized that a whole-system view creates an opportunity for the public transit system to become an attractive option by its coverage and convenience, along with the ability to easily make connections between and among the various transportation modes within the system--a multi-modal system.



*Curitiba bus system is a model for rapid transit*

### Issues and Directions

Input from the public meetings and from discussions in the Urban Form and Transportation Advisory Committee identified these issues and directions:

- ❖ Form a regional model through consensus with surrounding jurisdictions on the importance of controlling sprawl and development patterns, and handling transportation and growth;
- ❖ Promote an understanding of the benefits of higher density that will enhance neighborhoods and the community through high quality design and reduced costs of public services;
- ❖ Develop in a pattern of clusters of destinations and safe routes to destinations; potential pattern of one-mile access to clusters, five minute or ¼ mile walking distance, three mile biking distance;
- ❖ Create a significant shift in transportation modes from private auto to pedestrian, bicycling, and public transit;
- ❖ Adopt a bicycle-friendly and pedestrian-friendly street design; identify “complete streets” design standards to support active transportation;
- ❖ Plan for public transportation for different needs; create a system that makes sense for all trips as well as all types of commuters—both rapid and slow transit; provide for convenient and safe interconnections between public transit and other transportation modes;
- ❖ Move toward an infrastructure for alternative fuels.

### Concepts

The Urban Form and Transportation Advisory Group used the following concepts to develop the overall statement, measurements, goals, objectives, and strategies contained in the following sections:

- ❖ Reduce the impact on the environment and the per capita cost of services;
- ❖ Accommodate the urban population through compact and contiguous development;
- ❖ Support a development pattern with a transportation network that promotes low-impact and active transportation modes;
- ❖ Ensure that land is developed as clusters of destinations within walking distance;
- ❖ Use a regional model for transportation and growth management to measure and evaluate the public costs and benefits of various development patterns and densities;
- ❖ Coordinate with other communities in the region to prevent sprawl by focusing development and



*Downtown view from First National Building*

- growth within existing communities;
- ❖ Promote well-designed higher density development to conserve land, to enhance existing neighborhoods, and to reduce per capita costs of public utilities, infrastructure, and services including public transportation;
- ❖ Design streets to make them safe and enjoyable for bicycles and pedestrians;
- ❖ Plan for and organize functional connections between and among various transportation modes.

### Urban Form and Transportation Overall Statement

Omaha will substantially reduce its impact on the environment and the per capita cost of critical infrastructure and municipal services and substantially increase its level of urban quality and community health by:

- ❖ Accommodating its potential urban population within a compact, contiguous urban area;
- ❖ Productively and effectively using all land within its 2010 municipal limits.;
- ❖ Supporting an efficient city form with a balanced transportation network that increases the role of low-impact and active transportation modes in providing access to all parts of the city.

### Measurements

We will measure our success by achieving five overall measurements toward sustainability at the end of the next 20 years:

1. Omaha’s population density will grow to 4,500 people per square mile. Our current population density is 3,489 people per square mile. Our population density in 1950 was 6,171 people per square mile.

#### The Target

1950			Existing			Future		
Population	Area (mi <sup>2</sup> )	Density (pop/mi <sup>2</sup> )	Population	Area (mi <sup>2</sup> )	Density (pop/mi <sup>2</sup> )	Population	Area (mi <sup>2</sup> )	Density (pop/mi <sup>2</sup> )
251,117	40.69	6,171	456,413	130.82	3489	600,000	135	4,500

#### Getting There

	Development or redevelopment/ reuse area (mi <sup>2</sup> )	Target density for new use (du/A)	Projected New Units	Projected New Population	Total Population	Total Density (pop/mi <sup>2</sup> )
New Land	15	4*	38,400	99,840	99,840	6,656
Existing 2010 City	5	8*	25,600	66,560	504,560	4,205
Total	20		64,000	166,400	604,960	4,477

\* Note: Aggregate minimum target densities for large areas rather than minimum densities for individual projects.

2. Ten per cent of all trips in Omaha will be made by active transportation modes – pedestrian, bicycle, and public transportation. Today about 2% of all trips and 4.4% of commuting trips are made by these modes.
3. Fewer than 65% of all work commuting trips will be made in single-occupancy automobiles by 2030. Currently, about 82% of commuting trips are made in single occupancy automobiles.
4. Using 2010 as the base year, decrease per capita motor vehicle miles traveled (VMT) by Omaha motorists by 10% by 2030. This will require creating a framework for measuring and monitoring VMT using indicators such as traffic modeling, traffic counts, gas consumption, population levels and or other relevant data. (Colorado Springs reference)

## ***Urban Form and Transportation Goal Summary***

### LARGE-SCALE CITY FORM

Develop a city form that both reduces both the per capita cost of providing city services and establishes the density necessary to support more energy-efficient forms of transportation.

### LAND USE AND DEVELOPMENT POLICY

Generate development at higher residential densities and true mixed uses that produce more diverse environments and reduce the number of necessary automobile trips.

### LAND DEVELOPMENT

Create individual developments with components that are connected, walkable, and accessible to all modes of transportation, by providing safe, defined, and pleasant routes from the public realm to destinations, based on the needs of each mode. Through redevelopment and change to underutilized areas, establish densities that support transportation alternatives.

### TRANSPORTATION NETWORK

Develop a transportation network that moves people and freight within and through the metropolitan area efficiently, maximizing access and minimizing vehicle miles traveled, energy consumed, and pollutants emitted.

### TRANSIT

Develop a public transportation system that offers a degree of coverage, convenience, and amenity, that both provides transportation equity for dependent customers and makes transit an attractive option for discretionary passengers.

### ACTIVE TRANSPORTATION

Provide a high level of citywide access and continuity to pedestrians and bicyclists, making active transportation a realistic and integral part of the city's transportation network.

## LARGE-SCALE CITY FORM

Develop a city form that both reduces both the per capita cost of providing city services and establishes the density necessary to support more energy-efficient forms of transportation.

### Objectives:

1. **Establish a minimum aggregate gross residential density in the range of 4 to 4.5 dwelling units per acre (du/acre) for new developable land converted from agricultural to urban use within Omaha’s projected urban services area. “Developable land” excludes areas that cannot be developed because of environmental resources or constraints such as streams and floodplains.**
  - 1.1. Amend the urban development policy (UDP) to establish an urban growth boundary whose modification is based primarily on population and density capacity rather than the percentage of land absorbed.
  - 1.2. Define target housing and population counts for each urban development policy sector, based on the 4 to 4.5 du/acre gross density standard. (Example: The target minimum number of housing units for a square mile of land within the zone of present development would range from 2,560 (640 acres x 4 du/acre) to 2,820 (640 acres x 4.5 du/acre).
  - 1.3. Monitor development density annually for the entire zone of present development, urban development policy sectors, and sections within those sectors. Recommend changes or modifications in development applications and proposals based on this annual review.
  - 1.4. Modify the UDP growth boundary when actual development in a sector achieves a specific threshold percentage of the housing production target for that sector.
  
2. **Establish a minimum aggregate gross density of approximately 8 du/acre for new development or redevelopment within the 2010 city limits.**
  - 2.1. Develop a citywide inventory of land within the 2010 city limits that is appropriate for residential or mixed use redevelopment. Based on this inventory, establish a minimum aggregate population and housing target for the land in this inventory, taken together.
  - 2.2. Annually monitor development density on new development,



*SOMA at 12th and Leavenworth Streets*

infill, and redevelopment sites within the 2010 city limits. Recommend changes or modifications in development applications and proposals based on this annual review.

- 2.3. Require any project that includes residential development that receives city development incentives such as tax increment financing (TIF) to achieve a minimum density of 8 units per acre, unless the project fills another critical development goal, such as income integration in low-income neighborhoods.
3. **Maximize the percentage of the metropolitan area population contained within contiguous areas fully served by urban infrastructure.**
  - 3.1. Work with other metropolitan planning jurisdictions to develop a regional growth plan that identifies future extensions of urban services and establishes baseline population and housing goals for new development in urban services areas.
  - 3.2. On a regional basis, prevent or control premature low-density development on lands within future urban services areas. Utilize innovative techniques such as build-through acreages to permit short-term development before extension of urban infrastructure without compromising long-term density targets.
  - 3.3. Initiate and support state legislation that includes incentives for extension of urban services consistent with local and regional comprehensive plans and that increases the ability of metropolitan planning organizations (MPO's) to coordinate regional growth policy.
4. **Employ conservation development techniques on a macro scale to preserve environmental resources, parks, greenways, and other open and natural areas without compromising overall density targets within Omaha's urban growth area.**
  - 4.1. In the comprehensive plan, prepare an open space preservation map, identifying major environmental resources, drainageways, large parks (including parks proposed in the Suburban Parks Master Plan), and other features that will form a web of permanent open space within the zone of present development.
  - 4.2. Modify target densities for urban development sectors based on the quantity of permanent open space contained within each sector.
  - 4.3. Encourage and support proposals for higher development densities on developable land within these sectors to compensate for these major open spaces.
  - 4.4. Create a continuous green and public space network that links these open lands together with ribbons of boulevards, trails, green corridors, and green streets.
5. **Establish true mixed use nodes that integrate residential activity centers, commercial development, and**

employment focuses into highly connected nuclei.

- 5.1. Establish both minimum and maximum percentages of land that can be placed in any one overall use category (e.g. residential, office, commercial, industrial) within mixed use areas designated by the comprehensive plan or within mixed use development proposals.
- 5.2. Apply standards established by the Urban Design Element to require a high degree of street, pedestrian, and open space connectivity among individual uses and to surrounding areas.
6. **Provide comprehensive public review of major transportation and infrastructure investments that tend to disperse population, encourage low-density development, and increase vehicle miles traveled.**
  - 6.1. Require an independent urban growth impact analysis of these projects to assess their impact on urban form and the ability of Omaha to meet the 2030 goals and measurements established by this plan. As part of this analysis, assess the benefits and impacts of the project.
  - 6.2. Include this analysis as part of any required reviews and approvals of the project by the Planning Board and City Council.
  - 6.3. Enact enforceable and specific area development plans that include land use controls to minimize these influences when such projects have clearly demonstrable public benefits.
7. **Ensure that regulatory standards and procedures, financing techniques, and public investment priorities do not favor low-density edge development over compact and/or mixed use projects, desirable development within Omaha’s 2010 limits, or redevelopment on underutilized sites. “Low-density” development has densities below the target density for its specific area, as established by the comprehensive plan.**



*New infill housing*

- 7.1. Complete a rigorous assessment of the relative impacts and equities of development regulations, financing methods such as Sanitary and Improvement Districts (SID) and TIF, and capital investments.
- 7.2. Correct or adjust policies that tend to favor low-density, decentralized development, or provide compensating tools to remove such a disparity.
- 7.3. Restructure regulatory and investment processes to encourage mixed use development, mixed-density housing, and infill development and redevelopment.
- 7.4. Determine the full cost to the city and region by allowing and supporting new development at the suburban fringe while vacant and underutilized properties exist within the urbanized area.
- 7.5. Expand the use of the Urban Development Policy to ensure that infill development and redevelopment are fully considered when extending the City's Present Development Zone boundary. Also, work with MAPA and other agencies to encourage the creation of an urban growth management system for the region.

## LAND USE AND DEVELOPMENT POLICY

Generate development at higher residential densities and true mixed uses that produce more diverse environments and reduce the number of necessary automobile trips.

### Objectives:

1. Encourage redevelopment of underused and/or obsolete commercial and industrial development sites within the 2010 city limits as mixed use developments or other suitable uses. In supportive environments, include medium- and high-density urban residential development as a preferred component of redevelopment projects.



*Renovation for mixed-use development in the Old Market*

- 1.1. Complete an inventory of potential reuse sites within the city. Include in this inventory an assessment of the range of appropriate uses for each site.
- 1.2. Maintain and market an “opportunity list” of underused and obsolete commercial/industrial sites that might be suitable for future redevelopment, with appropriate site development guidelines.
- 1.3. Adapt local tax increment financing applications to the redevelopment of underused or unused sites on a citywide basis. Adaptation includes the following steps:
  - ❖ Removing geographic limitations on TIF and other incentives for specific classes of projects, such as conversion of obsolete commercial or industrial sites to mixed-use development.
  - ❖ Through the legislative process, replace language in the state Community Development Law that requires a finding of “blighted and substandard” conditions with criteria that qualify an area or project as a “reinvestment” or “revitalization” district.
  - ❖ Amend both state and local criteria permitting the use of TIF to include a high level of vacancy (for example, 25% or above) in existing buildings, or a high percentage of underutilized land (for example, 50% of the land area in either disuse or unnecessary parking).
  - ❖ For projects that comply with this objective and are located within targeted areas, provide greater assistance through tax increment financing by extending the tax allocation period or using other techniques.

2. Provide regulatory, financial, and public realm incentives to produce desirable development within the 2010 limits.

- 2.1. Establish a public consensus for reinvestment by analyzing and presenting the relationship between the unit cost of city services and infrastructure (trash collection, snow plowing, street maintenance) and population density. Decouple the perceived relationship between high quality and low density/large lots.
  - 2.2. Create an incentive structure that encourages developers to incorporate significant residential use in commercial/retail projects. Incentives may include flexibility on zoning and comprehensive plan requirements and limitations.
  - 2.3. Create a land use regulatory framework that promotes mixed-use and mixed-density development rather than single-use districts. Consider applicability of “smart code” provisions to Omaha. Smart codes generally establish districts based on intensity and configuration of development rather than land uses, and establishes development guidelines that fit the character of those districts.
- 3. Strengthen neighborhood centers by maximizing the competitiveness of traditional centers, such as neighborhood business districts, and increase the walkability and coherence of potential neighborhood centers.**
- 3.1. Develop and promote new development financing tools such as transportation development districts and Community Commercial Districts that are available in other states and communities. These types of financing structures use dedicated sales taxes, above and below the line tax increment financing, special assessments and ad valorem levies, and other sources to finance eligible project costs. Efforts should include sponsorship of appropriate state legislation, working in common with rural and small city business district interests.
  - 3.2. Modify the business improvement district law if necessary to permit voluntary assessment districts by which residents in surrounding neighborhoods can help finance capital improvements in their neighborhood business district. Participation in the district is voluntary (although assessment obligations after agreeing to participate are not) and based on the premise that a strong neighborhood business district increases the value of surrounding residential property.
  - 3.3. Develop a “Shop Omaha’s Main Streets” campaign that includes joint marketing material and views neighborhood business districts as a collection of unique areas with the individual business districts, Convention and Visitors Bureau, and the Chamber.
  - 3.4. Promote mixed use redevelopment opportunities in neighborhood business districts, with an emphasis on supporting urban residential development.
  - 3.5. Adapt organizational or awareness-building techniques to potential neighborhood business districts to foster neighborhood vision and cohesion.
- 4. Eliminate or minimize conditions that diminish the economic value of established neighborhoods and endanger the security of investments in them. These conditions include land uses with negative operat-**

ing effects, environmental hazards, deteriorating housing conditions, poor site maintenance, street and sidewalk deterioration, transportation impacts, and other influences.

- 4.1. Create a website that allows citizens to identify blighted conditions for city follow-up action.
  - 4.2. Consider initiating state legislation that gives neighbors standing to seek civil damages against owners of deteriorated property that demonstrably affects the value of their properties.
  - 4.3. Maintain aggressive code enforcement and property maintenance programs.
  - 4.4. Provide community-wide volunteer assistance to people who have difficulty maintaining or repairing their own properties.
5. **Orient Omaha’s development community to mixed use development within the established city as well as new “Greenfield” growth on the urban edge.**
- 5.1. Encourage a value-added trade association connecting developers who have developed or are interested in developing urban redevelopment and mixed-use projects.
  - 5.2. Organize a series of Smart Growth Conferences to present the economic rewards of mixed use development.
6. **Create a balanced transportation infrastructure that supports transit oriented development (TOD’s), neighborhood connectivity, high-density residential settings, and a high-intensity, mixed use central corridor.**
- 6.1. Develop a rapid transit framework affordable and feasible for Omaha but with sufficient impact to create conditions that generate transit oriented development.
  - 6.2. Study the use of a fixed guideway system as a catalyst to generate a high-density mixed use central corridor between Downtown and the University of Nebraska Medical Center.

## LAND DEVELOPMENT

Create individual developments with components that are connected, walkable, and accessible to all modes of transportation, by providing safe, defined, and pleasant routes from the public realm to destinations, based on the needs of each mode. Through redevelopment and change to underutilized areas, establish densities that support transportation alternatives.

### Objectives:

1. **Apply standards for Areas of Civic Importance (ACI's) and Major Commercial Corridors (MCC's) in advance of, rather than in reaction to, new development.**
  - 1.1. Systematically enact ACI and MCC overlays in areas identified in the Urban Design Element. Begin the process with stakeholder meetings that present the implications and benefits of the overlay districts.
  - 1.2. Conceive of developments as part of either horizontally or vertically mixed use "projects." Horizontally mixed use projects may involve single-use components that are highly connected to each other by streets, greenways, and pedestrian systems. Vertically mixed use projects add vertical integration of different uses in single buildings.
2. **In new areas, apply a neighborhood unit concept to walkable residential design, with a civic heart that may include a neighborhood common and/or school, connected to surrounding residential neighborhoods and to mixed use centers oriented to principal external intersections.**
  - 2.1. Add a level of detail to the land use plan that establishes a diagrammatic framework for neighborhood units.
  - 2.2. Encourage broader use of the Walkable Residential Neighborhood (WRN) overlay district proposed by the Urban Design Element. Examine the WRN proposal for provisions that may discourage its broader use.
  - 2.3. Modify subdivision regulations and street and sidewalk network development standards that encourage links and route options to important neighborhood features.
  - 2.4. Provide internal and external street, pedestrian, and bicycle connections between adjacent neighborhoods that, taken together, generate network continuity.
  - 2.5. Locate park dedications and school sites consistent with the neighborhood unit concept of a civic heart. This concept is consistent with the city's adopted Suburban Parks Master Plan.
3. **Reduce the amount of land devoted to the storage of motor vehicles.**
  - 3.1. Adjust parking requirements for complementary mixed uses in mixed use projects.
  - 3.2. Establish optimum parking requirements based on typical rather than incidental peak loads.

- 3.3. Create disincentives for exceeding optimum parking requirements, based on excessive impact on the landscape, stormwater management, and inefficient use of land. Disincentives may include a financial impact fee or additional performance or site development requirements.
4. **Require project designs that provide direct, safe, and secure links for pedestrians and bicyclists between the public environment and most commercial and office developments.**
  - 4.1. Review and amend current city codes to require bicycle and pedestrian access and connections for major projects.
  - 4.2. Include external and internal pedestrian and bicycle access and links as criteria in the project review and approval process.
  - 4.3. Provide bicycle parking in large projects and projects in locations that are likely to experience substantial future bicycle traffic.
5. **Increase the number of transit oriented developments and provide both the transit infrastructure and related facilities necessary to support them.**
  - 5.1. Require development designs that cluster buildings for maximum transit access, yield, and destination options for transit users.
  - 5.2. Build a transit infrastructure with the solidity and capability necessary to influence development patterns.



*Infill development site*

## TRANSPORTATION NETWORK

Develop a transportation network that moves people and freight within and through the metropolitan area efficiently, maximizing access and minimizing vehicle miles traveled, energy consumed, and pollutants emitted.

### Objectives:

1. **Create a multi-modal transportation network that provides access to most significant community destinations for motorists, transit users, bicyclists, pedestrians, and personal transportation vehicles.**
  - 1.1. Complete and implement a Balanced Transportation Plan as the transportation element of the city's comprehensive plan. The Balanced Transportation Plan should address all modes as integral parts of the overall transportation system, and will guide city transportation investments for the next twenty years.
  - 1.2. Establish a permanent commitment within City government to a balanced system and to each constituent mode.
  - 1.3. Establish a unified transportation network financing system that has the flexibility and fungibility necessary to fund and sustain a multi-modal network.
  - 1.4. Accommodate transit, bicycle transportation, and pedestrian access into all major network investments as a default policy. Exclusion of any of these modes should require a project review that identifies alternatives that provide similar or better accommodations. Within the next five years, execute at least five strategic complete transportation projects that demonstrate techniques and efficiencies of this policy.
2. **Create a financing structure for the development and maintenance of the balanced transportation network that is stable and consistent with public policy goals, including use of vehicles with maximum fuel efficiency, compact development, and reduction in vehicle miles traveled.**
  - 2.1. Use vehicle miles traveled (VMT) or alternative techniques as a basis for user-financed maintenance of the transportation network.
  - 2.2. Implement a user-based funding program capable of funding a significant share of maintenance of the city's on-street bicycle transportation infrastructure.
3. **Reduce congestion and increase access by increasing connectivity, reducing friction between through and local traffic movement, and providing multiple routes to destinations between neighborhoods.**
  - 3.1. Design and use a "connectivity index" or other measure that evaluates street connections in project proposals.
  - 3.2. Maintain current comprehensive plan policies that require street connectivity at half- and quarter-mile points within development areas defined by section-line roads.

- 3.3. Require internal street connections between major commercial and mixed use developments and adjacent neighborhoods. Design connections to prevent undesirable cut-through traffic within residential neighborhoods.
  - 3.4. Utilize techniques such as “rearage” roads and access loops to provide local access to development along major arterial corridors. Require that such access techniques also accommodate alternative transportation modes.
  - 3.5. Implement H.W.S. Cleveland Boulevard and other boulevard and parkway links envisioned by the adopted suburban parks master plan as local corridors that emphasize low/moderate-speed inter-neighborhood traffic, and bicycle and pedestrian transportation within a high-quality street environment.
  - 3.6. Complete a street and sidewalk connectivity analysis of the existing network to identify opportunities to create or improve performance.
4. **Implement a street design program that responds to urban contexts and the role of streets as public spaces. Incorporate green streets, featuring sustainable landscaping standards, streetscape elements, and effective storm water management practices, into this program.**
    - 4.1. Analyze and map various development contexts served by the transportation network.
    - 4.2. Unify and operationalize Omaha’s existing street design plates, the Green Streets Master Plan, the streetscape manual, subdivision regulations, and Environment Omaha recommendations into a new, consolidated design manual. Create an inter-departmental committee to create this unified manual and to define initial corridors and projects for implementation. Establish a specific time period for completion and application of this unified manual.
    - 4.3. Integrate features into street designs that control speeds without compromising safety to any class of street users. Recognize the danger of over-designed streets that encourage travel at unsafe speeds. Within the balanced transportation element and the unified street design standards, proposed above, establish guidelines and techniques that will reduce the propensity of motorists to travel at speeds that are inappropriate to their contexts. These techniques include narrower lane widths; bike lanes; improved pedestrian crossings; traffic calming devices such as roundabouts or traffic circles, neck-downs and curb extensions, chicanes, and other techniques; street alignments; enhanced street landscaping; and streetscape features that add human scale.
    - 4.4. Require design consultants on city projects to consider street projects as designed environments that respond to their urban contexts. Utilize internal reviews and the Urban Design Review Committee to review and approve street project designs.
    - 4.5. Establish a base level for “green street” features that are included in basic project costs. Direct existing programs (such as the Transportation Enhancements program) and new funding sources (such as an “urban design bond program”) to enhancements and retrofit projects.

- 4.6. Assure that Omaha receives a proportionate share of state-administered Transportation Enhancement funds and subsequent programs designed to encourage alternative transportation.
- 4.7. Invest in streets and the public environment in ways that create a sustained and desirable private market response within neighborhood centers and business districts (see Land Use and Development Policy Objective 3). In established areas, consider capital projects that upgrade the street environment to be equivalent to transportation investments and capacity improvements in developing areas.
- 4.8. Institute a multi-variable framework to guide the design process in planning, designing, and evaluating street improvement projects. Examples of criteria include:
  - ❖ Transportation Performance: mode share, safety and level of service (LOS). A lower LOS may be advisable to accomplish other objectives in strategic settings. (For example, the South 24th Street project degraded traffic operations but created a much stronger local business district)
  - ❖ Community Development Performance: The effect of the project and its design to enhance (or at least not degrade) the urban environment and to create urban places.
  - ❖ Economic Performance: The ability of the project to generate additional economic opportunity and improve commercial viability/compatibility, service, and values of adjacent development.
  - ❖ Community Health Performance: Accommodation within the project for active transportation, physical activity, and reduction of greenhouse gas emissions.
  - ❖ Sustainability Performance: Use of materials and techniques that can be efficiently maintained, minimize or contain environmental impacts, avoid disturbance to unusual resources, and make maximum use of sound environmental management practices.

5. Establish and implement a Complete Streets program that establishes a network of multi-modal streets providing appropriate features to accommodate motor vehicles, bicycles, pedestrians, and public transportation.

- 5.1. Define the city's Complete Street network through a Balanced Transportation Element of the comprehensive plan. Use this network as a guide for street design projects and bond issues.
- 5.2. Coordinate the complete street network with alternative transportation initiatives, including an emerging Metro Area Transit system and BikeOmaha.



*Complete streets*

6. **Facilitate an infrastructure that supports alternative fuels as these vehicles reach market scale.**
  - 6.1. Work with the Omaha Public Power District and private owners to establish demonstration electric charging facilities at strategic locations when straight electric or plug-in hybrids reach a threshold level.
  - 6.2. Provide permissive zoning and potential incentives to encourage private development of charging facilities and infrastructure for other alternative fuels, such as compressed natural gas, hydrogen, biofuels, and other potential sources.
  - 6.3. Establish a baseline and a target in 2011 that will aggressively reduce transportation-related greenhouse gas emissions by 2030. When established, place this measurement in the “Measurement” section.
  
7. **Expand the use of technology and innovative design techniques to maximize the capacity of the street system within a fixed street section.**
  - 7.1. Test and implement new management technologies, such as adaptive controllers for intersections that continually monitor traffic via cameras for all approaches and adjust the signal timing immediately in response to demands.
  - 7.2. Expand efforts to improve corridor timing of traffic signal controllers to reduce congestion and delays.
  - 7.3. Increase the percentage of transportation funding directed to technology and traffic system management in relation to capital roadway projects. Recognize that investments in these technologies can minimize or delay the need for more expensive and intrusive measures such as lane additions.
  - 7.4. Continue to monitor advances in traffic management technologies and their application to Omaha.
  
8. **Apply development criteria to new corridors if and when they are established that prevent or minimize population dispersion and non-contiguous development.**
  - 8.1. Develop land use master plans, incorporated by ordinance as comprehensive plan sections, to control the nature, density, and timing of development in new corridors.
  - 8.2. Unify city, county, and metropolitan planning policies to apply these land use plans to areas outside the jurisdiction of the City of Omaha.
  
9. **Expand the use of low and moderate speed motorized urban vehicles (such as low speed electric vehicles, scooters, electric bicycles, and future technologies), characterized by ultra-low emissions and extremely high fuel efficiency, for appropriate urban trips.**
  - 9.1. Define a legal and geographic context for the on-street operation of low-speed, high-efficiency urban vehicles. The context should consider speed limits of various streets, operating zones, and perfor-

mance and safety standards for vehicles.

- 9.2. Develop and implement regulations that address the use of motor-assisted personal mobility vehicles on portions of the city's active transportation infrastructure (multiple-use pathways, trails, bicycle lanes, and sidewalks). Personal mobility vehicles include Segways, electric bicycles, and very low-emission personal scooters. These regulations should address the size and performance limits of PMV's; compatibility with active transportation modes, types of permitted vehicles, methods of propulsion, tax status, and impact on infrastructure.
- 9.3. Create a marketing campaign that encourages people to acquire and use vehicles appropriate to the nature and length of their specific trips.

**10. Provide for efficient intercity movement of freight and people in and through the metropolitan area, while reducing conflicts between through and local movements.**

- 10.1. Support projects that route intercity truck traffic not bound for Omaha away from major in-city highway corridors, extending the service life and capacity of those corridors (such as Interstate 80 through Omaha). Require that adequate land use controls be put into place to minimize premature development along these corridors.
- 10.2. Create seamless intermodal hubs to connect people and freight at a low financial and social cost.
- 10.3. Improve ground transportation services linking Eppley Airfield, Downtown, and other key community destinations for air travelers arriving in the city. Consider high-image, direct public transportation services that provide direct and rapid access to destinations, rather than local services that are unattractive to intercity travelers.
- 10.4. Coordinate public and private airport ground transportation services, and provide good transportation access for employees.
- 10.5. Maintain good connections between general aviation airports and ground transportation if demand emerges without incurring unsustainable new costs.
- 10.6. Participate in initial interstate discussions to bring enhanced passenger rail services to Omaha. Probable initial targets include additional Chicago-Omaha-Lincoln service via Des Moines and the Quad Cities, and direct north-south service to Kansas City.
- 10.7. Participate as required in projects that minimize delays in rail service for freight, and minimize potentially hazardous conditions, such as grade crossings.
- 10.8. Establish new routes that take truck traffic originating in older industrial districts away from emerging mixed use corridors such as North Downtown.
- 10.9. Promote carpooling and flexible work hour arrangements.

## TRANSIT

Develop a public transportation system that offers a degree of coverage, convenience, and amenity that both provides transportation equity for dependent customers and makes transit an attractive option for discretionary passengers.

### Objectives:

1. **Develop a broad-based community consensus on the need for a quality transit system. Allocate the necessary resources to build and operate such a system.**
  - 1.1. Conduct an education campaign for the Omaha metropolitan area on the economic benefits of a strong and adequately funded transit operation.
  - 1.2. Apply the findings of a targeted zip code telephone survey to obtain baseline data for use in performing a revised system needs analysis. Completion of the survey is scheduled for early September 2009.
  - 1.3. Complete an updated system needs analysis, to include potential new routes and service expansions. Obtain community feedback through use of public forums and presentations. Have process completed by spring 2010.
2. **Establish Metro as a regional transit district, encompassing a metropolitan area-wide route structure and financing base for public transportation.**
  - 2.1. Clarify Metro's ability to expand to a regional authority set forth by state statute in the next legislative session. Some key issues include funding, taxing authority and limitations, and governance.
  - 2.2. Meet with officials in a potential regional transit district (including Council Bluffs, Sarpy County, Washington County, Bellevue, Blair, Gretna, La Vista, Papillion, and Ralston to review service needs and system design. (Discussions with Bellevue, La Vista, Papillion and Ralston are underway).
  - 2.3. Reconstitute Metro as a regional district with an equitable funding system possibly based on level of service to various jurisdictions; based on results of the above actions.
3. **Develop a metropolitan transit system that integrates different functions and demands of the metropolitan market – rapid long-distance service, local services, circulators, and flexible services that respond to individualized requirements.**
  - 3.1. Complete a master plan for the development and funding of a comprehensive transit network, incorporating a full spectrum of services. Use the current survey and needs analysis processes to provide base information for the plan's directions.
  - 3.2. Address at least the role and potential application of the following service types within the transit plan:

- ❖ Bus rapid transit (BRT), with limited stop, high image, all-day services along transit corridors with highest densities, concentrations of destinations, and heaviest current use.
  - ❖ Local services intersecting rapid transit services along other major corridors.
  - ❖ Neighborhood-based circulators that provide fine-grained, flexible services that intersect both local and rapid transit services.
  - ❖ Peak-hour only express services.
  - ❖ Future use of higher-order transit services, including fixed guideway or exclusive right-of-way operations.
- 3.3. Include a phasing and financing program, and begin orderly implementation of the transit plan.
4. **Create a strategic framework of rapid transit substantial enough to influence development patterns, but appropriate to both reasonably available resources and the configuration of the city.**
- 4.1. Establish new proto-BRT services in the short-term at relatively low cost that are capable of demonstrating the potential of bus rapid transit, utilizing existing streets. The service should include limited stops with distinctive shelters, high-image vehicles with LRV-like design characteristics, and all-day operation that complements local services. Operate the new demonstration service at least on the east-west Dodge Street route and consider other well-performing candidate routes.
- 4.2. Identify and implement technologies, operating preferences, and infrastructure features for the BRT that can be implemented in the short-term.
- 4.3. Adjust existing local and circulator routes to provide direct and convenient connections to the proto-BRT services.
- 4.4. Use lessons learned through this experience to institute a more comprehensive rapid transit framework.
5. **Locate major public facilities, hospitals, services, and employment centers at sites with good all-day access for transit users.**
- 5.1. Designate transit-oriented development nodes to guide the location of significant community destinations at points of maximum access by all modes of transportation. Use public facilities as initial “seeds” to channel the development of these nodes.
- 5.2. Use the zoning ordinance to establish good transit access as a required condition for specific land use types. Define “good transit access” as sites with all-day service and headways no less frequent than 30 minutes.

- 5.3. Use the development review process to establish transit access as a criterion for approval. Include Metro Area Transit as a party to internal project review.
6. **Develop a strong transit system identity with a highly positive image. Operate the system with “green,” clean, high-image, and attractive vehicles and support facilities, including use of alternative fuels and means of propulsion.**
  - 6.1. Encourage Metro to continue converting its fleet to ultra low emission vehicles.
  - 6.2. Commission and implement a new transit design program, to be applied to all aspects of the system within a year from roll-out. To maintain brand integrity, cap the percentage of the fleet wrapped by advertising.
  - 6.3. Upgrade the level of vehicle interior and exterior appearance.
7. **Utilize technology and improved access to information to increase transit’s competitiveness with private automobiles and increase access for transit-dependent customers.**
  - 7.1. Focus on real-time information, expedited operations, and route flexibility to meet demands. This could include on-bus WI-FI and GPS bus location information at major stops.
  - 7.2. Apply technology on circulator or neighborhood service routes to provide “field” rather than fixed route services.
  - 7.3. Establish a regional transit brokerage system to coordinate transit trips for elderly, disabled, and low income between Metro / MOBY, HHS, and other public and private providers.
  - 7.4. Improve Metro’s online services to the public including continued website upgrades.
8. **Maximize multi-modal transportation by strengthening the point of transfer from one mode to another (pedestrian to transit, bicycle to transit, or motor vehicle to transit), or between intersecting routes. Coordinate the city’s bicycle and transit systems to expand the use of the bicycle and personal mobility vehicles (PMV’s) as a means of local circulation.**



*Bicycle rack on Metro bus*

- 8.1. Coordinate the city's bicycle and transit systems to expand the use of the bicycle as a means of local circulation.
  - 8.2. Strengthen bicycle/bus intermodalism with features at transit centers that encourage bike to bus transfers. Features should include convenient bicycle parking, maps, and other amenities.
  - 8.3. Incorporate a Bicycle Station, offering secure storage, light repair, and retail services at a new Downtown Transit Center. Issue a competitive request for proposals for operation of the station, offering nominal rent and other incentives to qualified private operators.
  - 8.4. Incorporate vehicle parking when possible at transit center developments to promote park and ride.
  - 8.5. Incorporate existing Metro route information on bicycle/trail maps. Relocate and/or add stops to assure convenience from one mode to the other.
  - 8.6. Establish new transit centers serving Downtown and Midtown. Coordinate development of a state-of-the-art Midtown Transit Center with UNMC campus development.
  - 8.7. Use City project review and zoning approvals to require projects developed at transit center sites as identified by the balanced transportation element and Metro's comprehensive transit system development plan to accommodate the facility according to specific access and convenience criteria.
  - 8.8. Respond to emerging demand for new services, including intercity and commuter passenger rail services; and local, rapid, and regional bus services. With this response, develop an intermodal center that serves these emerging modes.
9. **Study the use of a fixed guideway system such as a modern streetcar with supportive feeder services along potential development corridors (such as Downtown to UNMC or 24th Street to North Omaha), to produce and support high-yield, mixed-use development or meet community development and reinvestment objectives.**
- 9.1. Complete current studies/small starts and alternatives analysis.
  - 9.2. If feasible, seek funding and implement the study.

## ACTIVE TRANSPORTATION

Provide a high level of citywide access and continuity to pedestrians and bicyclists, making active transportation a realistic and integral part of the city's transportation network.

### Objectives:

1. **Develop and maintain a comprehensive citywide bicycle system composed of multi-use pathways, complete streets, shared streets, and other links that meet the following criteria of service to most community destinations:**

- ❖ Coherence
- ❖ Directness
- ❖ Safety
- ❖ Attractiveness
- ❖ Comfort

- 1.1. Complete major commuter trail elements of the city's proposed multi-use pathway system by 2020. These major elements include the East-West Trail, connecting the Keystone and Field Club Trails; the Riverfront Trail from Bellevue to Boyer Chute; the West Papio Trail from Millard to Papillion; the 180<sup>th</sup> Street Trail; the Elkhorn/West Branch Trail from Elkhorn to the West Papio Trail; the Keystone Trail from Cunningham Lake to Democracy Park; and the Big Papio Trail from Bennington to Maple Street.
  - 1.2. Expand the initial Bike Omaha pilot system into a 200-mile, primarily on-street system to complement the multi-use pathway system. The Bike Omaha system uses bike lanes, shared routes, off-street pathways, and identification and directional graphics.
  - 1.3. Provide a range of on- and off-street facilities within the system that respond to the skills, capabilities, and comfort levels of various types of bicyclists.
  - 1.4. Complete a Balanced Transportation Element of Omaha's comprehensive plan that places a high priority on active transportation. Develop a bicycle infrastructure master plan and capital development program as part of this document.
  - 1.5. Establish a user-based program to fund maintenance and upkeep of the city's emerging on-street bicycle infrastructure. A potential funding source is a surcharge on sales of bicycles and bicycle-related items, with all proceeds dedicated to system maintenance and development.
2. **Identify, conceptualize, and in the long-term develop a major east-west bicycle/pedestrian corridor. The facility may share a corridor with motor vehicles, but be separated or insulated from conflicts with automobile traffic.**



*Bicycles outside north downtown shop*

- 2.1. Identify and evaluate possible east-west corridors.
- 2.2. Develop a conceptual long-term design for the east-west corridor, for future implementation.
3. **Develop educational, outreach, and capital programs that make bicycle transportation a logical choice for certain types of trips, including short trips of three miles and under in Omaha.**
  - 3.1. Design and implement a Bicycle Ambassador program in metropolitan area schools, based on Chicago's ambassador program.
  - 3.2. Provide a bicycle education program that focuses on specific areas in succession, based on a Portland model and designed to increase the percentage of people using bicycles on a neighborhood-by-neighborhood basis.
  - 3.3. Encourage and assist with district-wide bicycle sharing programs, where such programs are both appropriate and efficiently solve local transportation problems. An ideal pilot project would involve a bike-sharing district uniting UNO's north and south campuses and Aksarben Village.
4. **Provide adequate bicycle parking throughout the city.**
  - 4.1. Install 1,000 individual bicycle parking installations in the public realm by 2030 or an annual goal of 50, consistent with adopted city standards. Concentrate installations in Downtown, local business districts, mixed use nodes, schools, hospitals, and similar high-demand locations.
  - 4.2. Require convenient bicycle parking in development projects with parking lots over 50 stalls located on or near a component of the city's planned bicycle system.
5. **Establish a clear understanding of the rights of bicyclists and pedestrians, and a mutual respect for the responsibilities that motorists, motorcyclists, bicyclists, and pedestrians have for one another. Enact laws that enable safe operation of all vehicles on shared rights-of-way.**
  - 5.1. Enact safe bicycling practices that enable safe operation of all vehicles on shared rights-of-way. A provision of these laws should provide a minimum safe passing distance for automobiles passing bicyclists. Additionally, establish laws that recognize the differing operational characteristics of motor and human-powered vehicles.
  - 5.2. Design and implement an educational campaign to inform the public of the rights of bicyclists and pedestrians and how they fit within the transportation environment. Use drivers' education and license renewal processes as points of entry for this campaign.
  - 5.3. Increase the number and reach of League of American Bicyclist-approved Bicycle Education programs in Omaha, including corporate participation.

- 5.4. Implement design standards that provide clear crosswalk markings, sidepath crossings, and appropriate cautionary signage.
- 5.5. Maintain strong positive relationships between the Omaha Police Department and the bicycling community, and provide strong enforcement of existing ordinances.
- 6. **Make safe routes for children on foot and bicycle to schools, parks, recreation facilities, and other features of their neighborhoods a priority for Omaha.**
  - 6.1. Complete a specified number of neighborhood-based mobility audits annually that identify obstacles to safe access for children to school and other neighborhood destinations.
  - 6.2. Establish a “neighborhood access rehabilitation programs,” analogous to the neighborhood street rehabilitation program, to remove obstacles (both physical barriers and administrative policies) that discourage or prevent children from walking or cycling to these neighborhood destinations.
- 7. **Maintain pedestrian access to destinations in commercial districts and employment centers, and ensure that safe access is maintained throughout the public realm.**

7.1. Require that private developments, such as retail and employment centers have safe routes for pedestrians and bicyclists from adjacent streets, sidewalks, and pathways; adequate bicycle parking; and internal walkways. Ensure that planned connections are implemented during construction.



*One Pacific Place*

7.2. Design and maintain sidewalk and pedestrian system continuity through neighborhoods.

7.2. Implement snow removal and construction policies that maintain accessible sidewalks on a year-round basis in both the public and private environment.

8. **Achieve “gold” status in the League of American Bicyclist’s Bicycle Friendly Community program.**

- 8.1. Maintain close communication with the LAB to monitor progress toward BFC designation
- 8.2. Implement programs within two years that sufficiently accomplish at least “bronze” BFC status.

# Building Construction

## Background

### *Problems and Opportunities*

Commercial and residential buildings use 40% of the energy consumption in the U.S. including 70% of the electric utility use according to the Department of Energy.<sup>28</sup>

A study conducted for the Nebraska Energy Office in 2009 concluded that implementation of an Advanced Energy Code for Nebraska would result in cost savings to building owners, energy savings in terms of utility demand, and a reduction in pollutants to the air and waterways in the state.<sup>29</sup> In addition building construction can generate a significant amount of waste material, much of which could be minimized, reused or recycled.<sup>30, 31</sup>

Environmental impacts in building construction relate to energy and resource consumption, disposal of waste products, exposure to harmful substances which occur in the production of building components, during the construction process, and throughout the lifecycle of the building (heating, electricity use, carpet cleaning etc.). The Building Construction Advisory Group focused on the need to reduce those environmental impacts from new construction as well as from building renovation. Green building design and retrofitting provide opportunities to increase energy efficiency, and to incorporate alternative energy sources such as geothermal or solar where the site and building design can accommodate them. “Life cycle assessments” can be used to save on long-term costs by designing conservation of water and materials into the construction and operation of buildings.

The Rocky Mountain Institute says that “The goal of green building is to coordinate such interconnected issues as site and building design, energy and water efficiency, resource-efficient construction, lighting and mechanical design, and building ecology, and optimize all these aspects in an integrated design.”<sup>32</sup>

The Building Construction Advisory Group also recognized that Omaha’s existing buildings are a valuable resource—they provide character to the city and its neighborhoods and they represent a significant amount of “embodied energy”—the energy already expended in the materials and construction of the existing buildings.



*Kutak Rock Building*

Retrofitting existing buildings to improve energy conservation is the most significant opportunity for reducing energy consumption in the community.) It has been estimated that for the average American homeowner, efficiency retrofits will result in 20-40 percent annual energy savings.<sup>33</sup> The economic benefits to Omaha’s residents and businesses will be considerable and are especially significant to lower income families where the cost of energy for a home takes a proportionately higher amount of income.

The Building Construction Advisory Group emphasized striving for “regenerative” design—aiming for a beneficial effect that goes beyond minimizing impacts by incorporating processes that integrate human needs with the natural processes. Regenerative design creates opportunities to restore, renew or revitalize a building’s own sources of energy and materials to create sustainable systems. The benefits may include clean water, clean air, production of food, energy conservation and energy production.<sup>34 35 36</sup>



*National Park Service LEED Certified building*

Building sites—the land upon which buildings are constructed—relate to sprawling development patterns and the consumption of arable land, changes in stormwater infiltration that increase flooding, erosion of soil resulting from removal of protective vegetative cover, and transformation into landscapes with high energy and water requirements for maintenance. Using opportunities for land conservation practices such as infill development locations and increased development density on sites in proximity to transit routes and stops will further Omaha’s sustainable community goals for minimizing consumption of land. Building orientation for passive solar design, landscaping for energy conservation, on-site storm water management, and urban agriculture are some of the components in sustainable building construction that would benefit Omaha by reducing energy demand, minimizing flooding and other stormwater damage, and reducing the public cost of removing pollutants in stormwater.<sup>37</sup>

### *Issues and Directions*

The Building Construction Advisory Group and comments from the public identified the following issues and directions:

- ❖ New expectations for sustainable building practices are needed in the market. Create market changes through demand based on a critical level of community awareness and understanding and through practices such as recycling construction waste.
- ❖ Local information and resources on the benefits of energy savings and occupants’ health are needed for both residential and commercial construction.
- ❖ Financial incentives may be necessary to start the momentum that should eventually become general practice; tax breaks or reduced fees may be appropriate initially.
- ❖ Publicly funded projects and projects receiving public incentives such as TIF projects should be required to meet a higher standard.
- ❖ Regenerative buildings should be the goal. This requires a “whole systems” approach to building design and construction. This means integrating the systems within a structure such as energy and material use, water and wastewater, structural design and so forth, so that the building itself can

provide for such needs as energy, food, clean air, and clean water.

- ❖ The conservation value of existing buildings and neighborhoods needs to be recognized when making development decisions.

### *Concepts*

The Building Construction Advisory Group used the following concepts to develop the overall statement, measurements, goals, objectives, and strategies contained in the following sections:

- ❖ Maximize the functional, economic, and cultural value of existing buildings and sites and improve their environmental performance.
- ❖ Create regenerative communities that produce renewable energy; feed people; promote clean water; improve health; incorporate waste into the nutrient cycle and demonstrate sustainable living.
- ❖ Minimize waste through the reuse and recycling of building materials, packaging and yard waste.
- ❖ Create places where active transportation and pedestrian activity are a priority while promoting techniques such as infill development, increased density, and mixed uses.



*Aksarben Village*

## Building Construction Overall Statement

Omaha seeks to lead the nation through innovative building construction, renovation, and maintenance approaches that create a “regenerative community” designed to have a net positive and affordable impact on Omaha’s environment, economy, culture and quality of life. Omaha will accomplish this vision by:

- ❖ Maximizing the use of existing structures and developed land by making the maintenance, renovation and reuse of those properties its first priority.
- ❖ Encouraging building design, construction and renovation techniques that efficiently use materials, land, water and energy in both construction techniques and long-term operations.
- ❖ Promoting the reuse and recycling of building materials, packaging and yard waste.
- ❖ Ensuring that all buildings provide safe, healthy living and working environments.
- ❖ Promoting, creating and maintaining attractive, inspiring and productive places that enhance the quality of life in the city.
- ❖ Creating buildings and landscapes that produce food, support clean energy and improve air and water quality.
- ❖ Creating places where active transportation and pedestrian activity are a priority and personal vehicles are accommodated.
- ❖ Encouraging the development of mixed-use buildings.
- ❖ Providing tools, resources and education to encourage the private sector to achieve the goals and objectives of the plan.



2223 Dodge Street

## Measurements

41% of energy consumption today is from residential and commercial buildings. A recent report prepared by McKinsey Global Energy and Materials finds that holistic investments in energy efficiency could result in a reduction of end-use energy consumption of approximately 23% of projected demand by 2020. The potential Return On Investment (ROI) on residential energy efficiency improvements is between 12.5 – 30% (Chicago Climate Action Plan).

With this in mind, Omaha will:

1. Meet the goal of the AIA (American Institute of Architects) 2030 Challenge to achieve carbon-neutral buildings by 2030 through commitment to a philosophy of adoption of progressive codes and standards that achieve the following targets:

Non-Residential:

- a. Beginning as soon as possible all new buildings and major renovations shall be designed using

sound building science practices to meet an energy consumption performance standard of 24% more efficient than the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) 90.1 – 2007 requirements.

- b. Annually renovate a minimum of 5% of the city’s 2010 building area to meet an energy consumption performance standard of 24% more efficient than ASHRAE 90.1 – 2007 requirements.
- c. The energy consumption performance standard for all new buildings and major renovations shall be progressively increased by an average of 4% annually to achieve net-zero energy use by 2030.

Residential:

- a. Beginning as soon as possible all new construction and major renovations shall be designed using sound building science practices to meet an energy consumption performance standard of a minimum Home Energy Rating System (HERS) index of 70.
- b. Annually renovate a minimum of 5% of the city’s existing homes to meet an energy consumption performance standard of a minimum HERS index of 70.
- c. The energy consumption performance standard for all new construction and major renovations shall be progressively increased to achieve net-zero energy use by 2030.



*New apartment construction*

These targets may be accomplished by implementing innovative sustainable design strategies, generating on-site renewable power and/or purchasing (20% maximum) renewable energy.

- 2. Ensure that all new buildings and major renovations shall be designed through sound building science practices to achieve 40% of the total possible points on the Leadership in Energy and Environmental Design (LEED) 2009 checklist for items unrelated to Energy and Atmosphere points. A LEED Accredited Professional must verify points submitted at the time of building permit application.
- 3. Reduce construction waste contributions to landfills from building construction, demolition, and renovation to an amount that approaches zero by 2020.
- 4. Develop a timeline and systematic monitoring system to determine progress toward achieving the strategies outlined in the plan. The City will:
  - a. Work with the AIA, USGBC, local colleges and universities, utilities, City, State and other interested groups to develop and monitor a set of indicators and benchmarks for achieving the goals of the plan.
  - b. Establish a Committee similar to the State’s Council of Economic Advisors to review the data on a bi-annual basis and issue a report on the City’s progress toward achieving the goals and to recommend steps to meet the benchmarks and measurements set in the plan.

## ***Building Construction Goal Summary***

### NON-RESIDENTIAL – RENOVATION

Take full advantage of the city’s building resources and tools to maximize the functional, economic, and cultural value of existing buildings and sites and to improve their environmental performance.

### NON-RESIDENTIAL – NEW CONSTRUCTION

The design of new non-residential building projects will result in sustainable structures and sites that efficiently use land, materials, energy, and water while they also inspire creativity, increase productivity, and enhance the quality of life in the city.

### RESIDENTIAL – RENOVATION / NEW CONSTRUCTION

Promote the renovation and construction of healthy residential properties that minimize waste and the consumption of energy and water. Create “regenerative” residential communities that produce renewable energy, feed people, promote clean water, improve health, incorporate waste into the nutrient cycle and demonstrate sustainable living.

### BUILDING SITES – RESIDENTIAL / NON-RESIDENTIAL

Minimize the consumption of land and maximize the sustainability of building sites through effective use of techniques such as infill development, increased density, building orientation, landscaping, storm water retention, urban agriculture and other sustainable practices.

## NON-RESIDENTIAL - RENOVATION

Take full advantage of the city's existing building resources, by maximizing the use of existing buildings and improving their environmental performance.

### Objectives:

1. **Develop community-wide demonstration projects and educational efforts that increase awareness of the value of existing buildings among building owners, designers and users.**
  - 1.1. Work with governmental agencies, utility companies and local corporations to take the lead in demonstrating the benefits of reusing and renovating existing structures and sites.
  - 1.2. Work with local utility companies and institutions to facilitate the distribution of information from their demonstration projects.
  - 1.3. Gather information on best practices regarding the preservation and renovation of existing buildings and analyze their effectiveness under local conditions.
  - 1.4. Identify feasible, cost-effective programs for utilizing existing buildings and develop a "business case" for preservation and renovation.
  - 1.5. Work with organizations such as AIA, AGC, BOMA and IFMA to develop a database of existing buildings and track building performance using various construction and operation techniques. Share the information with building occupants, as well as owners, and develop a feedback loop regarding best practices within the design community.
  - 1.6. Expand current efforts to educate designers about new technologies, programs and tools to improve energy efficiency in existing buildings and reduce the cost of renovation.
  - 1.7. Share information on best practices with property owners and managers.



*Warehouse renovations south of the Old Market*

- 1.8. Work to eliminate the disconnect that occurs between the builders and facility managers within an organization or company to ensure that buildings are operated and maintained correctly.
  - 1.9. Ensure that there is a feedback loop from facility managers to building designers regarding the costs associated with the operation and management of a facility so that adjustments can be made and factored into future building designs.
  - 1.10. Develop a “lay person” guide to rehabilitating existing structures and make the information available to the public through a variety of media, including the Internet, local Permit and Inspection Offices.
- 2. Encourage property owners to reuse and rehabilitate their existing structures.**
- 2.1. Develop funding sources that incentivize renovation of existing non-residential buildings.
  - 2.2. Implement incentives for building renovation, such as density bonuses, façade improvement programs, modified permit fee structures, utility company credits, accelerated approval processes, etc. for buildings that follow defined guidelines or other sustainability benchmarks. Review and adopt specific standards in conjunction with implementing any such incentives.
  - 2.3. Develop a Property Assessed Clean Energy (PACE) bond process for non-residential properties that reduces energy and building maintenance costs and allow the loans to be repaid through property taxes.
  - 2.4. Encourage utility companies to continue to provide and expand financial incentives for improved efficiencies. Consider the development of loan programs or reduced rates tied to energy efficiencies.
  - 2.5. Encourage financial arrangements between building owners and tenants that allows both parties to benefit from improvements that result in reduced energy consumption and building maintenance expenses.
  - 2.6. The City should work with architects and property owners to develop a methodology for determining when a building should be preserved and when it should be replaced. The methodology should include considerations for such things as historic importance, context, City development plans, impacts on transportation and transit, the cost of retrofitting versus new construction, energy impacts of saving versus replacing, etc.
  - 2.7. Require the City and encourage other public agencies to analyze the benefits and costs associated with the reuse and renovation of existing public buildings and sites before approving funds for demolition and new construction.
  - 2.8. Provide funding for the renovation of existing City facilities and document the benefits of renovation in lieu of new construction.

3. **Remove impediments in existing codes and procedures to sustainable renovations of existing non-residential buildings.**
  - 3.1. Implement the City’s Urban Development Policy by modifying the code to allow for a waiver of the application fee for Zoning Board of Appeals (ZBA) cases east of 42nd Street when the applicant is sent to the ZBA by the Planning Board and/or City Council in lieu of applying for a re-zoning and when the application is tied to sustainable building renovations.
4. **Continue to update the City’s codes to incorporate the latest provisions for energy efficiency and healthy buildings. Ensure that building renovation projects mitigate potential health hazards.**
  - 4.1. Incorporate the strategies related to energy efficiency and healthy buildings contained in Non-Residential – New Construction, Objective 4 in the renovation of non-residential buildings.
  - 4.2. Ensure that owners and contractors continue to work with the City and County to ensure that buildings are renovated according to the City and County requirements for lead, asbestos and other environmental hazards.
  - 4.3. Ensure that the City continues to require an environmental assessment that outlines the hazards of the site and includes a plan for abatement before work is done on “brown field” sites.
5. **Take a holistic approach to renovation by including the site when analyzing the cost effectiveness of plans for the renovation and reuse of existing buildings and land.**
  - 5.1. Consider the full value of an existing building, such as its historic character, transportation related benefits and other similar issues, not just the “cost” of the building.
  - 5.2. Consider the location of a facility and its proximity to public transit options when considering the construction of a new building versus the reuse and renovation of an existing structure.
  - 5.3. Ensure that public funding for infrastructure improvements supports the reuse of the city’s existing building stock.
  - 5.4. Ensure that the full cost of site improvements such as transportation-related improvements and maintenance are considered and fairly assessed when evaluating the reuse of an existing structure versus new construction.
6. **Facilitate the reuse and recycling of building materials. Minimize their disposal to landfills and ensure the use of proper disposal techniques.**
  - 6.1. Review existing regulations for demolition debris landfill operations and ensure that they are adequate to control potential adverse environmental impacts and that they encourage recycling over land filling.

- 6.2. Review current fees for demolition debris landfill operations and determine if they cover the costs associated with permitting and monitoring.
- 6.3. Work with local non-profit agencies and materials re-use agents to facilitate the reuse of building materials and fixtures from buildings slated for demolition.
- 6.4. Provide financial and regulatory incentives for building material recycling.
7. Encourage property owners to modify their operation and maintenance practices to improve the overall environmental performance of their buildings.
  - 7.1. Work with utility companies and local governmental agencies to develop programs and financial incentives to educate and facilitate improvements to building operation and maintenance practices.

## NON-RESIDENTIAL – NEW CONSTRUCTION

The design of new non-residential building projects will result in sustainable structures and sites that minimize the use of land, materials, energy, and water while they also inspire creativity, increase productivity, and enhance the quality of life in the city.

### Objectives:

#### 1. Minimize the use of energy, building materials and other resources in the construction and operation of new buildings.

##### 1.1. Ensure that the City works with the development industry to develop or identify performance standards that achieve the following:

- ❖ Minimize the amount of materials needed for the structure without sacrificing safety.

- ❖ Reduce the time and energy required to construct a building.

- ❖ Minimize grading, site preparation and the transportation of soil by fitting buildings to their site.

- ❖ Reduce building material transportation costs and energy consumption by using local materials.

- ❖ Minimize the use of water on the construction site.



*Saddlebrook green roof*

- ❖ Minimize the creation of waste materials and allow for their reuse whenever possible.

- ❖ Reduce the “heat island” effect from rooftops and sites.

- ❖ Control storm water runoff and improve water quality.

##### 1.2. Develop a citywide building material recycling program that results in the recycling of 100% of all waste building materials by 2020.

##### 1.3. Encourage the use of LEED standards or other sustainability benchmarks in the design of new buildings and require that they be used in City buildings.

##### 1.4. Investigate and resolve building code issues related to the use of “gray-water” systems. Incorporate “gray-water” systems into new construction.

- 1.5. Require that all new buildings have a plan for reducing the heat gain associated with a new building that includes the use of such techniques as “green roofs”, added landscaping, shade structures, reflective surfaces, etc.
  - 1.6. Encourage the use of green roofs, green walls, rainwater harvesting and other similar techniques to reduce the volume of stormwater runoff, improve water quality, reduce water consumption, reduce energy demands, reduce the urban heat island effect and air pollution, and provide other aesthetic, environmental, and quality of life benefits.
  - 1.7. Develop local guidelines for new buildings that encourage techniques for reducing energy use such as higher levels of insulation, greater building mass, high ceilings, “day lighting”, shade screens, canopies, natural ventilation, ceiling fans and the integration of indoor and outdoor spaces.
  - 1.8. Ensure that building managers are trained to operate and maintain sustainable building features.
2. **Encourage the use of renewable and sustainable energy systems in new buildings.**
    - 2.1. Work with colleges, universities and utility companies to develop standards for solar, wind and other sustainable energy systems within the city.
    - 2.2. Work with government, utility companies and others to develop incentives for the use of renewable and sustainable energy systems and make existing utility, state, and national level incentives available to developers and the public.
    - 2.3. Update City codes as needed to incorporate the use of sustainable energy system technology.
    - 2.4. Work with OPPD on energy inter-connect standards.
    - 2.5. Educate designers, builders and industry experts on renewable energy.
    - 2.6. Encourage the use of geo-thermal heating and cooling systems.
  3. **Locate new non-residential buildings so as to improve the overall livability and quality of life in the city.**
    - 3.1. Arrange buildings and sites in ways that facilitate and encourage pedestrian activity, mass transit, bicycles and other modes of transportation while still accommodating the automobile.
  4. **Continue to update the City’s codes to incorporate the latest provisions for energy efficiency and healthy buildings.**
    - 4.1. Ensure that new buildings provide for adequate ventilation and healthy indoor air quality as per ASHRAE standards.

- 4.2. Adopt an energy code that meets or exceeds Energy Star guidelines and regularly update the code as new energy regulations are developed.
  - 4.3. Work with the local designers, engineers and building trade groups to educate them on the new requirements and integrate the new codes into their projects.
  - 4.4. Ensure that the City is able to quickly and accurately review plans and perform on-site inspections of energy efficiency and environmental standards not just non-life/safety items.
  - 4.5. Work with surrounding jurisdictions to create uniformity in codes among jurisdictions.
5. **Revise codes to encourage the construction of mixed-use buildings and sites.**

5.1. Eliminate code provisions and conflicts that discourage the construction of mixed-use buildings and work with designers to facilitate the design and approval of mixed-use building plans. (plumbing, electrical, mechanical, and zoning codes)



*Live-work mixed-use development in North Omaha*

5.2. Develop plan submittal and review procedures that ensure that the ultimate configuration of a mixed-use building is considered in the initial plan submittal and review so that potential issues such as access and venting can be addressed up-front.

5.3. Continue the creation of Neighborhood Conservation and Enhancement (NCE) Districts as a means to facilitate rehabilitation and infill development by replacing existing “suburban” zoning regulators that may discourage redevelopment with regulators appropriate to the neighborhood.

6. **Ensure that designers, contractors and building officials are knowledgeable regarding sustainability design, construction, inspection and code requirements.**

6.1. Work with the AIA, USGBC, ASCE, ASLA, colleges, universities, utilities, and other similar groups to provide local education and training programs in sustainable construction practices and codes for architects, landscape architects, contractors and inspectors.

7. **Provide incentives to encourage the use of sustainable building practices.**
  - 7.1. Provide tax or other financial incentives for the construction of LEED certified buildings or buildings otherwise certified as meeting the goals of this element through a defined methodology or measurement regime. Review and adopt specific standards in conjunction with implementing any such incentives.
  
8. **Manage the consumption of land for new non-residential construction by ensuring that new commercial construction is closely tied to actual market demand.**
  - 8.1. Address the fact that the amount of land allocated for new commercial development currently exceeds the actual market demand resulting in vacant and underdeveloped commercial structures and sites. The City should review the current commercial acreage allocations in the Future Land Use Element of the Master Plan with the development community to determine how best to achieve an appropriate mix of commercial land and how to redevelop vacant and underdeveloped commercial sites. The City should work with the development community to determine if allowing an increase in multi-family units at commercial intersections can help reduce the oversupply of commercial land while also increasing the market for existing commercial development.

## RESIDENTIAL – RENOVATION / NEW CONSTRUCTION

Promote the renovation and construction of healthy residential properties that minimize waste and the consumption of energy and water while also encouraging the production of food and power. Create “regenerative” residential communities that produce energy, feed people, clean water, improve health, incorporate waste into the nutrient cycle and demonstrate sustainable living.

### Objectives:

1. **Reduce potable residential water usage and encourage maximizing the reuse of a residential property’s “gray water.”**
  - 1.1. Encourage the use of gray water irrigation systems and remove barriers that limit their use on individual or community-scale residential sites.
  - 1.2. Encourage the design and redesign of residential landscapes that require less irrigation with a goal of eliminating the use of potable water for residential irrigation.
  - 1.3. Encourage the use of Native and Ecologically Well Adapted Non-Invasive Plant (NEWANIP) species that require less water on residential sites.
  - 1.4. Take steps to eliminate the use of potable water for residential toilets.
2. **Encourage reductions in energy consumption and the use of renewable energy generation systems on residential properties.**



*Suburban development*

2.1. Incorporate the strategies related to energy efficiency contained in Non-Residential – New Construction, Objective 4 in the construction and renovation of residential buildings.

2.2. Expand local utility company, State Energy Office, and City programs that encourage residential weatherization improvements.

- 2.3. Provide incentives such as Energy Savings loan programs and Energy Efficient Mortgages and “on-bill” financing to allow homeowners to utilize the savings from energy efficiency improvements to finance improvements that reduce energy use.
- 2.4. Encourage the use of Energy Efficient Mortgages that factor reduced energy costs into a buyer’s ability to pay for higher mortgage loans.

- 2.5. Work with the real estate industry to develop a measurement methodology and then institute a policy to include the HERS index on every home listed in the Multiple Listing Service (MLS) and educate real-estate agents, loan officers, and appraisers on the value of the HERS index.
- 2.6. Identify and promote ways that landlords and tenants can benefit from energy saving investments in residential rental properties.
- 2.7. Work with local utilities to take advantage of smart grid technologies.
- 2.8. Incorporate the strategies related to renewable and sustainable energy systems contained in Non-Residential – New Construction, Objective 2 in the construction and renovation of residential buildings.

**3. Encourage the preservation and rehabilitation of existing residential structures.**

- 3.1. Educate the public on techniques and methods of building maintenance to ensure that homes remain healthy, functional, energy efficient and weather tight.
- 3.2. Expand funding for City rehabilitation programs and code enforcement efforts to reduce blighted housing conditions and preserve existing housing.
- 3.3. Pursue additional financial incentives for the preservation of existing housing.



*Infill housing*

- 3.4. Work with local and national organizations that promote historic preservation and energy efficiency to educate homeowners and promote sustainable historic homes.

**4. Provide financial and regulatory incentives for sustainable initiatives, including building material and packaging reuse and recycling.**

- 4.1. Work with local non-profit agencies to encourage the reuse of building materials and fixtures from buildings slated for demolition.
- 4.2. Develop a citywide building material recycling program that approaches the recycling of 100% of all waste building materials by 2020.
- 4.3. Develop programs for the environmentally responsible disposal of non-reusable, non-recyclable, construction materials such as obsolete windows, broken drywall, crushed plaster, old cellulose insulation, etc.

5. **Design and build healthy residential structures and mitigate potential health hazards in building renovation projects.**
  - 5.1. Incorporate the strategies related to adequate ventilation and healthy indoor air quality contained in Non-Residential – New Construction, Objective 4 in the construction and renovation of residential buildings.
  - 5.2. Ensure adequate ventilation and allow for fresh air exchange in weather-tight structures.
  - 5.3. Inspect buildings constructed prior to 1978 for potential lead and asbestos hazards prior to renovation. The owner and contractor must work with the City and County to ensure that the building is renovated according to the City and County requirements for lead and asbestos abatement.
  - 5.4. Ensure that City codes provide for adequate ventilation as outlined in documents such as the “Healthy Homes Principles.”
6. **Educate the public and residential industry professionals on building science “best practices” for residential energy efficiency, water usage, and on-going maintenance.**
  - 6.1. Provide information to homeowners on how to properly landscape their yard to provide summer shade and allow winter sun while also blocking winter winds and allowing for summer breezes.
  - 6.2. Create partnerships among the utility companies, the City, universities, community college, State Energy Office, industry professionals and homebuilders to develop educational materials and programs for homeowners.
  - 6.3. Create an inventory of Best Practices, including information on cost/benefit comparisons.
  - 6.4. Develop a sustainability guide for homeowners and make it available to homeowners and residential industry professionals through a variety of channels.
  - 6.5. Undertake a series of demonstration projects that build on current efforts to construct and retrofit energy efficient and regenerative homes and expand the effort to include multi-family and renter occupied housing.
  - 6.6. Develop innovative home monitoring systems and educational programs using new technologies such as iPhone applications, dashboard technologies and social networking sites to allow for real-time feedback and information exchanges on energy saving activities and techniques.
7. **Promote residential food production and eliminate barriers that discourage it.**
  - 7.1. Work with the County Extension Service and community garden groups, such as City Sprouts, to promote residential gardening within the city.

- 7.2. Encourage the use of edible plants in residential landscaping.
- 7.3. Educate the public and raise awareness of the benefits of residential gardening.
- 7.4. Encourage residential composting and develop a curbside composting pick up program.
- 7.5. Review and revise, if needed, City codes that may restrict the production of certain types of livestock that are appropriate for urban settings.

## BUILDING SITES – RESIDENTIAL / NON-RESIDENTIAL

Minimize the consumption of undeveloped land and maximize the sustainability of building sites through effective use of techniques such as infill development, increased density, building orientation, landscaping, storm water retention, urban agriculture and other sustainable practices.

### Objectives:

#### 1. Encourage infill development and the reuse of existing sites and public infrastructure.

- 1.1. Provide incentives for the use of infill sites for the construction of new facilities.
- 1.2. Identify funding for acquisition of vacant properties in blighted areas for redevelopment.

#### 2. Encourage well-designed higher density development patterns and educate the public on the benefits of such a development pattern.

- 2.1. Provide for higher density development incentives that follow the “recently-adopted” City urban design standards.
- 2.2. Ensure that adequate open space is provided for higher density projects.
- 2.3. Develop a speaker’s bureau to provide information and educate the public on the benefits of well-designed higher density development.



*New downtown development*

#### 3. Reduce building energy consumption by considering the site characteristics and opportunities in the design and placement of the building and adjacent plantings.

- 3.1. Plan, whenever possible, a building’s orientation to maximize the use of solar energy, to minimize the impact of summer sun and winter winds, to take advantage of summer breezes and to minimize grading.
- 3.2. Plant trees strategically in order to provide shade for buildings during the summer while allowing for sun to penetrate the building in the winter. Ensure that plantings do not compromise solar energy and heating systems.
- 3.3. Plant trees to serve as a windbreak during the winter without inhibiting the flow of summer winds through the building.

- 3.4. Consider building placement opportunities for taking advantage of the flow of cool air from a wooded hillside at night.
  - 3.5. Consider the use of earth embankments against one or more walls of a building.
  - 3.6. Update and enforce code provisions that protect solar access.
  - 3.7. Continue to enhance Omaha’s “urban forest” in order to reduce the urban heat island effect, improve air quality, reduce storm water runoff and add to the attractiveness of the city.
  - 3.8. Promote the use of a wide variety of native and ecologically well-adapted tree species to minimize tree losses due to disease and insect damage.
4. **Reduce water consumption from irrigation of building sites.**
- 4.1. Require the use Native and Ecologically Well Adapted Non-Invasive Plant (NEWANIP) species, storm water retention basins and efficient irrigation systems in the majority of a building’s landscaped areas.
  - 4.2. Limit the use of plant materials that require extensive irrigation.
5. **Reduce the amount of a building site devoted to automobile parking and access in order to minimize land consumption and limit the “heat-island” effect. Provide for alternative energy vehicles.**



*Apartment buildings with waterway swale*

- 5.1. Encourage the use of shared parking and parking management plans that reduce the amount of parking associated with a project.
- 5.2. Consider the use of caps for parking associated with various building types.
- 5.3. Allow for the use of vegetative paving systems for overflow parking or, if instituted, parking stalls above the cap in places such as recreational facilities where the overflow parking will not be used in the winter.
- 5.4. Modify City codes to allow for narrower driveway and roadway widths within project sites.

- 5.5. Establish and enforce new landscaping standards that result in added interior and perimeter landscap-

ing as new development and redevelopment occur.

5.6. Provide for electric vehicle recharging stations within parking facilities and structures.

**6. Optimize the on-site retention and re-use of storm water generated from building sites.**

6.1. Encourage the use of narrower streets and driveways and the use of permeable paving surfaces for drive, parking and sidewalk areas.

6.2. Install “re-usable” permeable paving systems such as brick or granite pavers when possible.

6.3. Utilize techniques such as rain gardens and open drainage systems to reduce the volume and speed of runoff entering the storm drainage system and to improve water quality.

6.4. Encourage the use of green infrastructure to reduce storm water volumes and assist in meeting federal CSO mandates and develop incentives for their use. In addition, work with the EPA on its lead soil abatement program to incorporate CSO related storm water runoff management practices into the re-grading and re-landscaping of affected properties.

6.5. Provide for rain water “harvesting” in the City code and encourage the retention and reuse of storm water on site.

6.6. Ensure that storm water and erosion controls are installed and maintained according to the City’s guidelines during construction. Follow all local, Federal and State environmental protection guidelines during construction.

6.7. Ensure that City staff levels are adequate so that storm water site plan reviews and on-site inspections occur in a timely manner.

**7. Design sites to reduce the need for personal vehicles, encourage pedestrian access and promote the use of bicycles and mass transit.**

7.1. Design sites and projects to allow for easy mass transit access to the site and for easy access by pedestrians.

7.2. Provide for dedicated bus rapid transit access where appropriate within projects.

**8. Minimize the amount of land and vegetation disturbed for building construction and site improvements.**

8.1. Develop site plans that minimize the amount of grading required to develop the site. Balance “cut and fill” so as to limit the need to transport soil on or off the site.

- 8.2. Conserve topsoil during grading operations and limit soil compaction.
  - 8.3. Ensure that erosion control plans meet City requirements and that they are installed and maintained properly during and after construction.
  - 8.4. Ensure that City staff levels are adequate so that plan reviews and on-site inspections occur in a timely manner. Continue to require that engineers or landscape architects responsible for preparing plans and overseeing site work certify that erosion controls were installed and maintained properly.
  - 8.5. Require that tree and vegetation protection plans are prepared and approved by the City prior to construction and that the plans are followed and protections are maintained during construction.
9. **Minimize off-site environmental impacts associated with dust, erosion, siltation, odors, light and noise.**
- 9.1. Continue to enforce City regulations related to dust, erosion, siltation, odors and noise. Ensure that City staffing levels are adequate to ensure timely compliance checks.
  - 9.2. Develop a “dark sky,” City lighting ordinance that directs light away from the sky and onto the site area that needs lighting. Also consider increased limits on the amount of light that is allowed to cross property lines.
10. **Encourage the use of urban sites for agricultural production, reduce the need to haul “yard waste,” and reduce chemical pollution.**



*Community garden*

- 10.1. Encourage personal and community gardens through the use of funding for programs such as City-Sprouts.
- 10.2. Encourage on-site composting by providing educational materials and instruction on composting techniques.
- 10.3. Encourage the use of non-toxic landscape chemicals and natural pest controls.
- 11. Promote the establishment of renewable/alternative energy generation and management systems (e.g., geothermal, solar, wind, co-generation, smart grid, etc.) on a district and neighborhood scale.**
  - 11.1. Coordinate with utilities and design professionals to identify opportunities and evaluate the potential for neighborhood/district-scale energy generation.
  - 11.2. Investigate the feasibility for renewable/alternative energy systems when creating neighborhood and redevelopment plans.
  - 11.3. Provide for renewable/alternative energy systems in common areas of new residential, mixed use/commercial, and industrial development. Establish design standards for those systems.
  - 11.4. Work with utilities to create strategies that will ensure appropriate operation and management of district/neighborhood energy systems.
  - 11.5. Encourage the use of the district energy concept in existing neighborhoods as well as new developments.

# Resource Conservation

## Background

### *Problems and Opportunities*

Ensuring the availability of resources for our present needs as well as for future generations is a cornerstone of creating a sustainable community. Air and climate, water, energy, materials and human resources are all fundamental to supporting our daily lives. Inefficiencies in consumption of resources and the processes used can create scarcities and result in waste and pollution needing containment or disposal. Information on the monetary savings that can be realized by conservation and recycling is identified in this presentation, Going “Green” Can Put Your Business In the “Black”, sponsored by the Green Omaha Coalition.<sup>38</sup>

The Resource Conservation Advisory Group adopted a sustainable approach to the use of resources that puts a priority on optimizing--making the most of the resources that we use--along with conserving--using less of our resources. The Four Principles of Natural Capitalism as described by the Rocky Mountain Institute<sup>39</sup> inspire this approach.

## The Four Principles of Natural Capitalism

### **1. Radically Increase the Productivity of Natural Resources**

Through fundamental changes in both production design and technology, farsighted companies are developing ways to make natural resources — energy, minerals, water, forests — stretch five, ten, even 100 times further than they do today. The resulting savings in operational costs, capital investment, and time can help natural capitalists implement the other three principles.

### **2. Shift to Biologically Inspired Production Models and Materials**

Natural capitalism seeks not merely to reduce waste but to eliminate the very concept of waste. In closed-loop production systems, modeled on nature’s designs, every output either is returned harmlessly to the ecosystem as a nutrient, like compost, or becomes an input for another manufacturing process. Industrial processes that emulate the benign chemistry of nature reduce dependence on nonrenewable inputs, make possible often phenomenally more efficient production, and can result in elegantly simple products that rival anything man-made.

### **3. Move to a “Service-and-Flow” Business Model**

The business model of traditional manufacturing rests on the sale of goods. In the new model, value is instead delivered as a continuous flow of services—such as providing illumination rather than selling light bulbs. This aligns the interests of providers and customers in ways that reward them for resource productivity.

### **4. Reinvest in Natural Capital**

Capital begets more capital; a company that depletes its own capital is eroding the basis of its future prosperity. Pressures on business to restore, sustain, and expand natural capital are mounting as human needs expand, the costs of deteriorating ecosystems rise, and the environmental awareness of consumers increases. Fortunately, these pressures all create business opportunity.

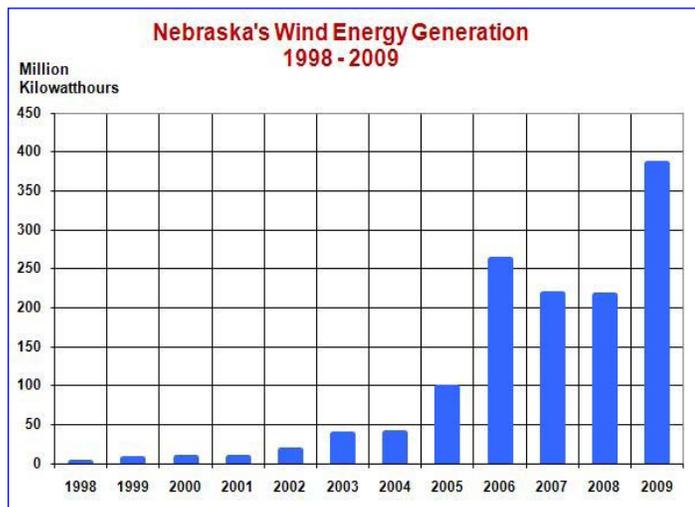
The need for water conservation may not seem immediately evident when Omaha has access to seemingly abundant natural water resources such as the Missouri River and the Platte River. However, less demand for water improves the ability of the community to be resilient in case of fluctuating supply, and reduced demand also reduces energy needed for treating water and for moving water and wastewater around. For homes and businesses, water conservation strategies can save on the cost of water.

According to the Omaha area's Metropolitan Utilities District (MUD), nearly 197,000 customers use an average of 87 million gallons of water per day. In the metro Omaha area, the average residential customer's water use dropped from 110,000 gallons per year in 2007 to 108,000 gallons per year in 2008 and to 96,000 gallons in 2009 and 2010.<sup>40</sup>

The Resource Conservation Advisory group recognized the responsibility of the local community in reducing greenhouse gas emissions and other air pollutants that can have a far-reaching and long-term effect. The EPA estimate of carbon dioxide emissions from fossil fuel combustion in Nebraska for 2007 is 43.87 million metric tons.<sup>41</sup> The U.S. Department of Energy has calculated generic estimates for carbon dioxide emissions from individual homes and transportation modes.<sup>42</sup>

Improving efficiency in the use of energy saves money in the long-term. Diversity in energy sources can improve the stability of supply by hedging against changes in one sector. Renewable energy sources foster the community's resilience in the face of future scarcities and price fluctuation and may increase and benefit the local economy.<sup>43</sup>

Nebraska is ranked 6th in the U.S. for wind energy potential but has lagged behind other states in wind power output.<sup>44</sup> Solar and geothermal potential is also fairly high.<sup>45</sup>



Waste reduction can conserve resources, reduce pollution and help cut waste disposal and handling costs because it avoids the costs of recycling and disposal in a landfill. Purchase of environmentally rated products, choosing durable products, and avoiding excess packaging and unnecessary purchases all contribute toward an overall reduction in waste.

In 2008, Omaha's residential solid waste program saw 12% of materials (measured by weight) going into recycling, 18% as yard waste, and the remaining 70% of waste going to the landfill as garbage.<sup>46</sup> (This does not include waste stream information from commercial, construction, industrial, etc.)

Local job growth and other economic benefits have been identified in studies on the costs and benefits of

transforming current models of energy and resource consumption into a more sustainable economy. The Rocky Mountain Institute, a group focused on transitioning the economy through efficiency and sustainable energy sources, describes an approach for community prosperity.<sup>47</sup>

Many job opportunities are based on applying current skills to new or expanded applications. For example, many jobs

in the green energy economy would result from energy efficiency retrofits--making energy efficiency improvements to existing buildings--which would provide localized jobs, while others would result from increased manufacturing and installation of wind, solar, and geothermal energy systems. Technological innovation is also an area of interest that may increase economic opportunities, especially in partnerships with higher education institutions.

One study prepared for the U.S. Conference of Mayors estimated that for the Omaha-Council Bluffs metropolitan area green jobs could increase from an estimate of 1,337 jobs in 2006 to 10,582 jobs by the year 2038.<sup>48</sup>

### Issues and Directions

Input resulting from public meetings and Resource Conservation Advisory Group members identified the following issues and directions:

- ❖ Our approach should focus on extending the life of resources and on making full use of the resources we use (with an objective to minimize or eliminate waste).
- ❖ Omaha should plan strategically to increase its resilience in the face of higher and more uncertain petroleum prices (“peak oil”-- the time when oil that has been easy to produce is out-stripped by demand, resulting in higher and more volatile prices).
- ❖ A regional approach is needed for energy and resource planning; partnerships across political, governmental, and private jurisdictions will be most effective.
- ❖ Costs and benefits of conservation and renewable energy should take a longer-term view; we need cost preparedness and fiscal responsibility.
- ❖ Alternative energy resources such as solar, wind, and geothermal should be maximized as great economic opportunities; local production of energy will keep money in the local economy.
- ❖ Ordinances and covenants that are roadblocks to alternative energy systems and energy efficiency need to be revised (e.g., solar and wind systems, green roofs, building orientation for passive heat and light, etc.).
- ❖ Water conservation should target the use of water for supporting yards and landscapes; measures

2006	Garbage	Recycling	Yardwaste	Total
January	7,483.14 84%	1,390.38 16%	- 0%	8,873.52
February	8,544.52 85%	1,147.47 15%	- 0%	9,691.99
March	7,402.81 85%	1,307.08 15%	- 0%	8,709.87
April	11,278.83 88%	1,381.12 11%	- 0%	12,657.75
May	8,504.43 53%	1,508.11 9%	5,953.32 37%	15,965.86
June	8,517.58 80%	1,382.28 10%	4,210.37 30%	14,110.19
July	9,051.93 83%	1,450.12 10%	3,758.93 28%	14,260.98
August	8,414.95 89%	1,398.43 11%	3,007.24 23%	12,810.62
September	8,352.42 83%	1,341.88 10%	3,808.33 27%	13,502.63
October	7,826.18 52%	1,413.40 9%	5,747.85 38%	14,987.41
November	10,310.75 84%	1,398.58 9%	4,482.88 28%	16,192.19
December	8,209.18 85%	1,394.43 15%	- 0%	9,603.61
<b>Total</b>	<b>101,874.28 86%</b>	<b>16,911.24 11%</b>	<b>30,768.90 21%</b>	<b>149,554.42</b>
<b>Total 2008</b>	<b>107,487 70%</b>	<b>17,588 12%</b>	<b>27,840 18%</b>	<b>152,912.98</b>
<b>Total 2007</b>	<b>98,184 89%</b>	<b>18,459 11%</b>	<b>34,178 23%</b>	<b>149,796.28</b>
<b>Total 2006</b>	<b>98,985 89%</b>	<b>15,158 10%</b>	<b>35,928 24%</b>	<b>150,089.00</b>
<b>Total 2005</b>	<b>98,270 85%</b>	<b>18,710 11%</b>	<b>35,391 24%</b>	<b>150,371.00</b>

could include the use of xeriscape and native plants, conversion of conventional lawns to water-conserving turf and ground cover plantings, and the use of water sensors in lawn irrigation systems.

- ❖ Waste of materials should be minimized and community participation in the recycling program needs to be increased; commercial waste disposal and recycling of materials should be tracked and managed.
- ❖ A greenhouse gas emission goal needs to be targeted for the community.

*Buildings Energy Data Book: 1.5 Generic Fuel Quad and Comparison* *October 2009*

1.5.4 Average Annual Carbon Dioxide Emissions for Various Functions	Annual Unit Energy Consumption	Carbon Emissions	
		(MMT CO <sub>2</sub> )	(lb CO <sub>2</sub> )
Stock Refrigerator	1,249 kWh - Electricity	0.80	1,800
Stock Electric Water Heater	2,549 kWh - Electricity	1.64	3,600
Stock Gas Water Heater	20 million Btu - Natural Gas	1.05	2,300
Stock Oil Water Heater	28 million Btu - Fuel Oil	2.07	4,500
Single-Family Home	107 million Btu	11.86	26,100
Mobile Home	76 million Btu	8.39	18,500
Multi-Family Unit in Large Building	41 million Btu	4.53	10,000
Multi-Family Unit in Small Building	78 million Btu	8.63	19,000
School Building	2,125 million Btu	269	593,300
Office Building	1,376 million Btu	174	384,200
Hospital, In-Patient	60,152 million Btu	7,617	16,794,600
<b>Stock Vehicles</b>			
Passenger Car	541 gallons - Gasoline	4.0	10,503
Van, Pickup Truck, or SUV	686 gallons - Gasoline	5.0	13,324
Heavy Truck	1,414 gallons - Diesel Fuel	12.0	28,334
Tractor Trailer Truck	11,697 gallons - Diesel Fuel	106.3	234,391

Source: EPA, Annual Energy Outlook 2008, Mar. 2008, Table A2, p. 117-119 for consumption and Table A18, p. 144 for emissions, and Table G1, p. 215 for gasoline fuel rate; EPA, A Look at Residential Energy Consumption in 2001, May 2004, Table CE4-1c for water heater energy consumption, Table HCE-1a for refrigerators and Table CE5-1c for refrigerator energy, and Table CE1-4c for household consumption; EPA, 2003 Commercial Buildings Energy Consumption Survey, June 2005, Table C3, p. 207 for commercial buildings; OMB, Transportation Energy Data Book: Edition 25, 2007, Table 4.1, p. 4-2, Table 4.2, p. 4-3, Table 5.1, p. 5-2 and Table 5.2, p. 5-3 for vehicles, and EPA, Assumptions in the AEO 2008, June 2008, Table 2, p. 5 for carbon coefficients.

## Concepts

The Resource Conservation Advisory Group used the following concepts to develop the overall statement, measurements, goals, objectives, and strategies contained in the following sections:

- ❖ Meet energy demand by continuously improving efficiency and by encouraging the supply of diversified, renewable and sustainable energy systems.
- ❖ Use a variety of educational, technological and policy solutions to conserve and protect the high quality of water resources for future generations.
- ❖ Take actions toward continuous improvement of air quality, measuring and reporting progress to the community, and taking measures to make the community resilient in the face of climate change.
- ❖ Accomplish zero waste by promoting appropriate purchasing and diverting materials toward reuse and recycling.
- ❖ Promote market transformation and workforce development, improvements in existing businesses and in attracting new business, and providing leadership and behavioral change toward the benefit of the entire community.



*Life Cycle Assessment example*

## Resource Conservation Overall Statement

Omaha will be a thriving community providing an exceptional quality of life centered on an unwavering dedication to resource conservation. Omaha will accomplish this vision by:

- ❖ Conserving and protecting the high quality and adequate supply of water resources.
- ❖ Continuously improving air quality, reducing greenhouse gas emissions, and mitigating the risks of climate change, while also using these changes to the community's advantage.
- ❖ Meeting energy demand by continuously improving energy efficiency and encouraging the supply of renewable and sustainable energy systems.
- ❖ Aggressively working toward becoming a zero-waste-to-landfill community by conserving resources and by maximizing the use and reuse of resources.
- ❖ Becoming a leader in green economies by utilizing the creativity, productivity and ingenuity of the community's human capital.

## Measurements

Progress towards this vision will be measured by tracking relevant indicators and pursuing interim targets towards long-term objectives. These goals represent community-wide targets that will be achieved through collaboration with the City of Omaha and community organizations, businesses, and individuals. With this in mind, Omaha will:

1. Reduce greenhouse gas emissions by:
  - a. Reducing energy use per capita by 20 percent between 2010 and 2020, and continually reducing consumption by 20 percent every ten years thereafter.
  - b. Increasing the use of renewable energy to 20 percent of energy used 2010 and 2030 and continually shifting the source of energy production to renewable by at least 20% every 10 years thereafter.
2. Reduce total water use per capita by 20 percent between 2010 and 2020, and continually reducing consumption by 20 percent every ten years thereafter.
3. Pursue improvements in waste reduction and diversion by:
  - a. Increasing waste diversion through recycling and composting by 20 percent between 2010 and 2020, and continually reducing generation 20 percent every ten years thereafter.
  - b. Reducing the quantity requiring disposal by 20 percent every ten years beginning in 2010 through increased conservation practices, increased diversion through recycling and composting and other practices shown to be technically and economically viable.
4. Incrementally increase percentage of spending on eligible items defined by a comprehensive Environmentally Preferable Purchasing (EPP) program by 2 percent annually.

## Resource Conservation Goal Summary

### WATER

Conserve and protect the high quality of water resources for future generations through educational, technological and policy solutions.

### AIR AND CLIMATE

Develop and implement action-oriented strategies that pursue continuous improvement of air quality, reduce greenhouse gas emissions, incorporate climate change resilience and measure progress regularly; report these findings to the community to stimulate the appropriate action(s).

### ENERGY

Meet energy demand by continuously improving efficiency and by encouraging the supply of diversified, renewable and sustainable energy systems.

### MATERIALS: PURCHASING, WASTE/RECYCLING

Maximize the use of standardized processes that promote environmentally-preferred, appropriate purchasing and that aggressively divert materials from the landfill toward a zero waste goal that also promotes the concept of rethink, reduce, reuse and recycle.

### HUMAN RESOURCES: GREEN JOBS, TECHNOLOGY

Promote market transformation, new business attraction, existing business improvements, workforce development, behavior and leadership in order to maximize the social, environmental, and economic benefit of resource and energy conservation.



## WATER

Conserve and protect the high quality and adequate supply of water resources for future generations through educational, technological and policy solutions.

### Objectives:

#### 1. **Develop community-wide educational/informational programs that improve water quality through Best Management Practices (BMP's), water conservation, and stormwater management.**

- 1.1. Work with MUD and other environmental professionals to develop, promote and disseminate self-audit materials.
- 1.2. Maintain a legacy of working with the next generation to ensure a deeply-rooted education in water conservation.
- 1.3. Establish an ongoing program to educate the public about stormwater management practices.
- 1.4. Work with the development community to change city codes to increase density and revise impervious coverage requirements.
- 1.5. Create partnerships among the utility companies, the City, universities, community college, State Energy Office, industry professionals, homebuilders and others to develop educational materials and programs for homeowners.
- 1.6. Educate and promote a community appreciation of the benefits of using suitable native species and NEWANIP.
- 1.7. Promote existing resources that explain how to install and maintain rain gardens (including the use of native plants), rain barrels, green roofs and cisterns.
- 1.8. The City will ensure that all storm drains are labeled to discourage dumping.
- 1.9. Promote actions that work to minimize or prevent activities that adversely impact existing natural water courses.



*Omaha Botanical Garden has native plantings to reduce water use*

**2. Promote and implement indoor water conservation.**

- 2.1. Promote the use of low water use appliances, low flow and dual flush toilets, and no flush urinals.
- 2.2. Research and revise codes to promote the use of low flow fixtures, appliances and other water-based systems.
- 2.3. Promote the watertight integrity of all water systems.
- 2.4. Support water use fees that are incentive/disincentive based with an emphasis on an impact rate for an increase in consumption.

**3. Promote and implement outdoor water conservation.**

- 3.1. Develop and promote lawn and green space management practices that reduce water consumption and protect water resources.
- 3.2. Reduce the demand for water by promoting and adopting conservation measures.
- 3.3. Limit the use of plant materials that require extensive irrigation.
- 3.4. Encourage the design and redesign of residential landscapes that require less irrigation with a goal of eliminating the use of potable water for residential irrigation.
- 3.5. Expect the City to encourage the use of smart irrigation controls that sense soil moisture and then shut off when the soil reaches the appropriate moisture content.
- 3.6. Develop a plan for conversion of high maintenance turf to low maintenance native landscaping in public right-of-way and City of Omaha property where appropriate. Update the City's "Standards for Urban Landscaping," the urban design components of the city's zoning code, "Green Streets for Omaha," and the "Streetscape Handbook" to ensure consistency among them.
  - ❖ Collaborate with wildlife biologists, botanists, ecologists, landscape architects, landscape designers, horticulturists and urban foresters in this effort.
  - ❖ Include the use of NEWANIP as part of government, corporate and institutional campuses.
- 3.7. Support water use fees that are incentive/disincentive based with an emphasis on an impact rate for an increase in consumption.

**4. Promote and implement stormwater conservation and cleanliness.**

- 4.1. Reduce stormwater runoff and improve water quality by using native or ecologically-adapted plants with deep root systems characteristic of native prairie in landscaping and by preserving/restoring vegetated buffer zones along waterways.

- 4.2. Promote the principles of conservation landscaping in public/private spaces.
- 4.3. Maintain or improve water quality in the metropolitan area's rivers, lakes, streams, and wetlands to meet or exceed state and federal regulations.
- 4.4. Use NEWANIP plantings in landscapes of public buildings, and continue to work with other entities in developing demonstration projects that promote the use of these plants.
- 4.5. Work with landscape architects, landscape designers, botanists, horticulturists and nurseries/plant suppliers to develop a palette of native species recommended in urban landscapes and develop design guidelines for property owners.
- 4.6. Amend the weed control code to allow for planting NEWANIP.
- 4.7. Encourage partnerships that provide an annual Native Plant Sale in the Omaha metro area:
  - ❖ Plan and coordinate in partnership with public and private resources;
  - ❖ Pair with education and landscaping information; and
  - ❖ Include activities such as workshops, demonstration projects, and celebratory events.
- 4.8. Utilize techniques such as rain gardens, green roofs, and open drainage systems to improve water quality.
- 4.9. Encourage the use of non-toxic landscape chemicals and natural pest controls.
- 4.10. Manage the use of fertilizer along with the efficient use of irrigation.
- 4.11. Seek legislation from the Nebraska Legislature to enable the establishment of an equitable stormwater utility system that would provide a dedicated and sustainable source of funding for stormwater management and would include a system of credits or fee adjustments to incentivize the construction and maintenance of stormwater BMP's on private property.
- 4.12. Encourage the use of permeable paving surfaces for drive, parking and sidewalk areas.
- 4.13. Ensure that city staff is adequate for the required storm water site plan reviews and on-site inspections.
- 4.14. Ensure that adequate funding and resources are dedicated to effectively implement all aspects of the Omaha Stormwater Management Plan, as required under the National Pollutant Discharge Elimination System (NPDES) permit.
5. **Encourage the reuse of water (gray water) and harvesting rain water to reduce water usage in general, but particularly during the summer.**

- 5.1. Expect the City to set a positive example for water conservation through its actions in building and maintenance, public facilities and green space.
- 5.2. Encourage the use of gray water irrigation systems and remove barriers that limit their use on individual or community-scale residential sites.
- 5.3. Take steps to minimize the use of potable water for residential toilets.
- 5.4. Install, when possible, “re-usable” permeable paving systems.
- 5.5. Expect the City to provide for rainwater “harvesting” in the city code and encourage the retention and reuse of storm water on site.



*Water in the Heartland Park lagoon/lake is recirculated to conserve water*

## AIR AND CLIMATE

Develop and implement action-oriented strategies that pursue the continuous improvement of air quality, reduce greenhouse gas emissions, incorporate climate change resilience and measure progress regularly; report these findings to the community to stimulate the appropriate action(s).

### Objectives:

#### 1. Improve local air quality.

- 1.1. Inventory key indicators and impacts associated with local air quality, including critical factors that affect local air quality and the local social costs of air pollution.
- 1.2. Benchmark performance and best practices to make informed decisions to improve local air quality, referencing the EPA's National Ambient Air Quality Standards, to minimize environmental, social, and economic risks.
- 1.3. Maintain or improve air quality compliance with the National Ambient Air Quality Standards to continue designation as an "Attainment Area."
- 1.4. Evaluate proactive regional strategies to reduce ground-level ozone such as stage two vapor recovery system.
- 1.5. Explore alternatives to reduce seasonal winter air particulates by using an alternative to sand for snow and ice removal and/or increasing street sweeping.
- 1.6. Transition the City's vehicle fleet to ultra low emission vehicles.
- 1.7. Encourage pedestrian activity, mass transit, bicycles and other alternative modes of transportation.
- 1.8. Continue to update the city codes to incorporate the latest provisions for energy efficiency and healthy buildings.
- 1.9. Ensure that city codes provide for adequate ventilation as outlined in documents such as the "Healthy Homes Principles."
- 1.10. Ensure adequate ventilation and allow for fresh air exchange in weather- tight structures.



*Traffic on West Dodge Road*

## 2. Reduce greenhouse gas emissions.

- 2.1. Inventory key indicators and impacts associated with greenhouse gas emissions.
- 2.2. Maintain greenhouse gas inventory for all Scope 1 and Scope 2 emissions, using latest national standards and methodologies for carbon accounting and latest available data.
- 2.3. Register greenhouse gas emissions with Carbon Disclosure Project cities and programs.
- 2.4. Publish a greenhouse gas inventory report that provides detailed information regarding emissions sources by sector and establish an “action plan” to meet reduction goals.
- 2.5. Benchmark performance and best practices to make informed decisions to reduce greenhouse gas emissions.
- 2.6. Pursue greenhouse gas reduction by focusing on major emissions sources, including buildings (stationary combustion and electricity use), transportation, fugitive processes (solid waste, wastewater, etc.), and other major emissions sources.
- 2.7. Develop proactive strategies for climate resiliency. (Establish policies and practices of the city related to weather, water supply, stormwater, etc.)
- 2.8. Reduce greenhouse gas emissions from buildings through improved energy efficiency (including natural gas and electricity), development of onsite renewable energy, and elimination of atmospheric ozone depleting compounds (ODCs) in fire suppression and cooling systems.
- 2.9. Reduce transportation-related greenhouse gas emissions 30% by 2030 through increased use of mass transit, use of alternative fuel vehicles, and reduction of vehicle miles traveled to decrease automobile emissions.
- 2.10. Continue to reduce greenhouse gas emissions from fugitive process emissions through the capture and combustion of methane gas from solid waste landfills and wastewater treatment systems, as well as by encouraging actions by local businesses and industry to reduce or eliminate fugitive emissions from any processes that emit any of the six Kyoto Protocol gases.
- 2.11. Continue to work with waste management haulers and local landfills to encourage the capture and combustion of methane gas.
- 2.12. Upgrade existing wastewater treatment systems to improve anaerobic digesters to increase the capture and combustion of methane gas for electricity generation.
- 2.13. Leverage existing voluntary programs to assist local organizations to calculate their greenhouse gas emissions, setting reduction targets and communicating progress.

2.14. Expand the installation of LED streetlights and traffic signals to reduce energy use and associated greenhouse gas emissions.

**3. Provide community-wide education specific to air and climate issues.**

3.1. Collaborate with agencies/organizations such as the Douglas County Health Department, MAPA and the American Lung Association to establish and implement programs that educate about the dangers of air pollutants and changes in local air and climate quality. Also establish an outreach program that changes human behavior to reduce energy use in the home.

3.2. Establish tangible actions for citizens to reduce their residential green house gas emissions by reducing energy use and increasing energy and fuel efficiency.

3.3. Work with local and national organizations that promote energy efficiency to educate homeowners.

3.4. Create partnerships among utilities, the City, universities, community colleges, State Energy Office, industry professionals and homebuilders to develop educational materials and programs for homeowners.

3.5. Develop a sustainability guide for homeowners and residential industry professionals, and make it available through a variety of channels.

## ENERGY

Meet energy demand by continuously improving efficiency and by encouraging the supply of diversified, renewable and sustainable energy systems.

### Objectives:

1. **Provide necessary education specific to energy efficiency and renewable energy sources.**
  - 1.1. Provide information about the benefits of solar, wind, biomass and other renewable energy sources.
  - 1.2. Promote innovative home monitoring systems and educational programs using new technologies, such as smart phone applications, dashboard technologies and social networking sites, to allow for real-time feedback and information exchanges on energy saving activities and techniques.
  - 1.3. Work with local utility companies and institutions to facilitate the distribution of information from their demonstration projects.
  - 1.4. Create partnerships among the utility companies, the City, universities, community college, State Energy Office and industry professionals to develop educational materials and programs for the community.
  - 1.5. Use actual energy savings information/results to educate the community.
  - 1.6. Work with Omaha Public Power District and private owners to establish demonstration electric charging facilities at strategic locations when straight electric or plug-in hybrids reach a threshold level.
  - 1.7. Create a marketing campaign that encourages people to acquire and use transportation appropriate to the nature and length of their specific trips.
2. **Reduce the demand for energy.**
  - 2.1. Encourage utility companies to continue to provide and expand financial incentives for improved efficiencies. Consider the development of loan programs or reduced rates tied to energy efficiencies.
  - 2.2. Establish policies and incentives that make energy conservation easy and attractive.
  - 2.3. Require independent life-cycle cost analyses for all City of Omaha buildings valued over \$1 million.
  - 2.4. Identify and promote ways that landlords and tenants can benefit from energy saving investments in residential rental properties.
  - 2.5. Support OPPD in developing a rate structure that includes time of use incentives.

- 2.6. Plant trees strategically in order to provide shade for buildings during the summer while allowing for the sun to penetrate the building in the winter.
- 2.7. Plant trees to serve as a windbreak during the winter without inhibiting the flow of summer winds through the building. Opportunities for taking advantage of the flow of cool air from a wooded hillside at night should also be considered.
- 2.8. When feasible, consider the use of earth embankments against one or more walls of a building.
- 2.9. Expand the use of low and moderate speed motorized urban vehicles (such as low speed electric vehicles, scooters, electric bicycles, and future technologies), characterized by ultra-low emissions and extremely high fuel efficiency, for appropriate urban trips.

**3. Encourage the supply of diverse, renewable and sustainable energy**

- 3.1. Provide incentives for, and encourage the use of, geo-thermal heating and cooling systems.
- 3.2. Update and enforce reasonable code provisions that balance the protection of solar access with the planting of shade trees.
- 3.3. Investigate the feasibility for renewable/alternative energy systems in neighborhood and redevelopment plans.



*Solar array over Creighton parking lot*

- 3.4. Provide for renewable/alternative energy systems in common areas of new residential, mixed use/commercial, and industrial development.
- 3.5. Provide infrastructure for electric vehicles: recharging stations within parking facilities, structures, etc.
- 3.6. Develop and implement regulations that address the use of motor-assisted personal mobility vehicles on portions of the city's active transportation infrastructure (multiple-use pathways, trails, bicycle lanes, and sidewalks). Personal mobility vehicles include Segways, electric bicycles, and very low-emission personal scooters. These regulations should address the size and performance limits of PMV's, compatibility with active transportation modes, types of permitted vehicles, methods of propulsion, tax status, and impact on infrastructure.

- 3.7. Develop a strong transit system identity with a highly positive image. Operate the system with “green,” clean, high-image, and attractive vehicles and support facilities, including use of alternative fuels and means of propulsion.
- 3.8. Encourage MAT to convert its fleet to ultra low emission vehicles.
4. **Provide for the efficient distribution of energy resources.**
  - 4.1. Coordinate with utilities and design professionals to identify opportunities and evaluate the potential for neighborhood/district-scale energy generation.
  - 4.2. Work with utilities to create strategies that will ensure appropriate operation and management of district/neighborhood energy systems.
  - 4.3. Support OPPD in the implementation of smart grid technology. In general, establish a formal ongoing, long-term partnership with utility companies to provide for efficient energy distribution.
  - 4.4. Provide potential incentives to encourage private development of charging facilities and infrastructure for other alternative fuels, such as compressed natural gas, hydrogen, biofuels, and other potential sources.
5. **Identify Metro-area vulnerabilities to high energy prices and develop risk management strategies.**
  - 5.1. Create a temporary task force to research vulnerabilities to high energy prices and create an Energy Action Plan (EAP).
  - 5.2. Implement recommendations of the task force to create an economically, environmentally and socially-resilient community in the face of rising energy prices.

## MATERIALS: PURCHASING, WASTE/RECYCLING

Maximize the use of standardized processes that promote environmentally-preferred, appropriate purchasing and that aggressively divert materials from the landfill toward a zero waste goal that also promotes the concept of rethink, reduce, reuse, and recycle.

### Objectives:

1. **Implement an Environmentally Preferable Purchasing (EPP) program through City/County coordination.**
  - 1.1. Adopt the Environmental Protection Agency’s Comprehensive Procurement Guideline (CPG) program to “close the loop” and promote the use of materials recovered from solid waste in order to contribute to the demand of recycled-content products. Categories include: Construction Products; Landscaping Products; Nonpaper Office Products; Paper and Paper Products; Park and Recreation Products; Transportation Products; Vehicular Products; and Miscellaneous Products.
  - 1.2. Develop environmentally preferable purchasing standards for chemical products – including janitorial, fleet maintenance, and building maintenance – with the goal of using products with the least impact on workers, residents and visitors, and on the environment. These standards should be used to objectively evaluate chemical products against both chronic and acute human health risk (carcinogens, neurotoxins, flammability, pH, etc.), environmental risks (endocrine modifiers, persistence bioaccumulative toxins, etc.), and general waste criteria (packaging considerations).
  - 1.3. Develop a list of specifications and/or approved products recognized as “green products” by the City of Omaha, including categories such as, but not limited to: Automotive Equipment & Supplies; Automotive Vehicles; Batteries; Building Materials; Computer Equipment; Copiers, Printers, Faxes, Scanners; Electrical Contact Cleaners; Food and Foodware; Fuel, Lubricants, Oil; Furniture; HVAC Cleaners; Janitorial Cleaners; Janitorial Papers; Landscaping Products; Lighting (bulbs/lamps, ballasts, fixtures); Office Paper &Supplies; Paint/Graffiti Removers; Paint Thinners; Paints; Pest Management; Toner Cartridges; Water Dispensers; and Wood.
  - 1.4. Develop a City procurement policy that prioritizes cost-effective purchase of EPEAT registered products, such as desktop computers, laptops, workstations, and computer monitors.
  - 1.5. Support the development of a local Green Business certification program to help communities identify and support businesses that meet minimum requirements for environmental performance.
  - 2.6. Create and emphasize incentives to reduce raw material use.
  - 1.7. Ensure that capital improvement projects include the use of materials and techniques that can be efficiently maintained; minimize or contain environmental impacts; avoid disturbance to unusual resources; and make maximum use of sound environmental management practices.
2. **Facilitate the “rethink, reduce, reuse and recycling” of putrescible materials through best management**

practices of environmental and economic impacts of waste management. Minimize their disposal to landfills and ensure the use of proper disposal techniques.

- 2.1. Conduct a feasibility study for the curbside pickup of putrescible material, composting the material, and then selling the compost for private use. If a public centralized compost recycling system isn't feasible, incentives should be provided for a private, entrepreneurial system.
  - 2.2. Conduct a regional feasibility study to work with restaurants, food distribution companies and retail food stores to identify economical and environmentally-beneficial ways to manage food waste, such as composting and energy generation.
  - 2.3. Local government should promote individual composting of putrescible material through education.
  - 2.4. Ensure that any food composting activities follow strict guidelines so that the activities do not create more environmental problems than they solve.
  - 2.5. The City should work with the State Department of Environmental Quality and the Douglas County Health Department to establish and enforce any food-composting guidelines.
  - 2.6. Establish and implement a fee for curbside garbage removal to provide a mechanism to incentivize waste minimization and landfill diversion.
  - 2.7. Communicate to citizens the benefits of recycling and generating less waste.
3. Facilitate the “rethink, reduce, reuse and recycling” of nonputrescible debris, including electronic materials. Minimize their disposal to landfills and ensure the use of proper disposal techniques.
- 3.1. Encourage recycling in public and commercial places.
  - 3.2. Encourage city residents to utilize the curbside recycling that is available to them.
  - 3.3. Establish economically-feasible solutions for glass recycling.
  - 3.4. Establish and provide financial and regulatory incentives for sustainable initiatives, including building material, packaging reuse and recycling.
  - 3.5. Encourage the reuse of building materials and fixtures from buildings slated for demolition.
  - 3.6. Develop a city-wide building material recycling program that results in the recycling of 100% of all



*Downtown recycling initiative*

waste building materials by 2020.

- 3.7. Develop programs for the recycling and/or disposal of non-reusable construction materials such as obsolete windows, broken drywall, crushed plaster, old cellulose insulation, etc.
  - 3.8. Work with those who currently recycle electronic devices to develop a brochure in order to disseminate information about the proper disposal of electronic devices and the hazards of improper disposal. Drop-off sites should be listed in the brochure.
4. **Use technology and conduct research to recycle and to find other uses for waste materials, including classified material.**
- 4.1. Promote and participate in a Waste Exchange Program to turn one company's waste into another company's raw material.
  - 4.2. Encourage manufacturers to reduce waste and improve efficiency by correlating input with output.
  - 4.3. Utilize the reuse of material as an economic development tool.
  - 4.4. Encourage and support research to quantify and standardize the macro and micro measurement of waste.
  - 4.5. Continue to collect data on the residential wastes that are managed under city waste collection, processing and disposal contracts.
  - 4.6. Continue to work with members of the Omaha-Council Bluffs Metro Area Planning Agency to review and implement the Regional Integrated Solid Waste Management Plan and to gather data to document progress in meeting or exceeding the landfill diversion goals established in state law and those contained in this Master Plan Element.
5. **Establish marketing campaigns that will educate and effectively change human behavior to "rethink, reduce, reuse and recycle."**
- 5.1. Challenge and change the disposable product ethos.
  - 5.2. Provide education and incentives to encourage proper recycling. Also create a website to help disseminate this information.
  - 5.3. Partner with environmental organizations, community stakeholders and civic leaders to produce a comprehensive list of materials that can be reused or recycled. (e.g., consumer goods, building materials, paints, etc.).
  - 5.4. Work with school officials and organizations to ensure a deeply-rooted educational system.

## HUMAN RESOURCES: GREEN JOBS, TECHNOLOGY

Promote market transformation, new business attraction, existing business improvements, workforce development, behavior and leadership in order to maximize the social, environmental, and economic benefit of resource and energy conservation.

### Objectives:

1. **Attract businesses that facilitate a green economy.**
  - 1.1. Create a task force to establish business incentives that attract and increase sustainable jobs that reinforce the strategies and objectives of the entire Environmental Element.
  - 1.2. Encourage business opportunities that arise from implementation of the strategies identified in the Environmental Element to be implemented by local businesses and entrepreneurs using innovative solutions.
2. **Encourage business leadership in a green economy.**
  - 2.1. Establish eco-literacy programs for all business sectors in order to raise awareness of changes that will aid in the shift toward a green economy.
  - 2.2. Partner with local organization(s) to establish a metrics-based green business certification program that recognizes businesses for implementing sustainable business practices such as reducing greenhouse gas emissions, conserving water, and diverting waste from landfills.
  - 2.3. Collaborate with local organizations to develop a city-wide directory of credible “green” service providers based on reputable product certification programs.
  - 2.4. Establish a prioritized construction permitting system that expedites building permit review for projects that include measurable features of sustainability.
  - 2.5. Encourage local businesses and community organizations to engage employees in sustainability efforts by implementing workplace recycling programs, providing incentives for using alternative forms of transportation, and educating employees on sustainable business practices.
  - 2.6. Encourage development of local businesses that create viable markets for recoverable and recyclable materials.
  - 2.7. Provide public recognition for businesses that proactively achieve sustainability targets.
3. **Ensure the availability of a workforce that understands a green economy and is qualified for green jobs.**
  - 3.1. Collaborate with agencies/ organizations such as the Chamber of Commerce and Metropolitan Community College to develop a workforce for the job opportunities that result from energy conservation retrofits and green jobs.

- 3.2. Work with businesses, universities, community colleges, high schools and other educational institutions to establish business and training partnerships to help meet the demand for green job employees.
- 3.3. Educate the public on the local, national, and global aspects of a green economy, specifically detailing the concepts of externalities, sustainable return on investment, product stewardship, and market transformation.
- 3.4. Encourage the development of a trade ally network to support energy efficiency projects.



*Students tour First Star Recycling*

# Community Health

## Background

### Problems and Opportunities

For Omaha to be a community that nurtures health and promotes safety, a diversity of issues must be addressed together: neighborhood design; food systems; health care systems; transportation systems; natural hazards; pollution prevention; public safety and crime prevention; public recreation; and others.

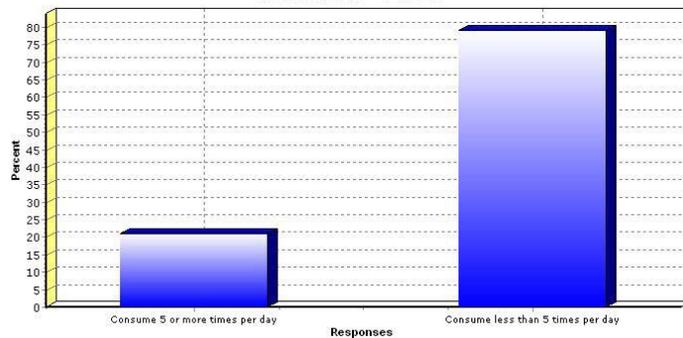
The Centers for Disease Control and Prevention (CDC) states that “Healthy places are those designed and built to improve the quality of life for all people who live, work, worship, learn, and play within their borders -- where every person is free to make choices amid a variety of healthy, available, accessible, and affordable options.”<sup>49</sup>

A recent study concluded that city development patterns could result in significant reduction in the number of people with illnesses and death related to respiratory disease, and a high savings in health care costs.<sup>50</sup> The American Lung Association said that cities designed to promote the health of citizens would “...provide more healthy choices, more opportunities for walking and biking, better access to transit, less congestion, more housing close to workplaces and more parks for kids and families to enjoy.”

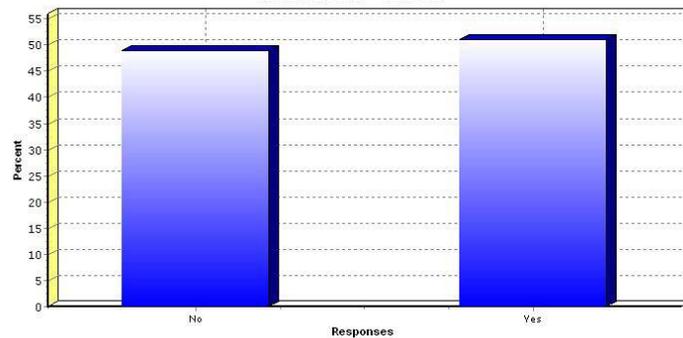
The Behavioral Risk Factor Surveillance System (BRFSS)<sup>51</sup> is a state-based system of health surveys that generate information about health risk behaviors, clinical preventive practices, and health care access and use primarily related to chronic diseases and injury. Recent data and trends can be seen for specific health issues in Nebraska:

- ❖ Nebraska adults reported to have consumed the recommended amount of fruits and vegetables five or more times per day is less than 30%.<sup>52</sup>
- ❖ Nebraska adults stating that they have 30+ minutes of moderate physical activity five or more days per week, or vigorous physical activity for 20+ minutes three or more days per week is 51%.<sup>53</sup>

**Consumption of Fruits and Vegetables per day  
Nebraska - 2009**



**Moderate physical activity  
Nebraska - 2009**



Natural hazards that may affect Omaha and the surrounding area are identified in an All Hazards Mitigation Plan.<sup>54</sup> Hazards include flooding, severe weather, tornado, drought, and dam failure.

Nebraska's Department of Health and Human Services has identified environmental risks for the state's residents.<sup>55</sup> Radon, which has been shown to increase the risk of lung-cancer, is a significant area of concern for the eastern part of the state which includes Omaha.<sup>56</sup>



*Walnut Grove Park*

Omaha provides public recreation opportunities through the Parks and Recreation Department, currently managing more than 210 city parks on 11,000 acres of land, 16 community centers, and various recreational leagues. There are over 90 miles of paved recreation trails; those trails connect into a regional trail system serving the larger metropolitan area <http://www.cityofomaha.org/parks/>.<sup>56</sup>

### *Issues and Directions*

Public comments and discussions within the Community Health Advisory Group identified the following issues and directions:

- ❖ Make healthy and safe neighborhoods for everyone--characteristics of neighborhoods influence the availability of health care, the ability to fulfill an active lifestyle, and the perception of safety.
- ❖ The concept of an active and healthy community should include the mental aspect as well as physical (e.g., education, lifelong learning, creative culture, active arts community and community art, spiritual nurturance and growth).



*Millard Branch Library*

- ❖ Make a walkable city for all (e.g., children and elderly). Remove obstacles that infringe on making cities walkable. (e.g., make regulations that require snow removal from sidewalks; make sure snow plows are not covering sidewalks; reduce crime; etc.)
- ❖ Social connectedness and a sense of community involvement are critical to improving the health of neighborhoods and the health of the people living there.
- ❖ Investment in a neighborhood is often linked to the perception of safety.
- ❖ The community needs reduced disparities in many fundamental areas; the need is to increase hope and educational attainment.
- ❖ Healthy and locally- and sustainably-grown foods need to be available to all; food systems need to be considered, from community gardens and local growers to food banks and close-proximity corner stores with affordable fresh and healthy groceries.
- ❖ No child should be exposed to high levels of lead in our community; other air, water, or soil-born toxic substances also need to be minimized to safe levels.
- ❖ An objective should be based on having a baseline minimum amount of physical activity for all; factors may include: walkability in neighborhoods; adequate open space; recreation facilities and trails distributed throughout the community; and the support and infrastructure for active transportation and mass transit.
- ❖ Increase the connection of recreation with the natural environment; promote the psychological and healing benefits of exposure to nature.
- ❖ Identify and plan for active transportation in a systems approach; identify destinations, connections, and alternatives; set active transportation in the context of multi-modal transport systems (e.g., trail to transit stops).
- ❖ Health and safety issues connected to natural and related human-created hazards include flood prevention and reduction, mitigation of impacts from climate change, designing facilities to withstand extreme winds and tornadoes, and community/regional emergency responder mobilization.

### *Concepts*

The Community Health Advisory Group used the following concepts to develop the overall statement, measurements, goals, objectives, and strategies contained in the following sections:

- ❖ An active, safe, and healthy living environment is needed for all people.
- ❖ Community engagement is critical; partnerships are needed for effectiveness.
- ❖ Community health must be a priority when decisions are made regarding resources in the community.
- ❖ Neighborhoods should have a mix of uses—varied housing types and densities, businesses and services, civic, recreation and cultural uses--and easy-to-make connections through walking, bicycling, and public transit.
- ❖ Parks, open spaces, recreation facilities and trails need to be distributed and accessible throughout the community.
- ❖ People need access to jobs, services, and opportunities that support their well-being.

## Community Health Overall Statement

Omaha will have an active, safe, and healthy living environment that supports a high quality of life for all people. This vision will be realized by:

- ❖ Leadership
- ❖ Engaging and educating the community
- ❖ Implementing sustainability policies
- ❖ Establishing public and private partnerships
- ❖ Prioritizing resources to support and sustain community health.

The vision of an active, safe and healthy Omaha will require improving and increasing:

- ❖ Neighborhoods with mixed uses and connectivity to destinations
- ❖ Parks, open spaces and recreational facilities
- ❖ Access to and availability of healthy foods
- ❖ Access to health services and economic opportunities
- ❖ Walking, biking and public transit
- ❖ High quality, healthy and affordable housing
- ❖ Safe and healthy neighborhoods and public spaces
- ❖ Environmental quality.



*St. Leo's Farmers Market*

## Measurements (Douglas County)

1. Increase the percentage of adults and youths engaged in physical activity.
  - ❖ Adults - moderate physical activity for at least 30 minutes per day on 5 or more days per week; or in vigorous physical activity at least 20 minutes per day on 3 or more days per week.
    - ◆ Baseline - 51.9% (2007)
    - ◆ 2020 Target -70%

[Source -Behavior Risk Factor Surveillance System (18 and over)]
  - ❖ Youth - physically active at least 60 minutes per day in the past 7 days
    - ◆ Baseline -41.7% (2008)
    - ◆ 2020 Target -70%

[Source -Live Well Omaha Kids, Youth Physical Activity and Dietary Behavior Survey (ages 12-19)]
2. Increase in the number and diversity of city officials, employees or design consultants who are Crime Prevention through Environmental Design (CPTED) certified at the basic and advanced levels.
  - ❖ Baseline -7 people from the Omaha Police Department are CPTED certified at the basic level (2010)
  - ❖ 2020 Target -15 CPTED certified (including certification of representatives of the executive and legislative branches of city government and 2 OPD representatives trained at the highest level)

[Source -National Institute of Crime Prevention]

3. Decrease the percentage of adults with Body Mass Index (BMI) greater than 30 and the percentage of youth with BMI in the 95<sup>th</sup> percentile BMI for age and sex.
  - ❖ Adults
    - ◆ Baseline -26.3% (2008)
    - ◆ 2020 Target -15%[Source - Behavior Risk Factor Surveillance System]
  - ❖ Youth
    - ◆ Baseline -13.2% (2008)
    - ◆ 2020 Target -5%[Source - Live Well Omaha Kids and Youth Risk Behavior Survey]
4. Increase percentage of adult and youth who consume 5 or more servings of fruit and vegetable consumption per day.
  - ❖ Adults
    - ◆ Baseline -26% (2007)
    - ◆ 2020 Target - 40%[Source - Behavior Risk Factor Surveillance System]
  - ❖ Youth
    - ◆ Baseline -3.4% (2008)
    - ◆ 2020 Target -25%[Source - Live Well Omaha Kid]



*Columbus Community Center Fitness Center*

## **Community Health Goal Summary**

### ACTIVE OMAHA

Become an active community that supports healthy lifestyles with multiple and diverse environments to promote physical activity for all people in every season.

### SAFE OMAHA

Become a safe community in which all people have community pride and opportunities to play, work, live and thrive.

### HEALTHY OMAHA

Become a community that ensures all people have equitable access to foods, services, and opportunities that support their emotional, mental, social, spiritual, and physical well-being.



*Bob Kerrey Pedestrian Bridge*

## ACTIVE OMAHA

Become an active community that supports healthy lifestyles with multiple and diverse environments to promote physical activity for all people for every season.

### Objectives:

1. **Promote a distinctive community culture of physical activity, purposeful and recreational, based on the guiding belief that accessibility to physical activity is a core element of Omaha’s built and natural environment.**
  - 1.1. Gather and disseminate local data about community assets and how Omaha ranks in active living indicators.
  - 1.2. Create and support the implementation of an “active living action plan” that includes assessments of community assets, public input and funding for active living in a variety of weather conditions.
  - 1.3. Promote social marketing and educational campaigns that educate about the health benefits of physical activity and motivate all people to live active lifestyles.
  - 1.4. Develop maps, directories, and information about community active living venues, assets and resources.
  - 1.5. Participate in and support school and business wellness events and activities for active living.
  - 1.6. Promote free family events, such as walking and bicycling on or off trails and organize walking clubs.
  - 1.7. Promote and expand existing recreational programs and the hours of operation of facilities to respond to community demand.
  - 1.8. Work with groups and agencies to establish and support active living opportunities that are appropriate for all ages and abilities, including youth, seniors and people with special needs.
  - 1.9. Establish and promote “get back to nature” programs.
  - 1.10. Create public and community art that promotes active living.
  - 1.11. Explore the creation of incentives that will encourage people to use “green” shopping bags and, if



*Hope Skate*

revenue is generated, use it to fund “active living” uses such as bike trails, parks, and Sun Dawgs.

- 1.12. Place signage at elevators to encourage use of stairs and make stairways safe and attractive.
- 1.13. Provide for adequate bicycle parking and storage at public places and in workplaces.
- 1.14. Assure that safe walking and biking routes are considered in site selection and design of public spaces, including schools.
2. **Promote development with a mix of uses, including residences, workplaces, stores and cultural and community places that promote active living.**
  - 2.1. Continue efforts to increase population density, control urban sprawl, and promote infill development/redevelopment.
  - 2.2. Provide for pedestrian and bicycle access to facilities (parks, trails, sidewalks, green spaces) as a primary consideration in neighborhood planning.
  - 2.3. Support transportation investments that accommodate and connect mixed used developments.
3. **Locate and design parks, open spaces, public spaces, trails, streets, sidewalks, and recreational facilities to promote everyday physical activity in all seasons.**
  - 3.1. Support and maintain an adequate parks and recreational master plan for all areas of the city.
  - 3.2. Identify funding sources for public places that promote active living, with funding priority focused on underserved areas.
  - 3.3. Locate recreation facilities that are accessible by multi-modal transportation that includes biking, walking and mass transit.
  - 3.4. Pursue adequate funding alternatives to improve park maintenance.
  - 3.5. Develop citywide culturally appropriate programs and facilities that promote physical activity for all ages and abilities.



*Roberts SkatePark*

- 3.6. Partner with businesses to promote the installation of recreation and wellness facilities and programs, as well as showers and locker rooms for those who walk and/or ride bicycles to work.
- 3.7. Partner with the school districts to construct additional joint library, school, garden and community center facilities.
- 3.8. Design open spaces in large scale developments or locate building near planned open space to promote physical activity.
- 3.9. Design and maintain parks, open spaces and community gardens that complement the cultural preferences of neighborhood populations.
- 3.10. Include amenities in public spaces such as paths, trails, bike racks, playgrounds, benches, restrooms and drinking fountains.
- 3.11. Create partnerships with businesses and neighborhoods to sponsor and maintain community spaces.
- 3.12. Establish and maintain spaces that are appropriate for children's play, both indoors and outdoors.

- 3.13. Use appropriate design guidelines to create spaces with natural environments that promote nature appreciation, gardening and play and that can be accessed via recreational and active transportation routes.
- 3.14. Change city codes to increase density, require less surface parking by establishing parking maximums, and to require more functionally active people-space.
- 3.15. Ensure that play/activity areas for children are available for those who live in multi-family residential developments.



*Children outdoors in the winter enjoying the wildlife sculptures near the Bob Kerrey Pedestrian Bridge*

- 3.16. Promote shared access, use and extended hours for municipal and non-city facilities.
- 4. **Create a “Complete Streets” implementation program to sustain an integrated, multi-modal transportation network for motorists, transit users, bicyclists, pedestrians, and personal transportation vehicles that promotes health through physical activity and active transportation.**
  - 4.1. Create a Transportation Master Plan establishing a “Complete Streets” policy that integrates the needs

of all users, creating a multi-modal network for all transportation projects.

- 4.2. Work towards institutionalizing a multi-modal policy within public agencies responsible for transportation investments.
  - ❖ Audit existing organizational structures to establish procedures, staff commitment, comprehension and experience with multi-modal policy implementation.
  - ❖ Offer workshops and educational opportunities for planners and engineers as required.
- 4.3. Distribute transportation investments appropriately for all modes of transportation based on degree of need and/or the Transportation Master Plan.
  - ❖ Ensure that “street bond” investments support these three categories:
    - ◆ maintenance of existing streets;
    - ◆ creation of new multi-modal facilities;
    - ◆ multi-modal rehabilitation of existing facilities.
  - ❖ Establish a program of accountability for support of active living by City agencies responsible for transportation investments funded by local, state or federal sources.
- 4.4. Create and utilize an appropriate Health Impact Assessment (HIA) to identify strengths and weaknesses in terms of public health. Where appropriate, health impact assessments should be included in the review and approval of transportation and large project developments.
- 4.5. Perform an audit of existing network conditions for all modes of transportation to identify gaps in the network, obstacles for safe routes to school, poor quality or substandard conditions. Institute better ways to measure performance and collect data on how well the streets are serving all users.
- 4.6. Develop measurement techniques to monitor use and outcome of multi-modal facility investment such as “mode share” and vehicle miles traveled (VMT).
- 4.7. Adopt street design standards to incorporate design and engineering practices that produce safe, functional, livable and cost effective multi-modal/complete streets and networks. Street design standards should be compatible with the adjacent land use context and provide exceptions for certain situations such as:
  - 1) Accommodation is not necessary



*Bicycle lane*

- on corridors where non-motorized use is prohibited, such as interstate freeways;
- 2) Cost of accommodation is excessively disproportionate to the need or probable use;
  - 3) A documented absence of current or future need;
  - 4) Severe topographical constraints.
- 4.8. Adopt site design standards that require multi-modal facilities for large development projects including access to transit and network connectivity. Utilize the existing zoning review and approval process to assure developments provide these facilities.
  - 4.9. Pursue modifications to state and local design standards or laws that conflict with or limit design flexibility for unique or special circumstances when implementing a multi-modal/complete street design.
  - 4.10. Provide outreach and educational programs to inform citizens how transportation decisions affect community health, the ability to live active lifestyle and the quality of life.
  - 4.11. Promote research and funding into opportunities for improved forms of mass transit such as bus rapid transit (BRT), streetcar, regional light-rail and national high-speed rail. Also work towards improving and coordinating existing forms of mass transit through interagency collaboration.
  - 4.12. Prioritize and fund pilot projects to demonstrate multi-modal transportation facilities.



*Hummel Park Day Camp - bearing impaired campers*

## SAFE OMAHA

Become a safe community in which people have community pride and opportunities to play, work, live and thrive.

### Objectives:

1. **Ensure quality, safe, healthy, and affordable homes for all residents.**
  - 1.1. Work with the Fire Department to identify necessary changes in design guidelines to incorporate fire-safe strategies.
  - 1.2. Evaluate the building codes for changes necessary for the Green and Healthy Homes guidelines, and provide information about how to implement these recommendations.
  - 1.3. Provide information about air quality, lead and other potential toxic substances and environmental hazards in homes and how to correct them.
  - 1.4. Prepare and provide information about gun safety, particularly how to properly store and handle firearms and ammunition in the home.
  - 1.5. Reduce chemical hazards in the home by educating about proper storage and disposal.
  - 1.6. Develop and follow green and healthy homes guidelines for all City-built housing units.
  - 1.7. Provide an integrated system of care for people experiencing homelessness.
  - 1.8. Develop support programs and funding to assist homeowners to maintain and rehabilitate their homes.



*Safe housing through maintenance assistance, code enforcement and infill development*

- 1.9. Continuously update and enforce codes that require landowners to maintain their property.
2. **Educate the community in the use of “Crime Prevention through Environmental Design” (CPTED) techniques to make neighborhoods safer.**
  - 2.1. Use appropriate lighting to illuminate private property and public spaces.
  - 2.2. Use doors, gates, fences, and/or other methods to control access to private property.
  - 2.3. Design and utilize windows, lighting and landscaping to improve safety in and around private property.
  - 2.4. Increase the use of the built environment for safe activities with the intent of increasing “eyes on the street,” community pride and social cohesion to deter criminal and undesirable activities.
  - 2.5. Design and utilize sidewalks, landscaping and porches to establish a border between private and public property to create a feeling of territoriality.
  - 2.6. Include a CPTED certified person in the development review process.
  - 2.7. Promote CPTED education and certification of city officials, employees and design consultants.
3. **Support community and neighborhood-based efforts to keep communities safe.**
  - 3.1. Work to improve the safety of neighborhoods by encouraging social cohesion and active lifestyles through walking, biking or using transit.
  - 3.2. Review lighting standards for both public and private uses to improve safety and effectiveness.
  - 3.3. Work with community residents, “neighborhood watch” groups and citizen patrols to establish a patrol and reporting system to ensure that abandoned and deteriorated properties, including vacant lots, are properly cared for and maintained.
  - 3.4. Encourage the mounting of automated external defibrillators (AEDs) in all significant existing, new and renovated buildings and include proper training/instruction for use.
  - 3.5. Enhance public safety by strengthening community policing programs.
  - 3.6. Invest in and promote youth programs that instill community pride and assure safe opportunities for active living and enrichment activities for youth in their community.
  - 3.7. Explore opportunities to enhance safety along public trails and educate the public about how to use emergency notification and response procedures.

- 3.8. Encourage the use of protective helmets while bicycling and promote community programs that provide helmets.
- 3.9. Enact safe bicycling practices that enable safe operation of all vehicles on shared rights-of-way. A provision of these laws should provide a minimum safe passing distance for automobiles passing bicyclists. Additionally, establish laws that recognize the differing operational characteristics of motor and human-powered vehicles.
- 3.10. Develop design guidelines that deter criminal activity in neighborhoods, streets and public areas, including guidelines to prevent vandalism and graffiti.
- 3.11. Work with local police to assure crime prevention strategies in development and redevelopment projects.
- 3.12. Support community efforts to prevent and curb violence.
- 3.13. Proactively work with the Police Department and neighborhood groups to establish “Neighborhood Watch” groups and citizen patrols.
- 3.14. Create ownership within neighborhoods by establishing neighborhood organizations that disseminate important neighborhood information and continually develop programs and strategies that strengthen the neighborhood.
- 3.15. Create a web site that allows citizens to identify blighted conditions for city follow-up action.
- 3.16. Consider initiating state legislation that gives neighbors standing to seek civil damages against owners of deteriorated property that demonstrably affects the value of their properties.
- 3.17. Maintain aggressive code enforcement and property maintenance programs.
- 3.18. Provide community-wide volunteer assistance to people who have difficulty maintaining or repairing their own properties.
- 3.19. Support the National Safety Council of Greater Omaha in its effort to maintain Omaha’s designation as a Safe Community by the World Health Organization. These efforts are focused in the following five categories:
  - a. An infrastructure based on partnership and collaborations, governed by a cross-sectional group that is responsible for safety promotion in their community;
  - b. Long-term sustainable programs covering both genders and all ages, environments and situations;
  - c. Programs that target high-risk groups and environments and programs that promote safe to vulnerable groups;
  - d. Evaluation measures to assess their programs, processes and the effects of change; and

e. Ongoing participation in national and international Safe Communities networks.

4. Ensure a long-term safe community by being prepared for potential hazards.

- 4.1 Strengthen the emergency response warning system to reach all residents and address language barriers.
- 4.2 Support the Citizens Corps in efforts to plan and prepare for emergencies.
- 4.3 Work with public safety and emergency management officials to actively plan for community safety, including climate change and emergency prevention and adaptability.



*Tornado warning system for community safety*

## HEALTHY OMAHA

Become a community that ensures its people have equitable access to foods, services, and opportunities that support their emotional, mental, social, spiritual and physical well-being.

### Objectives:

1. **Make neighborhoods places that promote the physical and mental health and healthy lifestyles of its residents.**
  - 1.1. Encourage businesses and institutions to provide free Wi-Fi systems to enhance social cohesion.
  - 1.2. Provide communities resources and education on enhancing skills for building healthy communities.
  - 1.3. Establish and support public/private partnerships to fund healthy community promotions.
  - 1.4. Encourage neighborhood groups to establish neighborhood-based health committees.
  - 1.5. Continue to work with the State of Nebraska Historical Society and the Landmarks Heritage Preservation Commission to limit restrictions that prevent the healthy renovation of historic sites, structures and districts.
  - 1.6. Work with groups to promote a smoke free-environment.
  - 1.7. Work with the Public Works and Parks, Recreation and Public Property Departments to encourage the use of integrated pest management techniques that minimize the use of pesticides.
  - 1.8. Develop an alcohol accessibility policy to decrease accessibility in neighborhoods.
  - 1.9. Continue to educate about the health problems and social costs related to using alcohol, smoking and obesity.
  
2. **Develop and implement food policies and systems—grocery stores, convenience shops, restaurants, community gardens, etc.--that make healthy, affordable and quality food choices available and accessible in all neighborhoods.**
  - 2.1. Create community food councils that evaluate the community's food systems, encourage community input and recommend best practices to promote access to healthy and affordable foods for all residents.



- 2.2. Inventory and map the availability of healthy food outlets in neighborhoods.
- 2.3. Develop policies and strategies to attract full service grocery stores within walking distance from places of work and residences to promote healthy eating.
- 2.4. Provide incentives to attract healthy food establishments to food deserts.
- 2.5. Establish incentives for grocers who focus on buying and selling local goods.
- 2.6. Explore the feasibility of removing barriers to allowing the distribution of produce from community gardens to improve access to underserved areas.
- 2.7. Explore and implement opportunities such as the healthy corner store to assure the availability of healthy foods in existing retail outlets.
- 2.8. Expand farmers markets, community gardens and local buying of fruits and vegetables to assure affordable access for all residents.
- 2.9. Support urban agriculture and encourage local farmers to produce fresh fruits and vegetables for local distribution.
- 2.10. Promote safety and awareness about lead contamination in soil and follow approved standards for all gardens.
- 2.11. Work with the Chamber of Commerce to seek corporate sponsorship of community gardens and school gardens.
- 2.12. Promote and educate about opportunities to buy healthy food from local vendors.



*City Sprout gardeners at work*

- 2.13. Promote farm to school/business initiatives.
  - 2.14. Support urban farming requests, including orchards for children (this could involve land use waivers or rezoning requests) If compatible with their surroundings.
  - 2.15. Establish a program that allows city-owned property to be used by neighborhood groups for community gardens.
  - 2.16. Educate the public and raise awareness of the benefits of residential gardening.
  - 2.17. Expand opportunities for distribution of fresh fruits and vegetables in underserved areas and in government programs. Support programs that result in free access to surplus fruits and vegetables.
  - 2.18. Encourage restaurants to serve healthy foods and provide nutritional information to customers.
  - 2.19. Work with city and other officials to make healthy foods available in concessions during events.
  - 2.20. Increase the number of outdoor cafes to enhance street activity.
  - 2.21. Consider limitations regarding the addition of fast food restaurants in food deserts.
  - 2.22. Support the expansion and promotion of food co-ops and consumer supported agriculture (CSA) projects.
  - 2.23. Support efforts to reduce sugar, fat and sodium in our diets.
  - 2.24. Ensure that everyone has access to safe drinking water.
  - 2.25. Encourage the use of edible plants in residential landscaping.
- 3. Provide for equitable access to health services and economic opportunities.**
- 3.1. Develop an access plan that addresses transit service to major medical facilities.
  - 3.2. Work with Douglas County to provide vaccinations and testing for communicable diseases in the public places.
  - 3.3. Expand the delivery of health services in neighborhoods, churches and schools.
  - 3.4. Expand and diversify the employment opportunities in places accessible by mass transit.
  - 3.5. Recruit employment opportunities in underserved areas.

- 3.6. Support and expand jobs-skills training programs and services.
- 3.7. Promote and support small, local business owners.
- 3.8. Promote employment practices that provide health benefits and a living wage.
- 4. **Monitor and improve the environmental quality of our City's air, water, and land to promote the health of its residents.**
  - 4.1. Improve air quality to protect human and environmental health and minimize impacts on sensitive populations.
  - 4.2. Promote the use of sustainable and green infrastructure to protect natural resources.
  - 4.3. Preserve, enhance and restore open spaces and urban creeks to protect natural habitat and promote biodiversity.
  - 4.4. Work with source generators to maintain acceptable noise levels in communities.
  - 4.5. Work with stakeholders to mitigate noise impact from roadways and railroads to residential areas.
  - 4.6. Work with the community to develop policies and programs that reduce smoking and exposure to second hand smoke.
  - 4.7. Engage air quality monitoring and enact an air pollution reduction plan.
  - 4.8. Develop and enforce indoor air quality standards.
  - 4.9. Implement landscaping practices that reduce heat and air pollutants.
  - 4.10. Strengthen programs to accelerate the cleanup and redevelopment of brown-field sites, lead removal, and other types of soil cleanup.
  - 4.11. Strengthen the enforcement of existing laws, particularly noise loudness violations.
  - 4.12. Enforce local and State of Nebraska Department of Environmental Quality (NDEQ) codes to ensure good sanitation.



*No Smoking sign*

- 4.13. Maintain and enforce the current ban on fireworks to reduce air pollution and trash that result from private use.
- 5. **Engage community leaders to create policies and educate residents about how to build and sustain a healthy community.**
  - 5.1. Promote public/private partnerships that engage the public to support public health initiatives.
  - 5.2. Strengthen the City's internal capacity to support and implement health related policies and programs.
  - 5.3. Support ongoing monitoring and public reporting of health outcomes and prevention strategies.
  - 5.4. Encourage preventative strategies in health and benefit plans offered to city and county employees.

# Implementation

## Environment Element Plan Adoption

The Plan was reviewed and approved by the Core Committee on September 2, 2010. The draft plan is accessible to the public through the Environment Omaha website. Information meetings and presentations about the plan are available through Omaha By Design and the Omaha City Planning Department.

The Omaha Planning Board was briefed on the respective sections of the plan during 2010. A public hearing was held on the entire Environment Element October 6, 2010. Members of the City Council were briefed and the City Council Public hearing was held December 14, 2010. The Environment Element was approved by the City Council on December 14, 2010 (Ordinance #38882).

## Taking Action

The Environment Element will only be meaningful and effective through a commitment to carrying out the strategies identified in the plan. Several aspects of implementation were identified and discussed in the section called Overarching Themes.

### Roles and Responsibilities

Implementation of the goals, objectives, and the specific policies and strategies will require a community-wide commitment. As described more fully in the Guiding Principles, implementation more often than not will result from partnerships and actions taken may require a coordinated effort. Coordination may involve joint funding or other support or may require a preceding action by a different responsible entity.

### Action Plans

An overall action plan will be developed for the purpose of organizing implementation actions and to monitor progress following the adoption of the Environment Element. The need for action plans was identified as one of the Guiding Principles; characteristics of an Action Plan are described in that section. Complex or long-term strategies may have their own action plans designed to provide a framework and schedule for a specific project.

### Identifying Priorities

Priorities need to be identified for implementation actions in order to accomplish the greatest impact with limited financial and human resources. Considerations that should be used in identifying priorities are discussed in the Overarching Principles.



*Individual and community actions are needed for implementation*

### *Monitoring and Indicators*

As discussed earlier in the Guiding Principles, the effectiveness of strategies and policies and the progress toward reaching the goals and objectives of the plan must be monitored and evaluated. Appropriate indicators need to be adopted and measured on a frequent periodic basis. Periodic monitoring allows for rethinking and revising strategies if needed.

### *Community Action*

An ongoing, community-wide commitment is necessary for Omaha to accomplish the actions set out in the Environment Element. Effective implementation efforts need to focus on protecting the environment, building community capacity, and fostering opportunity. Many strategies can be pursued quickly; taking immediate action toward accomplishing the goals and objectives can create momentum for efforts that are more complex or difficult. Many citizens, community-based organizations, businesses, and government entities are already committed to taking actions that have been identified in this plan.

### *City Commitment*

As of 2010, the City of Omaha has made several significant commitments to pursuing sustainability and has taken the lead in establishing critical partnerships necessary to implement projects. In 2009, the City created a Sustainability Coordinator position funded through the Energy Efficiency and Conservation Block Grant (EECBG). The initial focus is to implement projects that will improve energy efficiency in city facilities and operations; in addition, work toward a Comprehensive Energy Management Plan (CEMP) has been initiated.

### *Comprehensive Energy Management Plan*

The CMEP will focus on reducing energy consumption and fostering clean energy development in Municipal Operations and Community-wide. The plan will include a baseline and profile of the city's overall energy consumption patterns, analyze current energy use in transportation, buildings, and solid waste, review city building and zoning codes for opportunities and barriers to energy efficiency, and provide recommendations for city policies and programs. The analysis and tools for implementing efforts toward energy conservation and efficiency will be designed for use in implementation of other community-wide sustainability goals; it will set out a framework that includes performance measures and public reporting on progress toward goals on other sustainability issues.

### *Retrofit Ramp-up Program*

In addition to administration of the EECBG, the efforts of the Sustainability Coordinator for Omaha resulted in Omaha's being one of 25 U.S. cities awarded grant funds for the Retrofit Ramp-up Program. The goal of the program is to create a sustainable energy-efficient building retrofit



*Initial efforts under the Energy Efficiency and Conservation Block Grant (EECBG) will save in costs to the city by replacing inefficient lighting in city parking garages with LED lights*

market focusing on the areas of: workforce development, green technology and entrepreneurship, consumer information, financial mechanisms, neighborhood advocacy, and market strategy effort. The City is partnering with a number of organizations and groups to leverage an estimated \$100 million invested in training, implementation, and monitoring.



**Conclusion**

*Omaha's Environment: Basis for Quality of Life*

The Environment Element is not only a guide for city actions and policies; it is a vision for the long-term environmental health and sustainability of the entire Omaha community and the natural resources and ecosystems on which it depends. Characteristics of Omaha described by representatives of the community during the process of developing the Environment Element include healthy and safe, thriving, regenerative, restored, effective, cost-saving, beneficial, distinctive, balanced, and sustainable.

The city's Concept Element adopted in 1997 contained a very broad vision statement, "Omaha must be community committed to promoting and maintaining a high quality of life for all of its people." The vision and goals set out in the Environment Element provide a critical basis for meeting that broad quality of life vision. Taking actions that have been set out in this plan will be a significant step in accomplishing the vision.



*ECOMaha symbolizes the many efforts of people working toward the interconnected causes of Environment, Community and Opportunity*

# Glossary

**Active Living:** a way of life that integrates physical activity into daily life

**Active Transportation:** any form of human-powered transportation; e.g., walking, cycling. It can also involve combining modes such as cycling with public transit.

**Aesthetic:** regarding the appeal of an object to one's senses, beauty or attractiveness

**AIA:** The American Institute of Architects

**Anaerobic:** pertaining to, or caused by, the absence of oxygen

**Attainment Area:** zone within which the level of a pollutant is considered to meet United States National Ambient Air Quality Standards

**Bicycle-Friendly Community:** from The League of American Bicyclists, an awards program that recognizes municipalities that actively support bicycling. A Bicycle-Friendly Community provides safe accommodation for cycling and encourages its residents to bike for transportation and recreation. There are four awards starting at bronze and then silver, gold and platinum.

**Brownfields:** abandoned, idled or underused industrial and commercial facilities where expansion or redevelopment is complicated by real or perceived environmental contamination

**Build-through Acreage:** a low density development designed to allow for eventual infill at a greater density when demand increases or municipal services become available

**Chicane:** an artificial feature designed to slow traffic by creating extra turns in a roadway

**Citizen Corp:** FEMA's grassroots strategy to bring together government and community leaders to involve citizens in all-hazards emergency preparedness and resilience

**City:** refers to the governmental entity, City of Omaha; city: refers to the incorporated area and its extraterritorial jurisdiction

**Community:** general reference to an area or group dependent upon context. The term may refer to a neighborhood or even a group of cities.

**Complete Streets:** roadways designed and operated to enable safe, attractive, and comfortable access and travel for all users, including pedestrians, bicyclists, automobiles and transit

**Connectivity Index:** a measure of the directness and adequacy of links and the density of connections within a street and pedestrian network

**Conservation Development / Conservation Design Practices / LID Techniques:** development designed to protect farmland and/or natural resources without necessarily lowering lot count by utilizing common open space and clustered compact lots

**Damaged Land:** land that has been rendered ecologically comatose by abuse, overuse, pollution, or neglect

**Density:** the number of dwellings or principal buildings or uses per acre of land. Measurement may include all ground within the area or be per “net acre,” which does not include the land required for public streets.

**Ecological and Landscape Features:** a species, group of species or a community that is nationally, regionally or locally important for biodiversity of conservation value because of the role it plays in the environment

**Ecologist:** a person whose educational background involves some aspect of the study of the relationships between organisms and their past, present, and future environments, including physiological responses of individuals, structure and dynamics of populations, interactions among species, organization of biological communities, and processing of energy and matter in ecosystems

**Ecosystem:** a system (e.g., area or land) that includes all its living organisms (biotic factors), as well as its physical environment (abiotic factors) functioning together as a unit

**Environmental Overlay District:** an additional zoning requirement that is placed on a geographic area but does not change the underlying zoning. These districts are created to protect natural resources, promote safety and protect health.

**Environmentally Preferable Purchasing:** seeking out goods and service providers that are environmentally responsible. The Federal Government has a website dedicated to the practice and an index to provide assistance at <http://www.epa.gov/epp/>.

**EPEAT:** (“Electronic Product Environmental Assessment Tool”) a system that helps purchasers evaluate, compare and select electronic products based on their environmental attributes. The system currently covers desktop and laptop computers, thin clients, workstations and computer monitors.

**Fixed Guideway System:** a mass transportation facility which utilizes and occupies a separate right-of-way, or rail line, for the exclusive use of mass transportation and other high occupancy vehicles. This includes, but is not limited to, rapid rail, light rail, commuter rail, automated guideway transit, people movers, ferry boat service, and fixed-guideway facilities for buses (such as bus rapid transit) and other high occupancy vehicles.

**Flood Storage Areas:** those floodplain areas where floodwater storage has been taken into account in reducing the regional flood discharge

**Goals:** the broadest expressions of a community’s aspirations. Goals are concerned with the long term, and they often describe ideal situations that would result if all plan purposes were fully realized. Since goals are values-based, their attainment is difficult to measure.

**Grayfields:** property, typically commercial, that is underperforming economically or completely unused. The “gray” refers to the often large expanses of unused parking lot space. This term includes outdated or inappropriately located commercial properties, as well as “dead malls” and “ghost boxes.” Unlike brownfields, grayfields are not environmentally impacted and can often be revitalized or redeveloped much more easily.

**Gray Water:** waste water that is not polluted by sewage or high amounts of toxic substances (--) most commonly the result of household activities(,) such as bathing, dish or clothes washing(,) and often recaptured and utilized for irrigation purposes

**Green Economy:** based on a knowledge of Ecological economics, an economic development model that aims at addressing the interdependence of human economies and natural ecosystem and the adverse impact of human economic activities on climate change and global warming and that includes renewable energy sources, organic produce and products, green buildings, alternative fuel vehicles, etc.

**Greenfields:** previously undeveloped property which may be in agricultural production or in natural condition

**Greenhouse Gas (GHG):** gases that trap heat in the atmosphere. Some greenhouse gases such as carbon dioxide occur naturally and are emitted to the atmosphere through natural processes and human activities. Other greenhouse gases (e.g., fluorinated gases) are created and emitted solely through human activities.

**Green Infrastructure:** an interconnected network of open spaces and natural areas, such as greenways, wetlands, parks, forest preserves and native plant vegetation. This network naturally manages stormwater, reduces flooding risk and improves water quality.

**Green Roof:** a building roof that is partially or completely covered with vegetation and soil or a growing medium, planted over a waterproofing membrane

**Green Solutions:** the procedures, methods, and practices used to abate or remediate problems that cause degradation of the environment, ecosystem, or natural resources

**Headway:** the time between two vehicles passing the same point traveling in the same direction on a given route. This term is most frequently applied to rail transport where the number of tracks is limited and signaling capabilities control the headway. A shorter headway signifies a more frequent service.

**Health Impact Assessment (HIA):** a combination of procedures, methods, and tools by which a policy, program, or project may be judged as to its potential effects on the health of a population and the distribution of those effects within the population

**Healthy Foods:** foods that provide necessary vitamins, minerals and other nutrients critical to a body’s healthy functioning without excessive calories, saturated fat or other negatives

**HERS:** (Home Energy Rating System) the rating of homes based upon their level of energy efficiency. The HERS Reference Home (based on the 2006 International Energy Conservation Code) scores a HERS Index of 100, while a net zero energy home scores a HERS Index of 0. Each 1-point decrease in the HERS Index corresponds to a 1% reduction in energy consumption compared to the HERS Reference Home.

**Highly Erodible Soil:** areas of incline, whether natural or man-made, lacking sufficient vegetation to prevent instability, erosion, or downstream siltation; lands underlain by soils which are subject to severe erosion when disturbed

**Implementation or Strategy:** sets out actions/projects to be pursued

**Important Plant and Wildlife Communities:** areas, that because of climate, soils, vegetation, relationship to water, and other physical properties, have been identified by professional ecologists and wildlife biologists to be of critical importance to the maintenance of wildlife species

**Infill Development:** the development or redevelopment of parcels of ground generally surrounded by a built area while making use of existing infrastructure -- as opposed to fringe development that would require the extension of that infrastructure

**LEED-certified or equivalent:** certified according to criteria developed by the U.S. Green Building Council (USGBC) or any other method, existing or devised, that accounts for similar sustainability goals

**Light Trespass:** the shining of light beyond the boundaries of the property on which the light source is located

**Loess Hills:** a formation of wind-deposited loess soil in the westernmost part of Iowa and Missouri along the Missouri River

**LRV-** light rail vehicle

**Metro Area / Metropolitan Area:** Omaha and its surrounding areas and communities, not necessarily inclusive of the entire metropolitan statistical area (MSA)

**Microclimate:** distinct climate deviations within an area, such as a city street or a building's courtyard. Differences are impacted by sunlight, shade, or exposure to the wind and can be favorably altered through functional landscaping, architecture, and other design features.

**Minimize:** to lower as much as is reasonable given the existing situation; not to be construed as requiring reduction to zero

**Multi-modal:** a transportation system or facility that allows for movement by more than a single means (usually the automobile)

**Native:** indigenous to the area; historically present in the region; occurs naturally in the area without direct or indirect human action

**Natural:** in accordance with nature; in a state of nature; uncultivated, as land; includes native and restored areas containing native plants, animals, and other organisms maintained to approximate a natural ecosystem

**Neck Down/Bump Out:** intersection curb extensions that reduce the roadway width from curb-to-curb and “pedestrianize” intersections by shortening crossing distances for pedestrians, by drawing attention to pedestrians via raised peninsulas, and by tightening the curb radii at the corners, reducing the speeds of turning vehicles

**NEWANIP:** native and ecologically well-adapted non-invasive plants

**Node:** an identifiable grouping of uses subsidiary and dependent upon a larger urban grouping of similar or related uses

**Objective:** defines a strategic direction or identifies implementation steps to attain the goals. Objectives are more specific than goals and typically have a shorter timeframe. Objectives often are measurable benchmarks that can be used to assess incremental progress in achieving the broader purposes expressed in policies and goals.

**Open space** – any land or area, the preservation of which in its present use would: (1) conserve and enhance natural or scenic resources; (2) protect streams or water supply; (3) promote conservation of soils, wetlands, beaches, or tidal marshes; (4) enhance the value to the public of abutting or neighboring parks, forests, wildlife preserves, nature reservations, or sanctuaries; or (5) enhance recreation opportunities.

**Ozone-Depleting Substance(s) (ODS):** a compound that contributes to stratospheric ozone depletion, The ODS designation includes chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), halons, methyl bromide, carbon tetrachloride, hydrobromofluorocarbons, chlorobromomethane, and methyl chloroform. OD Substances are generally very stable in the troposphere and only degrade under intense ultraviolet light in the stratosphere. When they break down, they release chlorine or bromine atoms, which then deplete ozone.

**Pedestrian-friendly:** the density, layout, and infrastructure that encourages walking and biking within a subdivision or development, e.g., smaller setbacks, front porches and adequately-sized and interconnected sidewalks

**Plan:** an inventory, a measurement strategy, reduction strategies, and/or action steps

**Policies:** approaches which guide actions, evaluations and/or reviews. Policies need to be specific enough to help determine whether a proposed project or program would advance community values expressed in the goals.

**PTV:** personal transportation vehicle

**Rapid Transit:** an urban area, electric passenger railway with high capacity and frequency, being grade-separated from other traffic. Rapid transit systems are typically either in underground tunnels or elevated above street level. Outside urban centers rapid transit lines sometimes run grade-separated at ground level.

**Rearage/Backage roads:** function much like frontage roads, providing access to parcels that sit on restricted access roadways. These roads access, however, from the rear of the parcels to allow for a greater distance between their connection with cross streets and the intersection of those cross streets, improving overall access.

**Reduce:** to diminish in size, amount, extent, or number

**Scenic View or Scenic Corridor:** an area of land that requires protective measures to ensure perpetuation of its scenic qualities, whether of an urban or rural setting

**Smart Irrigation Control:** a system that uses information from a variety of possible sources to provide more water when needed and less, or no, water when appropriate, as well. Smart systems can simply be set on (1) timers that amend function according to time of day and year, (2) sensors that measure moisture in adjacent soil, or even (3) internet data regarding local weather and other relevant conditions.

**Steep Slopes / Steep Bluffs:** greater than 17% grade

**Strategy:** sets out actions/projects to be pursued

**Sustainable Development:** a pattern of resource use that aims to meet human needs while preserving the environment so that these needs can be met not only in the present but also for future generations

**Total Maximum Daily Load (TMDL):** a calculation of the maximum amount of a pollutant that a waterbody can receive and still safely meet water quality standards

**Triple Bottom Line:** full-cost accounting principle that accounts for not only financial costs but also ecological and social ones as well; otherwise referred to as People, Planet, Profit and the Three Pillars

**ULEV or Ultra-Low Emissions Vehicle:** a vehicle that has been verified by the Air Resources Board of California to emit 50% less polluting emissions than the average for new cars released in that model year. The term can also be used more generically to refer to vehicles that produce much fewer emissions.

**Vapor Recovery System:** Stage I vapor recovery is a control strategy to capture gasoline vapors that are released when gasoline is delivered to a storage tank. The vapors are returned to the tank truck as the storage tank is being filled with fuel, rather than released to the ambient air.

Stage II is the control strategy that captures gasoline vapors when a vehicle is being fueled at the pump. The vapors are returned through the pump hose to the petroleum storage tank instead of being released into the air. On some vehicles, Stage II vapor-recovery systems help capture up to 95 percent of harmful gasoline vapors that may otherwise be released to the atmosphere.

**Walkability:** measure of how friendly an area is to walking. Factors influencing walkability include the presence or absence and quality of sidewalks or other pedestrian pathways, traffic and road conditions, land use patterns, building accessibility, and safety.

**Wildlife:** includes all non-domesticated plants, animals and other organisms

**Wildlife Biologist:** a person with the educational background and demonstrated expertise in the art and science of applying the principles of ecology to the conservation and management of wildlife and its habitats

**Zero Waste:** a philosophy that encourages the redesign of resource life cycles so that all products are reused. Any trash sent to landfills is minimal.

## Endnotes

- <sup>1</sup>“Principles of Smart Growth - Create Walkable Neighborhoods,” *Smart Growth Online*, (accessed: October 7, 2010) <http://www.smartgrowth.org/about/principles/principles.asp?prin=4&res=1024>
- <sup>2</sup>Jonah Lehrer, “How the City Hurts Your Brain...And What You Can Do About It,” *The Boston Globe*, January 2, 2009, (accessed: October 7, 2010) [http://www.boston.com/bostonglobe/ideas/articles/2009/01/04/how\\_the\\_city\\_hurts\\_your\\_brain?mode=PF](http://www.boston.com/bostonglobe/ideas/articles/2009/01/04/how_the_city_hurts_your_brain?mode=PF)
- <sup>3</sup>Jo Barton and Jules Pretty, “Green Exercise Rapidly Boosts Mental Health,” *WorldHealth.net*, Posted: May 13, 2010 (accessed: October 7, 2010) <http://www.worldhealth.net/news/green-exercise-rapidly-boosts-mental-health/>
- <sup>4</sup>“Home and Neighborhood Safety,” *National Crime Prevention Council*, (accessed: October 7, 2010) <http://www.ncpc.org/topics/home-and-neighborhood-safety>
- <sup>5</sup>“Climate Change and Public Health,” *Centers for Disease Control and Prevention*, December 14, 2009, (accessed: October 7, 2010) <http://www.cdc.gov/climatechange/effects/default.htm>
- <sup>6</sup>Climate Change - Health and Environmental Effects,” *United States Environmental Protection Agency*, Updated: April 27, 2010, (accessed: October 7, 2010) <http://www.epa.gov/climatechange/effects/health.html>
- <sup>7</sup>United States Global Change Research Program, “Climate Change Impacts on the United States, The Potential Consequences of Climate Variability and Change,” by the National Assessment Synthesis Team, *US Global Change Research Program*, Updated: October 12, 2003, (accessed: October 7, 2010) <http://www.usgcrp.gov/usgcrp/Library/nationalassessment/overviewhealth.htm>
- <sup>8</sup>Jan Mueller and Suzanne Rynne, AICP, “Integrating Energy and Climate into Planning,” *American Planning Association*, PAS Memo-January/February 2009, (accessed: October 7, 2010) <http://www.planning.org/pas/memo/open/jan2009/index.htm>
- <sup>9</sup>Resources: Links to Key Resources Concerned with Peak Oil and Sustainable Communities, *Community Solutions*, (accessed: October 7, 2010) <http://www.communitysolution.org/resources.html>
- <sup>10</sup>“Post Carbon Cities: Planning for Energy and Climate Uncertainty,” *Post Carbon Institute*, (accessed: October 7, 2010) <http://postcarboncities.net/>
- <sup>11</sup>“Natural Capitalism,” *Rocky Mountain Institute*, (accessed: October 7, 2010) <http://www.rmi.org/rmi/Natural+Capitalism>
- <sup>12</sup>“Green-Collar Jobs Overview,” *Green For All*, (accessed: October 7, 2010) <http://www.greenforall.org/resources/green-collar-jobs-overview>
- <sup>13</sup>“Green Jobs-Energy to Repower America’s Economic Engine,” *Energy Future Coalition*, (accessed: October 7, 2010) <http://www.energyfuturecoalition.org/Resources/Green-Jobs>

- <sup>14</sup>Amory B. Lovins, “Climate: Eight Convenient Truths,” *Rocky Mountain Institute*, February 2010, (accessed: October 7, 2010) <http://www.rmi.org/rmi/Climate-+Eight+Convenient+Truths>
- <sup>15</sup>“Your Omaha 2020: Building a Young Professionals’ Vision for Our Community,” *Omaha Young Professionals*, (accessed: October 8, 2010) <http://www.omahayoungprofessionals.org/pdf/YourOmaha2020.pdf>
- <sup>16</sup>Urban Nature & Biodiversity Links, *Nature in the City*, (accessed: October 8, 2010) <http://natureinthecity.org/links.php#14>
- <sup>17</sup>“The Four System Conditions,” *The Natural Step*, (accessed: October 8, 2010) <http://www.naturalstep.org/en/the-system-conditions>
- <sup>18</sup>“Sustainability Indicators 101-Characteristics of Effective Indicators,” *Sustainable Measures*, (accessed: October 8, 2010) <http://www.sustainablemeasures.com/node/92>
- <sup>19</sup>Cecily Maller, Mardie Townsend, Anita Pryor\*, Peter Brown and Lawrence St Leger, “Healthy Nature Healthy People: ‘Contact with Nature’ as an Upstream Health Promotion Intervention for Populations,” *Health Promotions International*, Published by Oxford University Press, March 2006, Oxford Journals, Issue1 Pp. 45-54, (accessed: October 8, 2010) <http://heapro.oxfordjournals.org/cgi/content/full/21/1/45#SEC5>
- <sup>20</sup>Roy Haines-Young, “Ecosystem Service and Urban Areas” Power Point Presentation, Center for Environmental Management, School of Geography, *University of Nottingham* (accessed: October 8, 2010) <http://www.naturalcapitalinitiative.org.uk/files/presentations/28%20Roy%20Haines-Young%20NCI%2030.04.09%20web.pps#18>
- <sup>21</sup>Green Infrastructure – *The Conservation Fund website*, (accessed: October 8, 2010) <http://www.greeninfrastructure.net/>
- <sup>22</sup>“Landscaping with native Plants,” *Green Landscaping: Greenacres - A Source Book on Natural Landscaping for Public Officials*, *U.S Environmental Protection Agency*, Updated November 14, 2008 (accessed: October 8, 2010) <http://www.epa.gov/greenacres/toolkit/chap2.html>
- <sup>23</sup>“Energy and Smart Growth: It’s about How and Where We Build,” *Funders’ Network for Smart Growth and Livable Communities* (accessed: October 8, 2010) [http://www.fundersnetwork.org/files/learn/Energy\\_and\\_Smart\\_Growth.pdf](http://www.fundersnetwork.org/files/learn/Energy_and_Smart_Growth.pdf)
- <sup>24</sup>“Complete Streets Fundamentals,” *National Complete Streets Coalition*, (accessed October 8, 2010) <http://www.completestreets.org/complete-streets-fundamentals/>
- <sup>25</sup>“Omaha-Council Bluffs, NE-IA Metropolitan Statistical Area Selected Economic Characteristics: 2006-2008,” *U.S. Census Bureau American FactFinder*, (accessed: October 8, 2010) <http://factfinder.census.gov>
- <sup>26</sup>Todd Litman, “Evaluating Public Transit Benefits and Costs - Best Practices Guidebook,” *Victoria Transport Policy Institute*, August 19, 2010 (accessed: October 8, 2010) <http://www.vtppi.org/tranben.pdf>

- <sup>27</sup>“Transportation Cost and Benefit Analysis II – Transportation Diversity,” *Victoria Transport Policy Institute* (accessed: October 8, 2010) <http://www.vtpi.org/tca/tca0509.pdf>
- <sup>28</sup>“Buildings Energy Data Book – Chapter 1 Buildings Sector,” *U.S. Department of Energy*, (accessed: October 8, 2010) <http://buildingsdatabook.eren.doe.gov/ChapterView.aspx?chap=1>
- <sup>29</sup>Numerous Publications, *Official Nebraska Government Website*, (accessed: October 8, 2010) <http://www.neo.ne.gov/publications/publications.htm#stud>
- <sup>30</sup>“Environmental Data,” *Buildings Energy Data Book*, October 2009 (accessed: October 8, 2010) [http://buildingsdatabook.eren.doe.gov/docs/xls\\_pdf/1.4.13.pdf](http://buildingsdatabook.eren.doe.gov/docs/xls_pdf/1.4.13.pdf)
- <sup>31</sup>“Buildings Energy Data Book - Characteristics of U.S. Construction Waste,” *U.S. Department of Energy*, (accessed: October 8, 2010) <http://buildingsdatabook.eren.doe.gov/TableView.aspx?table=1.4.12>
- <sup>32</sup>Alexis Karolides, “Why Build Green?,” *Rocky Mountain Institute*, 2005, (accessed October 8, 2010) [http://www.rmi.org/rmi/Library/D02-14\\_WhyBuildGreen](http://www.rmi.org/rmi/Library/D02-14_WhyBuildGreen)
- <sup>33</sup>Larry Laseter, “A Chance to Move the Needle on our Home Energy Savings,” *The Atlanta Journal-Constitution*, Cox Media Group, July 28, 2010, (accessed: October 8, 2010) <http://www.ajc.com/opinion/a-chance-to-move-580599.html>
- <sup>34</sup>Bill Reed, “Shifting from ‘Sustainability’ to Regeneration,” *InformaWorld*, Routledge, Building Research & Information, Volume 35, Issue 6 November 2007, pages 674 - 680 , (accessed: October 8, 2010) <http://www.informaworld.com/smpp/section?content=a781909499&fulltext=713240928>
- <sup>35</sup>“Regenerating System Diagram,” *InformaWorld*, (accessed: October 8, 2010) [http://www.informaworld.com/ampp/image?path=/713694730/781909499/rbri\\_a\\_247452\\_o\\_f0001g.jpeg](http://www.informaworld.com/ampp/image?path=/713694730/781909499/rbri_a_247452_o_f0001g.jpeg)
- <sup>36</sup>Christina Noble, “Regenerative Design,” *American Institute of Architects*, The Quarterly Journal of the National Associates Committee, The NEXT 150: The Future of Our Neighborhoods, January 22, 2009, (accessed October 8, 2010) | [http://info.aia.org/nwsltr\\_nacq.cfm?pagename=nacq\\_a\\_071101\\_noise\\_noble](http://info.aia.org/nwsltr_nacq.cfm?pagename=nacq_a_071101_noise_noble)
- <sup>37</sup>J. William Thompson and Kim Sorvig, “Adapted From Sustainable Landscape Construction,” *City of Portland Bureau of Planning and Sustainability*, (accessed: October 8, 2010) <http://www.portlandonline.com/bps/index.cfm?c=42117>
- <sup>38</sup>“Going ‘Green’ Can Put Your Business In the ‘Black’”, *Green Omaha Coalition*, Omaha Chamber of Commerce, Chamber Academy,| April 2, 2008, [http://greenomaha.atticdev.ist.unomaha.edu/documents/GOC\\_ChamberAcademy.pdf](http://greenomaha.atticdev.ist.unomaha.edu/documents/GOC_ChamberAcademy.pdf)
- <sup>39</sup>“Natural Capitalism,” *Rocky Mountain Institute*, (accessed: October 8, 2010) <http://www.rmi.org/rmi/Natural++Capitalism>

- <sup>40</sup>“Safe, Reliable Drinking Water,” *Metropolitan Utilities District*, (accessed: October 8, 2010) <http://www.mudomaha.com/water/conserve.html>
- <sup>41</sup>Table of CO2 Emissions from Fossil Fuel Combustion - Million Metric Tons CO2 (MMTCO2) 1990-2007 by State,” *Environmental Protection Agency*, (accessed: October 8, 2010) [http://www.epa.gov/statelocalclimate/documents/pdf/CO2FFC\\_2007.pdf](http://www.epa.gov/statelocalclimate/documents/pdf/CO2FFC_2007.pdf)
- <sup>42</sup>“Average Annual Carbon Dioxide Emissions for Various Functions,” Building Energy Data Book, *U.S. Department of Energy*, (accessed: October 8, 2010) <http://buildingsdatabook.eren.doe.gov/TableView.aspx?table=1.5.4>
- <sup>43</sup> Daniel Lerch, “Post Carbon Cities,” *Post Carbon Cities*, Originally Published December 2008 by Planning Magazine, (accessed: October 12, 2010) <http://www.postcarboncities.net/node/4071>
- <sup>44</sup>“Wind Energy Generation in Nebraska,” *Nebraska Energy Office*, Updated: October 6, 2010, (accessed: October 12, 2010)
- <sup>45</sup>“Renewable Energy for America,” *National Resources Defense Council*, (accessed: October 12, 2010) <http://www.nrdc.org/energy/renewables/nebraska.asp>
- <sup>46</sup> Wasteline Newsletter, Recycling, Garbage and Yardwaste Information, Omaha Public Works Environmental Quality Division, March 2009 [http://www.wasteline.org/graphics/WL/2009/mar\\_09wl.pdf](http://www.wasteline.org/graphics/WL/2009/mar_09wl.pdf)
- <sup>47</sup> Michael Kinsley, “Building Community Prosperity Through Natural Capitalism,” Rocky Mountain Institute, 2007, [http://www.rmi.org/rmi/Library/ER01-23\\_CommunityProsperityThroughNatCap](http://www.rmi.org/rmi/Library/ER01-23_CommunityProsperityThroughNatCap)
- <sup>48</sup> “U.S. Metro Economies - Current and Potential Green Jobs in the U.S. Economy,” Prepared for The United States Conference of Mayors, Published by Global Insight, Inc., October 2008, <http://www.usmayors.org/pressreleases/uploads/GreenJobsReport.pdf>
- <sup>49</sup> “Designing and Building Healthy Places,” Centers for Disease Control and Prevention, Updated: September 3, 2010 <http://www.cdc.gov/healthyplaces/>
- <sup>50</sup> <http://www.lungusa.org/associations/states/california/press-room/new-data-shows-smart-growth.html>
- <sup>51</sup> “New Data Shows “Smart Growth” Can Cut 140 Premature Deaths and 105,000 Asthma Attacks and Respiratory Symptoms Each Year,” American Lung Association, September 16, 2010, <http://apps.nccd.cdc.gov/BRFSS-SMART/>
- <sup>52</sup> “Behavioral Risk Factor Surveillance System - Nebraska 2009 Fruits and Vegetables,” National Center for Chronic Disease Prevention & Health Promotion, Updated: August 6, 2009, <http://apps.nccd.cdc.gov/BRFSS/display.asp?cat=FV&yr=2009&qkey=4415&state=NE>

- 53 “Behavioral Risk Factor Surveillance System - Nebraska 2009 Physical Activity,” National Center for Chronic Disease Prevention & Health Promotion, Updated: August 6, 2009, <http://apps.nccd.cdc.gov/BRFSS/display.asp?cat=PA&yr=2009&qkey=4418&state=NE>
- 54 “Multi-Hazard Mitigation Plan,” Missouri River Natural Resource District , Prepared by Olsson Associates, September 2010, [http://www.oaprojects.com/papionrd\\_hazard/index.htm](http://www.oaprojects.com/papionrd_hazard/index.htm)
- 55 “Environmental Health,” Nebraska Department of Health and Human Services, <http://www.hhs.state.ne.us/puh/enh/enhindex.htm>
- 56 “EPA Map of Radon Zones,” U. S. Environmental Protection Agency, Updated: September 30, 2010, <http://www.epa.gov/radon/zonemap.html>
- 57 City of Omaha, Parks Recreation and Public Property, Official Site of Omaha, Nebraska (accessed October 12, 2010)

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