Sustainability Guide Plan

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Sustainability Guide Plan

Introduction

The City of Burnsville completed a year-long sustainability review as part of its governance process in 2007. The process included input from a broad array of experts and stakeholders. By the end of the process, the city developed 14 priority areas of sustainability called Best Practices Areas (BPA's). During 2008, city staff worked with a consultant team to develop a more detailed sustainability guide plan based on the 14 BPA's. The guide plan provides practical ideas, activities and strategies for the city organization and the community that would make Burnsville more sustainable in future years. The Sustainability Guide Plan is aligned with the city's environmental end statement and the Council's commitment to sustainability, which states:

> "The City of Burnsville will promote development that maintains or enhances economic opportunity and community well-being while protecting and restoring the natural environment upon which people and economies depend. Sustainability meets the needs of the present without compromising the ability of future generations to meet their own needs."

The fourteen BPA's include:

- Environmentally Preferable Purchasing
- Product Stewardship
- Greenhouse Gas Reduction
- Sustainable Land Use
- Sustainable Transportation
- Renewable Energy
- Energy Efficiency
- Sustainable Building Practices
- Community Health
- Recycling and Waste Reduction
- Healthy Urban Forests
- Sustainability Education
- Surface & Ground Water Resources
- Innovative Opportunities

Each BPA includes a brief narrative on the subject area followed by a number of strategies to achieve sustainability. Each strategy, in turn, lists specific activities to support the strategy – including a brief description, responsible department, timeframe, possible costs and potential benefits. Again, not all activities and strategies need be tried at once. The activities listed as "initial plan" are already under way – or soon will be – because of Council authorization in October of 2008. "Short term" activities are those that may take place in less than five years; "long term" in more than five years.

Implementation Strategy for the Guide Plan

The width and breadth of a comprehensive sustainability plan requires careful implementation planning. Success depends on funding, certainly, but perhaps more so on the commitment of staff, elected leaders, and the community to make it a priority. Burnsville is at the leading edge of a growing national commitment to sustainable practices. However, overselling its benefits or underselling its costs will

only undermine the commitment demonstrated by all parties so far. The following approaches to implementing the Sustainability Guide Plan are recommended to enhance plan success:

1. Establish an organizational guide plan team

   Since sustainability practices cross through every city department, it's vital that a motivated member of each affected department be part of an ongoing team. The team's goal will be to follow through on sustainability commitments, coordinate with other departments and outside partners, and make recommendations on implementing sustainable practices in their areas.

2. Establish a sensible timeline for BPA implementation

   The City Council has already approved initial implementation of the "low hanging fruit" sustainable practices. These low/no cost activities are either underway now or will be in 2009. Otherwise a flexible implementation schedule is recommended for the balance of the plan. Each BPA action is divided into either a "long" or "short" term strategy. A short term strategy is defined as being implemented in less than five years; a long term strategy in more than five years.

3. A mix of funding sources must be obtained to implement the guide plan

   Funding is a key challenge for most sustainability initiatives. Occasionally, funding can be an easy choice. For example, making an upfront investment in an energy saving lighting retrofit with a guaranteed payback in two years is a simple decision. However, most decisions are more complicated and many more expensive. Staff recommends the following funding priorities be applied to guide plan implementation:

   1) Grants must be vigorously pursued and considered the first funding priority
   2) Existing funding sources committed to sustainable practices and congruent with Council priorities should be the second priority
   3) Activities with a reliable and persuasive payback period for the initial investment
   4) Activities where significant cost sharing with private or public sector partners would exist and council approval was obtained
   5) Funding obtained solely through the City's annual budget process

4. A staff person should be identified as the Sustainability Coordinator

   A staff person needs to be the focus for City sustainability practices. The person would coordinate the guide plan team, apply for related grants, seek out private and public sector partners, and prepare sustainability proposals for Council consideration.

   A small amount of funding is included in the 2009 budget for part time sustainability coordination work. This will free up about one quarter of the Environmental Specialist's time to manage the City's sustainability effort. It will be important, through a combination of grants and/or city support, to fund an expanded sustainability coordinator position in the future if plan goals are to be met.

Finally, it would seem an excellent task for the Parks and Natural Resources Commission (PNRC) to provide a forum for community input into the city's Sustainability Guide Plan. To accommodate this, an annual sustainability progress report would be prepared by staff and reviewed by the PNRC. The Commission would be charged with gathering community feedback, and recommending changes to the Sustainability Guide Plan for City Council consideration. This progress report could then be utilized to update City Council, staff, and the broader community on the status of Burnsville's sustainability efforts.

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Environmentally Preferable Purchasing

Sustainability Best Practice Area 1

Burnsville will strive to establish city goals for environmentally preferable purchasing and develop a city-wide educational effort to purchase economical and environmentally preferable products and services.

Strategy 1 – Focus on City Services

Local and state governments are creating new markets for environmentally preferable products and services around the world through their purchasing decisions. This fosters private sector innovation toward sustainable production and product stewardship. State and local environmentally preferable purchasing also drives down the costs and increases the availability of these green products and services for government, businesses and consumers.

Purchasing decisions within the city currently are decentralized with one or more staff within each city department making purchasing decisions. Many city departments have already begun using environmental criteria when making their purchasing decisions. Through training and support of the purchasing staff, all city departments can begin to use the best practices for Environmentally Preferable Purchasing already adopted by other departments and other metro cities and counties.

Strategy 2 – Engage Residents, Businesses, and Institutions

Products with the least amount of impact on the environment should be preferred over competing products that serve the same purpose and are similar in price. Encouraging environmentally preferable purchasing and other behavior changes to conserve energy, water and resources among residents, businesses and institutions will help Burnsville meet its sustainability goals and will increase market demand for green products.

Implementation Activities

	ACTIVITY / DESCRIPTION	Lead Department	Timeframe	Cost: I = Implementation A = Annual Cost	Potential Benefits
	Strategy 1 – Focus on City Services				
A	Increase the City of Burnsville's use of State and National Cooperative Purchasing Contracts that are committed to providing environmentally preferable products and services.	Recycling	Initial Plan	Existing Staff	Cost savings, Reduced environmental impacts
B	Develop a list of environmentally preferred local vendors for city departments to choose from.	Recycling	Initial Plan	I = Sustainability Coordinator & Sustainability Team A = Existing Staff	Support of local business, reduced impacts
C	Annually train Burnsville city staff responsible for purchasing on current EPP best practices.	Recycling	Initial Plan	I = Sustainability Coordinator & MPCA Staff A = Existing Staff and MPCA Staff	Reduced environmental impacts

	ACTIVITY / DESCRIPTION	Lead Department	Timeframe	Cost: I = Implementation A = Annual Cost	Potential Benefits
D	Expand the City of Burnsville's EPP Resolution to include criteria of the State of Minnesota's EPP Guide.	Recycling	Long Term	Existing Staff	Provide more guidance on purchases
Strategy 2 – Engage Residents, Businesses, and Institutions					
A	Encourage EPP for residents by offering "green" tips and promoting campaigns such as Change a light, Change the world; MN Energy Challenge, etc.	Recycling & Communications	Short Term	Existing Staff	Residents helping to meet sustainability goals
B	Share EPP vendors/information with the public through website.	Recycling & Communications	Short Term	Existing Staff	Support businesses and residents

	ACTIVITY / DESCRIPTION	Lead Department	Timeframe	Cost: I = Implementation A = Annual Cost	Potential Benefits
C	Expand the ARROW (Awards for the Reduction and Recycling of Waste) Program to include an awards event, provide information on cooperative purchasing opportunities.	Recycling & Communications	Short Term	I = Existing Staff $5,000 A = Existing Staff	Business helping to meet sustainability goals

Possible Partners & Funding Sources

- Minnesota Pollution Control Agency
- Minnesota Recycled Products Directory
- Dakota County
- State of Minnesota Department of Administration, Materials Management Division
- Hennepin County
- Eureka Recycling
- Recycling Association of Minnesota Recycled Products Guide
- Minnesota Waste Wise
- Alliance for Sustainability

Performance Indicators

- Conduct annual staff training on purchasing environmentally preferable products and services.

- Conduct at least one environmentally preferable purchasing campaign directed at residents, businesses, or institutions.

Product Stewardship

Sustainability Best Practice Area 2

Burnsville will strive to promote product stewardship, including facilitating programs that partner with private industry to reduce the end-of-life impacts of products.

Strategy 1 – Identify Partnerships with Businesses and Organizations

Product Stewardship is an environmental management strategy that means whoever designs, produces, sells, or uses a product takes responsibility for minimizing the product's environmental impact throughout all stages of the products' life cycle. The greatest responsibility lies with whoever has the most ability to affect the life cycle environmental impacts of the product. It is challenging but important for cities to determine their role in encouraging product stewardship. It is not the city's role to assign liability, but to work together with private industry, organizations, and citizens to understand the issues. A great place to start is by partnering with organizations and agencies such as the MPCA that have been working on this issue for the last decade.

Strategy 2 – Build Support through Education

Outreach and education are essential tools for successfully implementing product stewardship initiatives. Spreading the word about product stewardship increases awareness and promotes action among consumers, producers, policy-makers, and government agencies. It is one of the most cost effective actions that can take place because it can immediately change people's attitudes and behaviors, resulting in significant savings for them and the city.

First we need to understand why we should be concerned and what we can do. Knowing how to educate consumers, retailers, manufacturers, and others about efforts underway and opportunities currently available can be costly and time consuming. There are non-profits in the metro area working on product stewardship issues that could be good partners in providing information on current promotional efforts and initiatives to bring others on board the product stewardship movement.

Implementation Activities

	ACTIVITY / DESCRIPTION	Lead Department	Timeframe	Cost: I = Implementation A = Annual Cost	Potential Benefits
Strategy 1 – Identify Partnerships with Businesses and Organizations					
A	Work on cooperative initiatives with the Minnesota Pollution Control Agency and other agencies.	Recycling	Short Term	Existing Staff	Cost savings. Reduced environmental impacts
B	Create a coalition of heath care organizations and others to educate the public about pharmaceuticals in the drinking water and safely collect and dispose of pharmaceuticals.	Recycling	Short Term	Sustainability Coordinator & Sustainability Team	Support of local businesses, Reduced impacts
Strategy 2 – Build Support through Education					
A	Review current city vendors/suppliers using sustainable criteria.	Recycling & Comm.	Initial Plan	Existing Staff	Reduced environmental impacts
B	Provide education to residents and businesses on current product stewardship issues.	Recycling & Comm.	Short Term	Sustainability Coordinator, Sustainability Team & Existing Staff	Support businesses. Reduced costs

Possible Partners & Funding Sources

- Minnesota Pollution Control Agency
- Solid Waste Management Coordinating Board
- Dakota County
- State of Minnesota Department of Administration, Materials Management Division
- Hennepin County
- Eureka Recycling
- Midwest Product Stewardship Council
- Recycling Association of Minnesota
- Minnesota Waste Wise
- Alliance for Sustainability

Performance Indicators

- Develop partnership with agency/business to work on product stewardship initiatives.

- Provide education to employees, residents, and businesses on product stewardship initiatives.

Greenhouse Gas Reduction

Sustainability Best Practice Area 3

Burnsville will strive to inventory and set reduction targets for greenhouse gas emissions for city facilities.

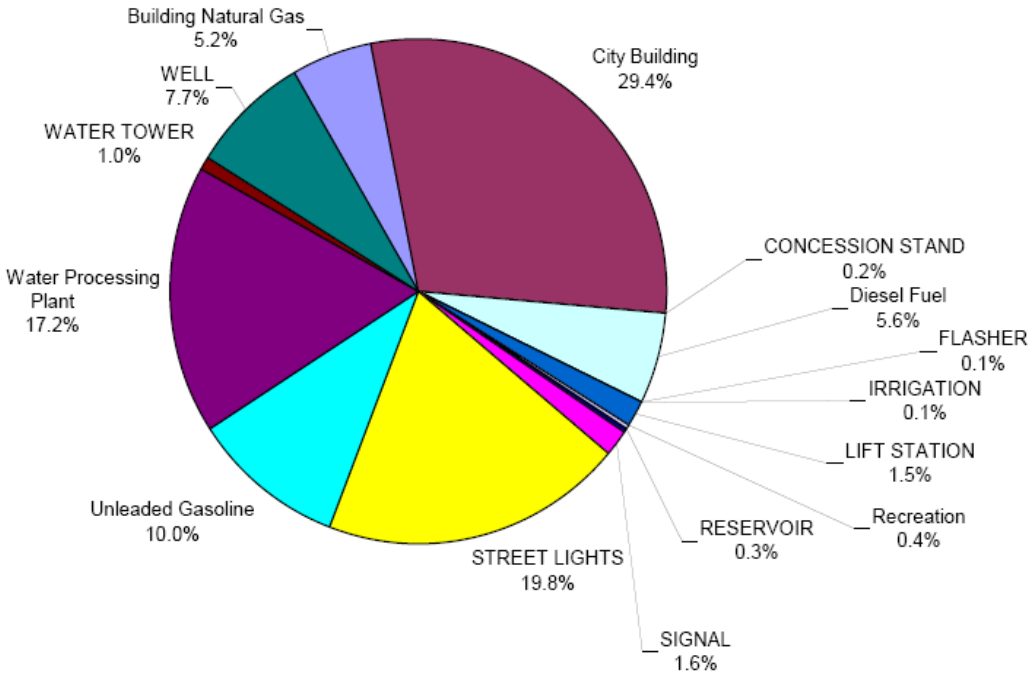
Strategy 1 – Reduce City Greenhouse Gas Emissions

The City of Burnsville, as an organization, emits 14,351 tons of CO_2 annually from the consumption of electricity, natural gas, gasoline and diesel fuel. The city's buildings are the single largest contributor to its CO_2 emissions, accounting for 35% of total emissions. The city's water supply and treatment infrastructure are the second largest contributors to the city's emissions. The city's water treatment plant, wells, water towers, reservoir and lift stations account for approximately 27% of the city's CO_2 emissions, followed by street lighting (21%), and transportation fuels (16%). Of the city's buildings, the Ice Center is the single largest consumer of electricity, accounting for 46% of the electricity consumed by the city's buildings. City Hall and the maintenance facility are also major contributors, accounting for 24% and 13% respectively. The figures on the following pages illustrate the relative contribution of various end uses to the city's CO_2 footprint.

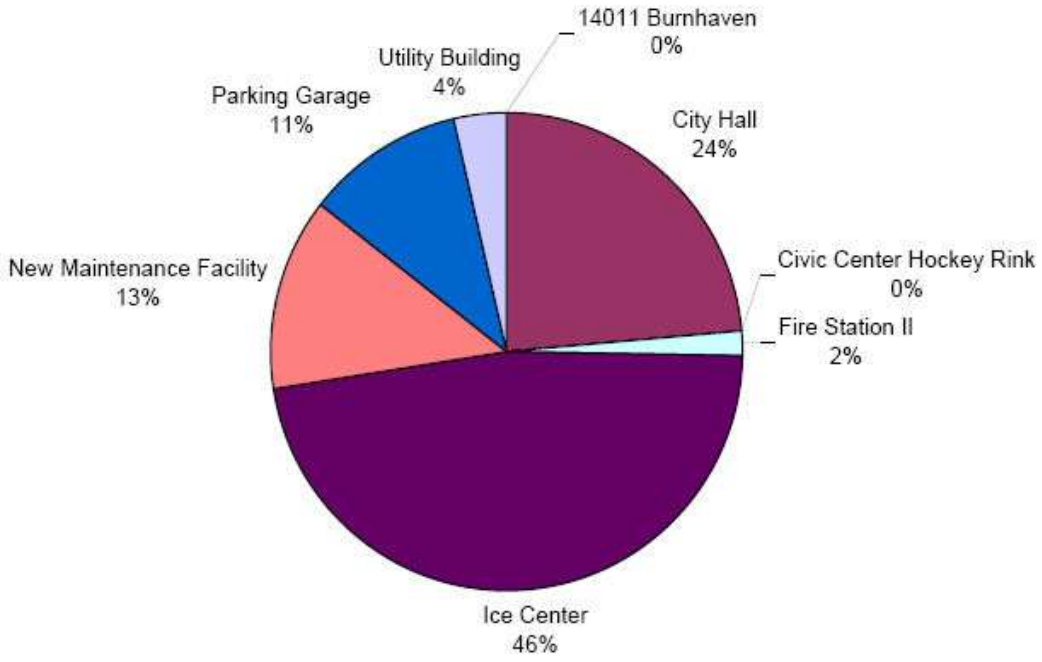
CO_2 or carbon dioxide, is a greenhouse gas (GHG) that is associated with the burning of fossil fuels. Other GHGs include CH_4 (Methane), N_3O (Nitrous Oxide), HFC_5 (Hydrofluorocarbons), PFC_5 (Perfluorocarbons), and SF_6 (Sulphur hexafluoride). A systematic accounting of the quantity of GHGs emitted for a defined entity over a given period of time is called a GHG inventory. Establishing a baseline for GHGs emitted by conducting an inventory is an important first step toward reducing GHGs. ICLEI (Local Governments for Sustainability) and the Climate Registry have protocols for conducting inventories that many units of local government are currently using. ICLEI and the Climate Registry are working together to standardize and centralize GHG data so that the information is consistent, transparent, verifiable, and comparable.

After quantifying the city's GHG emissions, a discussion should occur on developing strategies that will reduce GHG emissions and on establishing a reduction goal.

City of Burnsville Annual CO_2 Emmissions by End Use



City of Burnsville CO_2 Emissions from Building Electricity Use



Implementation Activities

	ACTIVITY / DESCRIPTION	Lead Department	Timeframe	Cost: I = Implementation A= Annual Cost	Potential Benefits
Strategy 1 – Reduce City Greenhouse Gas Emissions					
A	Establish GHG emission tracking procedure with annual reporting to gather baseline data.	Sustainability Coordinator	Initial Plan		Understanding of city status and progress
B	Institute a policy of reporting fuel consumption from all city sources as well as expenditures to accounts payable.	Sustainability Coordinator	Short Term	Existing Staff	Understanding of city status and progress
C	Develop GHG Emission reduction strategy based on collected baseline data and establish a reduction goal.	Sustainability Team	Short Term	Existing Staff	Strategy based on local data, Cost savings

Possible Partners & Funding Sources

- Center for Energy and the Environment
- Dakota Electric
- Dakota County
- Xcel Energy
- Minnesota Valley Electric Co-op
- CenterPoint Energy
- Minnesota Pollution Control Agency
- Minnesota Housing Finance Agency
- ICLEI
- Climate Registry
- US Environmental Protection Agency

Performance Indicators

- An emissions tracking procedure has been established.

- An emissions reduction strategy has been established.

Sustainable Land Use

Sustainability Best Practice Area 4

Burnsville will strive to adopt land use policies that provide incentives to reduce sprawl, preserve open space, expand and enhance green corridors as redevelopment occurs and to create a walk-able community.

Strategy 1 – Promote Awareness and Education of Sustainable Land Use

Broad awareness and understanding of sustainability are important tools in helping Burnsville continue to move toward sustainable use of land. As we become more aware that sustainability is a win-win-win for the economy, the natural environment, and our quality of life, we will find more people supporting and implementing sustainable land use practices.

This strategy to promote awareness and education of sustainable land use has two broad objectives:

1. Use workshops, print, broadcast, and website medias, and other techniques to promote an awareness and understanding of the importance of sustainable land use practices in Burnsville. This objective is really about getting a message of sustainability out to everyone that lives, visits, governs, owns land, develops land, or does business in Burnsville.
2. Deepen and personalize our understanding of sustainable land use practices by promoting discussion, inspiring, and empowering others to use sustainable practices. Ultimately, others – not just the city – will need to take action to use land in a sustainable manner. This objective is really about the city forming partnerships to develop a shared awareness and understanding of sustainability so that we can all work together in a positive manner and with a shared vision for sustainable land use.

Strategy 2 – Conduct a Baseline Analysis of Existing Land Uses

A baseline analysis of existing land uses helps us discover opportunities for implementing land use practices that can move the city toward sustainability. Burnsville already has good background data regarding the types, densities, amounts, and locations of existing land uses in the city. It also has good background data on natural resources, utilities, and other issues that affect existing and future land use in Burnsville. In addition, the city has prepared numerous master plans and studies of existing land uses and how land may be best used in the future.

Strategy 3 – Develop a Shared Vision for Sustainable Land Use

No community can predict its future with complete certainty. However, communities that have a clear and shared vision for sustainability have a far better chance of becoming a sustainable community than those communities that implement uncoordinated policies for which there is no expressed purpose (however well meaning).

Strategy 4 – Develop and Implement a Sustainable Land Use Action Plan

To the extent feasible, the city should incorporate sustainable land use practices into the city's Comprehensive Plan as well as the city's other land use planning documents including the Master Plan for the Northwest Quadrant, neighborhood plans, the parks and trails plan, and similar plans.

This strategy provides three general approaches to help ensure that land is used in a sustainable manner:

1. Remove obstacles and barriers that discourage or prevent sustainable land use practices in Burnsville. Communities often inadvertently discourage or prevent sustainable land use practices by prohibiting certain uses (such as, native landscaping in front yards, accessory dwelling units, and mixed-uses). Likewise communities often inadvertently discourage or prevent sustainable land use practices by having excessive standards that are costly to the property owner and the natural and/or social environment (such as, excessive parking requirements, excessive setback requirements, and excessive road widths).
2. Provide incentives to encourage sustainable land use practices. Communities often find that simply removing barriers to sustainable land use practices is not enough. As a result communities may provide incentives for sustainable land use practices. For example, a community could increase the allowable height and density of a building if the building provides a green roof. Or a community could provide public assistance for a development in return for sustainable land use practices. This approach rewards sustainable land use practices, but does not require it.
3. Enact appropriate ordinances and regulations to ensure sustainable land use practices. Realistically, removing barriers and providing incentives will not be enough to ensure broad application of sustainable land use practices. The city has an obligation to protect the health, safety, and welfare of its residents and others. Sustainability clearly relates to this obligation. Therefore, where appropriate, the city should review and update its ordinances to ensure that they are moving the city towards sustainability. This means adopting (or maintaining) ordinances that prevent sprawl, require multi-modal transportation options, and so on.

Implementation Activities

	ACTIVITY / DESCRIPTION	Lead Department	Timeframe	Cost: I = Implementation A = Annual Cost	Potential Benefits
Strategy 1 – Promote Awareness and Education of Sustainable Land Use					
A	Periodically provide facilitated, onsite, sustainable land use workshops (and/or training refresher courses) for those in City Hall who deal with land use issues, including pertinent city staff, appointed commissions, and the City Council.	Sustainability Coordinator	Short Term	I= $4,500 - $7,500	Training will promote shared approach to sustainability
B	Maintain a library of sustainable land use publications for use at City Hall.	Administration	Short Term	Existing Staff	Cost-effective resource
C	Publish articles in the Burnsville Bulletin, use the city's website, develop brochures and create local cable television programming on sustainable land use practices in the Burnsville Bulletin.	Communications	Initial Plan	Existing Staff	Promotes broad awareness and support

	ACTIVITY / DESCRIPTION	Lead Department	Timeframe	Cost: I = Implementation A = Annual Cost	Potential Benefits
D	Coordinate or sponsor community wide sustainability workshops.	Sustainability Coordinator	Short Term	$1,500-$7,500	Promotes broad awareness and support
E	Provide sustainability information at city events.	Sustainability Coordinator	Short Term	Minimal additional cost	Promotes broad awareness and support
F	Develop and implement a sustainable land use awards program.	Sustainability Coordinator/ Planning	Short Term	Minimal additional cost	Promotes broad awareness and support
G	Develop and implement sustainability protocols relating to land use decisions.	Natural Resources/ Planning	Short Term	Minimal additional cost	Ensures implementation

	ACTIVITY / DESCRIPTION	Lead Department	Timeframe	Cost: I = Implementation A = Annual Cost	Potential Benefits
H	Work towards ensuring that city facilities provide a model example of how to use land in a sustainable manner.	Facilities	Long Term	Variable	Shows leadership by example
Strategy 2 – Conduct a Baseline Analysis of Existing Land Uses					
A	Coordinate existing land use issues with neighboring and overlapping jurisdictions.	Planning	Short Term	Existing Staff	Partnerships and coordination
B	Identify existing underperforming and/or blighted land uses.	Planning/ Economic Development	Short Term	Minimal additional cost	Plan for enhancements
Strategy 3 – Develop a Shared Vision for Sustainable Land Use					
A	Develop and apply a sustainable land use checklist.	Planning	Initial Plan	I= $500 for simple list - $5,000 for detailed list	Ensures implementation

	ACTIVITY / DESCRIPTION	Lead Department	Timeframe	Cost: I = Implementation A = Annual Cost	Potential Benefits
B	Consider becoming an eco-municipality.	Sustainability Coordinator	Short Term	Minimal additional cost	Further resources and visibility
C	Incorporate a vision for sustainability into appropriate city documents and display the vision at appropriate locations.	Sustainability Coordinator	Short Term	Variable	Keeps vision alive
D	Coordinate with others in the development of complimentary site specific visions for sustainable land use where appropriate.	Planning	Short Term	Variable	Furthers implementation
Strategy 4 – Develop and Implement a Sustainable Land Use Action Plan					
A	Promote development and redevelopment that efficiently utilizes land, resources and energy. Encourage design, building techniques, incentives and improvements to minimize impervious surface.	Planning	Short Term	Existing Staff	Reduces sprawl, promotes walk-able community and sense of place

	ACTIVITY / DESCRIPTION	Lead Department	Timeframe	Cost: I = Implementation A = Annual Cost	Potential Benefits
B	Encourage infill development, redevelopment of brownfield sites, and combination of underutilized parcels.	Planning	Short Term	No additional cost	Reduces blight and promotes a sense of place
C	Protect critical natural areas and provide natural buffers.	Natural Resources	Short Term	No Additional Cost	Reduced encroachment on nature
D	Provide links to the open space system.	Parks/ Planning	Short Term	No additional cost	Reduced encroachment on nature
E	Promote crime prevention.	Police/ Planning	Short Term	No Additional Cost Use Crime Prevention Through Environmental Design practices	Meet human needs
F	Allow integration of different housing types where appropriate.	Planning	Short Term	No Additional Cost	Meet human needs

	ACTIVITY / DESCRIPTION	Lead Department	Timeframe	Cost: I = Implementation A = Annual Cost	Potential Benefits
G	Continue to provide for farmers markets.	Planning	Short Term	No additional cost	Promote local food
H	Provide public open spaces accessible to those with disabilities.	Parks/ Public Works	Short Term	Dependant on project	Promote sense of place
I	Decentralize community services where appropriate.	Neighborhood	Long Term	Variable	Promote sense of place

Possible Partners & Funding Sources

Numerous funding sources exist to help Burnsville implement its land use strategies. The following provides a partial list:

- Metropolitan Council, Livable Communities Demonstration Account Grant:
- Minnesota Pollution Control Agency:
- Economic Development Administration – U.S. Department of Commerce:
- Partnerships with Dakota County, Minnesota Pollution Control Agency, Department of Natural Resources, and other overlapping government agencies
- Safe Routes to School Program
- United States Environmental Protection Agency Smart Growth Implementation Grants:
- Nonprofit organizations for example, McKnight Foundation and the Blandin Foundation
- Gifts and donations
- ICLEI: Local Governments for Sustainability
- Community Development Block Grants
- Minnesota Green Communities Grant

Performance Indicators

- Participation in continuing education opportunities by Staff, appointed commissions, and elected officials. At a minimum, the city should expect that pertinent Staff dealing with land use issues should participate in continuing education opportunities at least once every two years.
- Increased awareness of sustainable land use practices by city officials, staff, residents and businesses as measured in the city's survey conducted every four years.

Sustainable Transportation

Sustainability Best Practice Area 5

Burnsville will strive to promote sustainable transportation systems/networks, develop and publicize information about transit alternatives, re-evaluate transit routes and stops utilizing public input to maximize service within Burnsville and to the metropolitan area.

Strategy 1 – Increase Transit Ridership and Access to Transit

The City is a partner in the Minnesota Valley Transit Authority (MVTA), which provides bus service within the City of Burnsville and service to regional destinations including the Mall of America, downtown Minneapolis, and the University of Minnesota. A state-of-the-art transit facility, the Burnsville Transit Station is located at Nicollet and TH-13. Residents of Burnsville can flag down a bus, wait at one of 30 bus benches, or drive/bike/or walk to a transit center. Most of the City does not currently have more traditional signed bus stops. City staff reports that residents would like expanded bus service within the City of Burnsville and to adjoining suburbs.

Given Burnsville's low-density development patterns, problems with street connectivity, and high rates of auto ownership, it is likely to be costly to provide high frequency or high coverage local bus service. MVTA does operate Route 444 that provides 30-minute weekday service and hourly weekend service between Savage and the Mall of America through Burnsville. Local service would greatly benefit from improved facilities for passenger waiting along arterial corridors. Transit service would be more visible, appealing and convenient if bus stops had signage, bike racks, benches, and high usage stops with shelters for passenger waiting. Given development patterns and long distances from homes to arterial transit corridors, bicycle access is an important link. Transit service might also be better utilized if local and off peak services were more extensively promoted.

Strategy 2 – Reduce Drive Alone Trips

Research conducted for the Governor's Climate Change Advisory Group in Minnesota indicated that reducing subsidies for driving and promoting travel alternatives are key to reducing drive alone trips and thus reducing air pollutants and traffic congestion. Abundant subsidized parking at worksites results in higher drive alone rates than one finds at worksites that provide transit, bicycling, or carpool options.

Preparation and implementation of travel demand management plans (TDM) can reduce drive alone trips and make other options more attractive. TDM is the application of strategies and policies to reduce automobile travel demand, or to redistribute this demand in space or in time. In transport as in any network, managing demand can be a cost-effective alternative to increasing capacity. A demand

management approach to transport also has the potential to deliver better environmental outcomes, improved public health, stronger communities, and more prosperous, livable cities.

Flextime and compressed time at workplaces result in reduced vehicle trips and often more satisfied employees. Encouraging carpooling and bicycling to work reduces the number of driving trips.

Strategy 3 – Improve Transportation to Burnsville Schools

Burnsville is served by three public school districts, the largest of which is District 191 (covering 70% of the City). The lack of sidewalks in residential areas and busy arterial streets, designated as "hazardous" by school policy, result in most students either arriving by school bus or private vehicle. Cuts in school funding in District 191 resulted in fewer students receiving bus service. This has resulted in many parents driving students to school – increasing emissions and creating traffic issues at schools.

Increasing bus service and promoting carpooling and biking or walking to school would reduce the amount of drive alone trips to school. Development of safe routes to school would also encourage walking and biking.

Strategy 4 – Promote Sustainable Transportation Infrastructure

Transportation infrastructure (streets, parking areas, and paths) within an urban environment can contribute to community cohesion, and sustainability in several ways. They can be designed so as to encourage slower speeds, safer driving, fewer incidents and crashes, use of alternative transportation modes, and safe and convenient pedestrian circulation. Transportation infrastructure construction and improvement projects can also be implemented in a manner that reduces environmental impacts.

Roadways and parking surfaces that are larger than necessary are more difficult for pedestrians to cross, utilize more resources, and limit the opportunities for inclusion of facilities for alternative transportation modes. Roadway widths can be reduced by narrowing travel lanes or eliminating on-street parking. Narrowing travel lanes provides opportunities to construct facilities for alternative travel modes. Particularly contributing to the cohesion of the city would be transportation facilities for

bikes and pedestrians. Oversupply of off-street parking provides a less appealing pedestrian environment, produces more storm water run-off, reduces property tax revenues and creates urban heat island effects.

Construction-related approaches and techniques can be applied to transportation infrastructure to enhance sustainability. Some of the most significant work being conducted today in the area of sustainability is focused on adapting principles and tenets of the Leadership for Energy and Environmental Design (LEED™) green building environmental rating system for the road construction industry.

Implementation Activities

	ACTIVITY / DESCRIPTION	Lead Department	Timeframe	Implementation & Maintenance Cost	Potential Benefits
Strategy 1 – Increase Transit Ridership and Access to Transit					
A	Transit promotion: Web promotions; Work with MVTA to provide coupons.	Communications	Initial Plan	Existing Staff	Higher ridership. Less traffic
B	Improve transit infrastructure: Make shelters and bus stop locations more appealing for users; Provide facilities for bike parking; Improve bike/ped connections to transit locations.	Planning & Public Works	Short Term	Depends on improvements	Higher ridership. Less traffic
C	Ensure good transit service to and within new high density developments.	Engineering & Planning	Long Term	Existing Staff	Higher ridership. Less traffic

	ACTIVITY / DESCRIPTION	Lead Department	Timeframe	Implementation & Maintenance Cost	Potential Benefits
Strategy 2 – Reduce Drive Alone Trips					
A	Consider instituting policies to reduce trips generated by City employees: Explore flex time and telecommuting policies.	Human Resources	Short Term	Existing Staff	Reduced traffic
B	Consider developing Travel Demand Management Control Practices.	Planning	Long Term	Existing Staff	Reduced traffic. Less land used for parking
C	Explore a car sharing policy: Organize and promote program.	Planning	Long Term	Existing Staff	Reduced traffic
Strategy 3 – Improve Transportation to Burnsville Schools					
A	Examine opportunities for Safe Routes to School.	Engineering	Initial Plan	Existing Staff	Federal grants, increased safety

	ACTIVITY / DESCRIPTION	Lead Department	Timeframe	Implementation & Maintenance Cost	Potential Benefits
B	Work with School District to examine transportation policy: Busing policy changes; Promote carpooling, bicycling and walking.	Engineering Comm.	Short Term	Dependant on policies implemented	Reduced drive alone trips to schools, increased safety
Strategy 4 – Promote Sustainable Transportation Infrastructure					
A	Recycle existing roadway structure for street reconstruction projects.	Engineering	Initial Plan	Existing Staff	Decreased material needs and environmental impacts
B	Monitor parking requirements and continue to implement “Right Size” Parking strategies	Planning	Short Term	Existing Staff	Reduced impervious surface
C	Reduce impacts of roads and streets: Where safety is not compromised, reduce roadway widths; Eliminate on-street parking where feasible.	Engineering	Long Term	Existing Staff	Decreased material needs; Room for alternative travel modes
D	Utilize sustainable construction techniques: Investigate the use of alternative materials and practices.	Engineering	Long Term	Dependent on techniques used	Decreased material needs and environmental impacts

Possible Partners & Funding Sources

- Transit for Livable Communities
- Transportation Advisory Board
- HourCar
- Minnesota Valley Transit Authority
- University of Minnesota – Humphrey Institute of Public Affairs
- City of Bloomington

Performance Indicators

- Annual increase in transit ridership from/within the City of Burnsville.
- Reduce rate of drive-alone trips by City employees.
- Increase in the use of alternative transportation modes.

Renewable Energy

Sustainability Best Practice Area 6

Burnsville will strive to increase the use of clean, alternative energy options into city facilities, research methods to reduce energy consumption and promote alternative energy options within the community.

Strategy 1 – Utilize Solar Energy

Solar energy can be captured as heat or as electricity. Solar heating (thermal) systems range from appropriate building design to active heat storage and distribution systems. The most cost effective solar energy use comes from good building design incorporating day-lighting, appropriate orientation, proportionate glazed area, overhangs and heat sinks and proper ventilation. Combined together, these elements are referred to as "passive solar" technology. Included in the "passive" category are tubular skylights, often referred to as solar tubes, which can be retrofit into existing buildings to bring in natural light, reducing the use of lighting at a low cost. In contrast, "active" solar thermal systems generally involve using pumps to move an antifreeze solution through specially built panels which are mounted in a sunny place. The heat gathered by the antifreeze is transferred to water and stored in an insulated tank until needed. Systems of this type can be sized from small enough to just provide domestic hot water to large enough to heat an entire building. Solar hot air panels can also be used to provide supplemental heat to a building on sunny days.

In areas where the cost of electricity is low, solar electric systems have a payback period that is longer than generally acceptable, falling somewhere in the 20 to 30 year range. State incentives and federal tax credits help bring the payback period down, but would not all apply to a municipality. Reductions in the cost of PV panels are expected in the near future due to improvements in the processes for creating panels using less material and printing machines that are already designed for mass production. The industry trend is also toward integrating the PV material into roofing, siding and even window material to eliminate duplicative costs and maintain traditional aesthetics. It is generally accepted that, at the point PV panels reach $2 per watt, they will be cost competitive with utility generated electricity.

Strategy 2 – Utilize Biofuels and Hybrid Technologies

Biofuels can be broadly defined as solid, liquid, or gas fuel derived from recently dead biological material, most commonly plants. They are distinguished from fossil fuels, which are derived from long dead biological material. Biofuel can be theoretically produced from any (biological) carbon source. The most common use for biofuels is as liquid fuels for automotive transport. The two most common strategies are:

1. **Ethanol** (ethyl alcohol) which is produced from yeast fermentation of sugar crops (sugar cane, sugar beet, and sweet sorghum), or starch (corn/maize). In Minnesota, ethanol is produced from corn and made into E-85, which is 85% ethanol and 15% gasoline.
2. **Biodiesel** which is produced from oils from plants such as oil palm, soybean, algae, or jatropha. When these oils are heated, their viscosity is reduced and they can be burned directly in a diesel engine or the oils can be chemically processed to produce fuels such as biodiesel. Biodiesel is referred to by the percentage of biofuel in the mixture (for example, B20 = 20% biodiesel and 80% petroleum diesel). In Minnesota, it is produced primarily from soybeans.

There may be some challenges with the use of biofuels. Controversy has arisen regarding whether or not biofuels are using grains that would otherwise be used for food. There is also a question as to whether corn-based ethanol is a net energy gain or loss. However, the technology for production of ethanol is still evolving. Research shows that using switchgrass to produce cellulose-based ethanol provides a much better net energy production, producing over five times as much energy as crop production. Consequently, the evolving technology of ethanol production should be monitored and its use adjusted depending on the results of technological advances.

A shift to hybrid and all electric vehicles would provide a number of benefits as they are cleaner and result in fewer greenhouse gas emissions than fossil fuel and biofuel vehicles even when coal is the electrical generating source. Electric and hybrid buses are currently available. Solar photovoltaic (PV) systems could provide clean charging of these vehicles while also shading them from summer-time overheating. Electric vehicle charging systems are now in place and being tested in several cities, including Tokyo, San Jose and London.

Strategy 3 – Utilize Geothermal Systems

A geothermal or ground-source heat pump system is a heating and/or an air conditioning system that uses the Earth's ability to store heat in the ground and water. It operates based on the stability of underground temperatures so that it extracts available heat in the winter to warm a building and puts heat back into the ground in the summer in order to cool a building. Heat pumps have the ability to capture heat at one temperature reservoir and transfer it to another. A refrigerator is an example of a heat pump in which heat is removed from the refrigerator's compartments and transferred to the outside.

Today there are more than 1,000,000 geothermal heat pump installations in the United States.

Many utilities and government agencies offer special rates and rebates to customers who install geothermal systems for heating/cooling their building. Dakota Electric offers a $200 per ton rebate. Some utilities have begun to pay for the installation of geothermal heat pumps at customer residences.

While some electricity is used to drive the heat pump, this strategy makes economic sense because electricity has a greater potential for future price stability than natural gas due to the multiple fuel sources available for its generation. Furthermore, using solar photovoltaic (PV) electricity to drive the geothermal heat pump, it's possible to have a truly renewable fuel source.

Strategy 4 – Evaluate Wind Energy Potential

Wind power is often the most cost effective renewable energy source; however, its use is highly site dependent. To be effective, wind turbines need to be placed high up in the air to avoid turbulence. Often this height factor makes the use of wind power unmanageable, especially in the urban area. Wind turbines also require frequent maintenance, which, in the case of commercial size turbines, means that the tower must be climbable. Wind turbines are considered by some to be aesthetically displeasing and do have a noise component. Concerns about bird and bat deaths have been raised, but proper siting generally eliminates this issue.

Commercial size wind turbines start at about the 2 Megawatt size and cost approximately $3 million. Depending on local conditions, a 2 Megawatt turbine could power between 800 and 1600 homes. Burnsville is largely within the Minnesota River valley, and current regional data indicate some of the least intensive upper wind speeds in the State. Wind measurements are needed to confirm whether or not wind power is feasible in Burnsville.

Implementation Activities

	ACTIVITY / DESCRIPTION	Lead Department	Timeframe	Cost: I = Implementation A = Annual Cost	Potential Benefits
Strategy 1 –Utilize Solar Energy					
A	Investigate installing a solar thermal domestic hot water system in City Hall.	Facilities	Short Term	I = $25,000	Solar thermal provides 50 – 70% of hot water usage in City Hall
B	Consider applying passive solar principles to expansion of THE GARAGE.	Facilities & Recreation	Short Term	I = up to 5% of remodeling cost	10-30% heating cost reduction
C	Explore installing a demonstration PV system as part of an expansion of THE GARAGE.	Facilities & Recreation	Short Term	I = $5,000 to $30,000 installation cost	Dependant on size
D	Consider funding mechanisms to encourage residents to install renewable energy systems (e.g. low interest loans, assessing cost to property taxes, etc).	Sustainability Coordinator	Long Term	I = $500,000	Increase in residential system installations

	ACTIVITY / DESCRIPTION	Lead Department	Timeframe	Cost: I = Implementation A = Annual Cost	Potential Benefits
F	Investigate implementing solar access ordinance.	Planning	Long Term	Existing Staff	Guarantee system performance for residents
G	Encourage proper solar orientation and passive solar construction.	Building Inspections	Long Term	Existing Staff	Improved housing efficiency
H	Explore the installation of solar energy systems in City facilities.	Facilities	Long Term	Dependant on system installed	Reduced energy use and cost

	ACTIVITY / DESCRIPTION	Lead Department	Timeframe	Cost: I = Implementation A = Annual Cost	Potential Benefits
Strategy 2 – Utilize Biofuels and Hybrid Technologies					
A	Cautiously continue with incorporating flex fuel in City fleet.	Fleet & Public Works	Short Term	Incorporated into cost of current projects	Reduced fuel cost and CO2 emissions
B	Consider the use of hybrid technologies, especially plug-in hybrids.	Fleet & Public Works	Long Term	$2,000 to $3,000 premium per vehicle	Reduced fuel cost and CO2 emissions
C	Consider hybrid medium duty chassis for larger vehicles.	Fleet & Public Works	Long Term	$40,000 premium per vehicle	30-50% fuel cost savings
Strategy 3 – Utilize Geothermal Systems					
A	Explore the incorporation of a geothermal system in the ice arena.	Facilities	Initial Plan	Awaiting Bid	Cost Savings, Reduced Environmental impacts, cost savings

	ACTIVITY / DESCRIPTION	Lead Department	Timeframe	Cost: I = Implementation A = Annual Cost	Potential Benefits
B	Explore the incorporation of a geothermal system into City facilities.	Facilities	Long Term	Variable with installation size	30-70% reduction in heating cost
C	Promote use of geothermal systems among businesses, residents and community groups, in particular in the Minnesota River Quadrant.	Communi-cations	Long Term	Existing Staff	Increased geothermal installations in City
Strategy 4 – Evaluate Wind Energy Potential					
A	Investigate participation in the Dakota Electric Wellspring Wind Energy Program.	Facilities	Short Term	I = $6,000 for City Hall A= $6,000/year	Dramatically reduce CO2 emissions
B	Consider completing a wind speed study in Burnsville.	Facilities	Long Term	$500-$1,000 for equipment	Determine if use of wind energy within City is feasible

Possible Partners & Funding Sources

Solar Energy
- U.S. Department of Energy

Biofuels and Hybrid Technology
- American Lung Association
- Augsburg College

Geothermal Systems
- Econar
- MN Office of Energy Security
- U.S. Department of Energy

Wind Energy
- MN Office of Energy Security
- U.S. Department of Energy

Performance Indicators

- Annual decrease in fossil fuel use in City facilities.
- Annual decrease in fossil fuel use in city fleet

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Energy Efficiency

Sustainability Best Practice Area 7

Burnsville will strive to make energy efficiency a priority in infrastructure by developing educational programs for the public about energy efficient techniques and construction practices; investigate opportunities and ways to provide incentives to encourage private sector home and business energy improvements.

Strategy 1 – Increase Energy Efficiency of City Buildings

Energy efficiency saves taxpayers money and is the most cost effective way to reduce greenhouse gas emissions. City buildings are the single largest contributor to CO2 emissions under direct control of the city, accounting for 35% of total emissions (see page 14). The City of Burnsville should consider improvements to City Hall based on a walk-thru analysis. In addition, the city should consider energy audits performed on all other city facilities to identify additional steps the city can take to reduce energy use. Dakota Electric has generously committed to pay for up to 75% of the cost of these audits. Any energy reductions in city buildings will serve as visible and positive examples to local businesses and residents and establish the city as a leader in energy efficiency.

Strategy 2 – Educate Businesses and Residents

While it is important to reduce energy use in city buildings it is equally important to educate businesses and residents about the importance of reducing their own energy use. The City of Burnsville could gather the resources and promote energy efficiency and conservation to all residents by creating awareness and promoting a sense that the entire community is working together on this issue. Creating strategic partnerships with business to educate business owners on energy efficiency and conservation is another important way to reduce the city's carbon footprint. Businesses can also promote energy efficiency and conservation to their customers and clients. Utilizing the Minnesota Municipal Energy Challenge will provide a framework for the city to implement this strategy.

Implementation Activities

	ACTIVITY / DESCRIPTION	Lead Department	Timeframe	Cost: I= Implementation A= Annual Cost	Potential Benefits
Strategy 1 – Increase Energy Efficiency of City Buildings					
A	Implement recommendations of City Hall Energy Audit (retrofit lighting).	Facilities	Initial Plan	I = Existing Staff Completed within Facilities 2008 Budget A= Existing Staff	Reduced energy use, cost savings
B	Participate in Dakota Electric's Energy Audit Program for the remaining city facilities to identify opportunities for energy savings.	Facilities	Short Term	I = $500 to $1,000 Per Building A= Existing Staff	Reduce energy use, cost savings
C	Utilize the B3 Benchmarking Database for all city buildings to evaluate how well city buildings perform and direct resources accordingly.	Facilities	Short Term	Existing Staff	Guide decisions for upgrades

	ACTIVITY / DESCRIPTION	Lead Department	Timeframe	Cost: I= Implementation A= Annual Cost	Potential Benefits
D	Implement recommendations of City Hall Energy Audit (Improve HVAC Control Upgrades, Rebalance Air Systems, and Upgrade Building Automation System).	Facilities	Initial Plan	I= Combined cost of approximately $85,000 A= Combined annual savings of $7,500-$12,500	Comfort, reduces energy & costs
E	Consider implementation of the Minnesota Municipal Energy Challenge.	Facilities	Short Term	Existing Staff	Reduce energy use and cost
F	Implement recommendations of City Hall Energy Audit (Upgrade to Condensing Boiler upon failure of existing).	Facilities	Long Term	I= $55,000 A= $6,500 annual savings	Reduce energy use
G	Participate in Great River Energy's new construction program that encourages meeting LEED standards and ensures that new buildings meet the energy performance requirements of the Sustainability Building 2030 standards.	Facilities	Long Term	I= Depends on level of involvement A= Existing Staff	Guide for new buildings, reduce energy use

	ACTIVITY / DESCRIPTION	Lead Department	Timeframe	Cost: I= Implementation A= Annual Cost	Potential Benefits
H	Continue to replace and improve electrical equipment with more efficient equipment in the water production facilities.	Public Works	Long Term	Existing Staff	Reduced energy use
Strategy 2 – Educate Businesses and Residents					
A	Encourage residents to reduce their carbon footprint: promote the Minnesota Energy Challenge, provide energy workshops, develop utility bill stuffers and newsletter articles	Recycling	Short Term	Existing Staff	Reduced energy use
B	Create strategic partnerships with businesses to educate owners on the benefits of energy efficiency and conservation. Use the ARROW Program for Promotion of energy efficiency.	Sustainability Coordinator	Short Term	Existing Staff	Reduce energy use, educate customers

Possible Partners & Funding Sources

- Center for Energy and the Environment
- Dakota Electric
- Dakota County
- Xcel Energy
- Minnesota Valley Electric Co-op
- CenterPoint Energy
- Minnesota Pollution Control Agency
- Minnesota Housing Finance Agency

Performance Indicators

- Complete energy audits on the balance of city buildings.

- Promote energy efficiency to residents and business at least twice a year.

Sustainable Building Practices

Sustainability Best Practice Area 8

Burnsville will strive to practice and promote sustainable building practices by providing staff training for LEED certification and green construction to assist residents/builders and to promote green building techniques for both city-owned facilities and private development.

Strategy 1 – Evaluate and Maintain Existing Stock of Buildings

Existing buildings represent a significant investment by the community in resources and materials. Buildings should be seen as an investment to be maximized, and should be evaluated for potential reuse, then renovated appropriately. If demolished, materials should be recycled/re-used wherever possible. Reducing energy consumption of existing buildings should be a priority, followed by retrofitting with no/low toxicity materials, and providing additional daylighting wherever possible.

Strategy 2 – Follow LEED-NC Standards (or B3) for New Commercial Construction

The application of sustainable principles and green building practices is central to how sustainability will be perceived, implemented and measured. Buildings consume almost 70% of the energy produced so ensuring that buildings are energy efficient and sustainable should be a baseline goal; buildings that reduce or eliminate such high energy demand can become the new standard. A variety of implementation strategies are included addressing; new construction (public and private) existing buildings, training and education.

Leadership in Energy and Environmental Design (LEED®) is a rating system developed by the U.S. Green Building Council to evaluate buildings for a number of sustainability-related factors. These include site selection, water use, energy consumed (or produced), materials selected and indoor environment. Another system developed through a partnership between the University of MN, architects, engineers and others is specific to Minnesota. This is the B3, or Buildings, Benchmarks and Beyond, originally called the MN Sustainable Design Guide. Both LEED and B3 have similar categories by which to evaluate a building project, but while LEED is prescriptive due to its point-based system, B3 is performance-based, and focuses on improving building performance and quality. B3 is recommended because it is Minnesota based and does not require costs associated with certification. After staff are trained in LEED, it can be used as an alternative.

Strategy 3 – Partner with Community and Businesses to Educate and Empower

In order for the city and the greater community to make a transition to a sustainable future, it is important to have a clear and thorough understanding of sustainability. With greater media attention to this aspect of our environment, more and more people are becoming interested in how they can do their part, and the city can utilize this energy to partner with businesses and community groups to inform and generate greater participation.

Through workshops, brochures, website media and organized activities, the city and local businesses can promote greater awareness and participation of the importance of sustainable practices in terms of the built environment—commercial and residential.

Implementation Activities

	ACTIVITY / DESCRIPTION	Lead Department	Timeframe	Cost: I= Implementation A= Annual Cost	Potential Benefits
Strategy 1 – Evaluate and Maintain Existing Stock of Buildings					
A	Establish city policy to purchase energy efficient fixtures.	Facilities	Short Term	I= Per building, minimal. Energy efficient fixtures do not cost more	Reduce energy expenditures
B	Establish city policy to evaluate all city renovation projects for sustainable opportunities.	Facilities/ Insp./Natural Resources	Initial Plan	I= Part of a renovation budget with no additional up-front costs	Reduce buildings impact and maintenance costs
C	Establish roof replacement and energy efficiency improvement timeline for city facilities. Consider installing photo-voltaic cell roofing when appropriate.	Facilities & Inspections	Short Term	I= Shingle roof: $4-$ 6per sq. ft. – 30 year life Painted metal standing seam roof: $13 per sq. ft – 80 year life Pre patina zinc standing seam roof: $18 - $20 per sq. ft – 60 year life Photo-voltaic cell roof tile: approx. $9 per watt or $93 per sq. ft	Reduce energy expenditures

	ACTIVITY / DESCRIPTION	Lead Department	Timeframe	Cost: I= Implementation A= Annual Cost	Potential Benefits
D	Establish energy and water use targets for city buildings.	Facilities/ Public Works	Short Term	Consultant per allowance or estimated at $150 - $200 per hour	Reduce energy and water use expenditures
E	Establish building product guidelines and guidelines for identifying sustainable opportunities on commercial and residential renovations and new construction.	Sustainability Coordinator/ Planning	Short Term	I= Consultant per allowance, or estimated at $150-200/hr. Existing Staff	Low impact products used
Strategy 2 – Follow LEED-NC Standards (or B3) for New Commercial Construction					
A	Establish a timeline for training city employees in B3 (Buildings, Benchmarks and Beyond) or LEED.	Inspections/Planning/ Natural Resources	Short Term	$1,500 - $2,000 plus $50/person for implementation $1,500 - $2,000 plus $50/person annually	Trained employees

	ACTIVITY / DESCRIPTION	Lead Department	Timeframe	Cost: I= Implementation A= Annual Cost	Potential Benefits
B	Develop standardized site selection and building design process for city buildings.	Facilities & Public Works	Short Term	Done as part of temp. Pre-design phase of building design	Best building location and design
Strategy 3 – Partner with Community and Businesses to Educate and Empower					
A	Develop a strategy with other agencies to partner on sustainability training.	Natural Resources	Short Term	$500 per person	Share knowledge base
B	Partner with local retail venues on ways to educate the public at point-of-sale and/or restaurant vendors.	Police/ Economic Development./ Natural Resources	Initial Plan	Minimal	Educate public
C	Consider non-monetary incentives to encourage green building	Planning	Short Term	Existing Staff	Reward Businesses and reduce environmental impacts of buildings

Possible Partners & Funding Sources

- Center for Energy and Environment for Energy Audits
- Local Energy Utilities for Energy Audits and incentives for efficiency

- Great River Energy: offers low and no-cost loans for LEED buildings, and for retrofits.
- Xcel Energy Design Assistance
- U.S. Government grants/incentives for renewable energy
- USGBC for staff training, membership resources, and LEED reference guides for training.

- Partner with Burnsville School District 191
- Partner with local restaurants
- Partner with local retail venues

Performance Indicators

- Increase in number of buildings that are LEED Certified or similar B3 level.
- Development of a web-site with top-ten checklist of things residents can do to move toward a more sustainable home.
- Train relevant city Staff in LEED and/or B3 by 2010.

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Community Health

Sustainability Best Practice Area 9

Burnsville will strive to promote a healthy community through public education, effective partnerships, and the development of infrastructure that supports walking and biking.

Strategy 1 – Promote Healthy Living Opportunities through City Media

The city has a rich and effective variety of media to use as public education tools in pursuit of a more healthy community. Cable television, a quarterly newsletter, a highly visible web site, seasonal recreation brochures, and numerous highly publicized events and celebrations offer many avenues to positively influence public choices for healthier living.

The city has specifically adopted a healthy city initiative that states:

> ***"People find Burnsville to be a community of healthy lifestyles, neighborhoods, and environment"***

The city should regularly utilize its media to promote the specific goals contained within the healthy cities initiative. Further, regular promotion of community activities relating to more healthful living should become a regular part of the city's communications effort. Finally, progress and successes related to the achievement of the city's healthy cities initiative should be regularly reported to residents and businesses.

Strategy 2 – Increase Opportunities for Safe and Convenient Biking and Walking

An infrastructure of convenient walking and biking trails is indicative of a city that prioritizes healthful living options for its residents. Providing citizens with the opportunity to meet part of their transportations needs by biking or walking has the doubly beneficial effect of enhancing health while reducing traffic and energy related issues.

Burnsville has incorporated this priority into both its transportation end statement and within its Trails Master Plan.

Several barriers to safe and convenient trail use should be addressed. For example:

- Paved trails along arterial and collector streets are functional but not very attractive
- Close proximity to traffic creates safety concerns
- Lack of adequate pedestrian- level lighting and signage can make trails particularly difficult for children to use trails
- There is a lack of a direct connection to the river and its amenities
- Distance between land uses (i.e. retail from residential, etc.) makes it difficult to walk from home to shopping, dining, etc.

The city should construct safer and more convenient trails that fill in the gaps in the existing system and connect people more easily to major destinations. The city can provide leadership in finding community partners to help promote and provide incentives for increased biking and walking. Finally, in the longer term, the city should consider corridor design standards that provide safer separation between trails and traffic – through increased rights-of-way acquisition if necessary.

Implementation Activities

	ACTIVITY / DESCRIPTION	Lead Department	Timeframe	Implementation Annual Cost	Potential Benefits
Strategy 1 – Promote Healthy Living Opportunities through City Media					
A	Continue involvement in the Healthy Cities initiatives.	Recreation	Initial Plan	Existing Staff	Lower obesity Healthier children
B	Obtain grants from public, private, and non-profit sources to create new healthy living opportunities.	Grants	Short Term	Existing Staff	Expanded programs
C	Promote and publicize healthy city opportunities through all city media and in tandem with partners wherever possible.	Communi-cation	Short Term	Existing Staff	Increased program participation
D	Promote youth health through recreation programs and effective partnerships such as the Switch Program.	Healthy Cities Committee	Short Term	Existing Staff	Increased program participation

	ACTIVITY / DESCRIPTION	Lead Department	Timeframe	Cost: I = Implementation A = Annual Cost	Potential Benefits
E	Apply for recognition of Health Cities achievements and publicize awards.	Healthy Cities Committee	Initial Plan	Committee and Existing Staff	Increased awareness, pride, & commitment
Strategy 2 – Increase Opportunities for Safe and Convenient Biking & Walking					
A	Work with Partners to promote, provide new programs and incentives for biking and walking.	Healthy Cities Committee	Initial Plan	Existing Staff	Improved community health
B	Construct new trails that fill in gaps in the existing system and connect to major destinations. Utilize the trail Master Plan as the guide.	Parks	Short Term	Dependent on Project	Improved community connectedness
C	Enhance the convenience and safety of existing city bicycle and pedestrian trails where possible, maintain separation between trails and traffic, improve lighting and signage over the next few years.	Parks	Short Term	To be determined with each phase of the project. Will likely be done in conjunction with street renovation work.	Safer trails that are used more frequently
D	Make corridor design changes as necessary to provide adequate trail width and separation, safety from motorized traffic; obtain rights-of-way as necessary.	Engineering	Long Term	Existing Staff Unknown cost of Rights-of-way	Safer and more usable trails system

Possible Partners & Funding Sources

- Met Council allocation of Federal Surface Transportation Program (STP) flexible funding
- Funding through Capital Improvement Program (CIP) can provide an ongoing trail improvement program
- Department of Natural Resources (DNR) trail funds

Performance Indicators

- Increased signage, marking, lighting and landscaping of existing trails over the next five (5) years.
- Increased participation in the city's Healthy Living initiatives.
- Increase in miles of separated trail.

Recycling and Waste Reduction

Sustainability Best Practice Area 10

Burnsville will strive to increase recycling rates, reduce waste, and promote reuse in city operations and in the community.

Strategy 1 – Reduce Waste in City Operations

Over $321 million worth of recyclables were landfilled or incinerated last year in Minnesota. Burnsville's share of this is over $375,000 each year! Materials once considered garbage, can be conserved and recovered, rather than destroyed, buried or transformed in ways that limit our ability to safely reuse them for productive purposes. The output of one system can become the input for another system, the way decomposition and decay form the basis of nourishment for new organisms.

According to the Institute for Local Self Reliance's report Wasting and Recycling in the United States 2000, "On a per-ton basis, sorting and processing recyclables alone sustains ten times more jobs than landfilling or incineration. Each recycling step a community takes locally means more jobs, more business expenditures on supplies and services, and more money circulating in the local economy through spending and tax payments."

The City of Burnsville already recycles many materials in its facilities. However, there are still opportunities for more recycling and to reduce the amount of waste produced. Recycling can be increased by making the signage on recycling containers consistent and by training staff on recycling procedures. Reducing waste can save the city money as well as reduce the amount of resources that are used. There are many ways to reduce paper use including duplexing, not printing emails, on-line forms, etc. Reducing paper use is a cost savings for the city and benefit for the environment. As the city continues to evaluate its waste materials, more opportunities can be determined for recycling and reduction.

Strategy 2 – Increase Residential Recycling & Waste Reduction

The city has an opportunity to increase residential recycling through education and outreach. By using city sponsored events to showcase recycling opportunities, the City of Burnsville can also lead through demonstration.

For lack of a better option in public spaces, people are wasting resources by throwing away items that they regularly recycle at home. According to the Beverage Packaging Environment Council, 31% by amount (34% by weight) of all beverage containers are consumed away from home. Furthermore, according to the Container Recycling Institute, 86% of plastic water bottles used in the United States become garbage or litter. Without an effective public space recycling program in place, residents receive a contradictory message about the importance of recycling. Public events are an additional place that generates a large amount of trash. Hundreds of tons of trash per

year could be diverted away from landfills by effectively managing these materials. Much of the waste can be eliminated before the event even begins by choosing only reusable and recyclable supplies and materials.

Strategy 3 – Promote Commercial and School Recycling & Waste Reduction

The ARROW (Awards for the Reduction and Recycling of Waste) Program is a well established source that Burnsville could use to greatly increase waste reduction and recycling from city businesses and schools. ARROW can also provide additional infrastructure help to businesses that will result in meaningful impacts. Strategies, which include recycling and waste reduction, help companies design waste out of their system, thereby saving them money.

Currently, schools in Burnsville are required by Minnesota state law to recycle. While many schools do have a recycling program, there are some that do not.

Implementation Activities

	ACTIVITY / DESCRIPTION	Lead Department	Timeframe	Cost: I= Implementation A= Annual Cost	Potential Benefits
Strategy 1 – Reduce Waste in City Operations					
A	Standardize Recycling Containers and signage.	Recycling	Initial Plan	I = Existing Staff Incorporate into annual replacement schedule A = Existing Staff	Increased recycling, reduce waste
B	Conduct Employee orientation/ongoing recycling training.	Recycling	Initial Plan	I = Sustainability Coordinator & Sustainability Team A = Existing Staff	Increase recycling, reduce waste
C	Explore option of using a private waste hauler to provide recycling in the parks.	Recycling & Parks	Initial Plan	I = Sustainability Coordinator & Existing Staff A= Existing Staff	Increase recycling, reduce waste, education

	ACTIVITY / DESCRIPTION	Lead Department	Timeframe	Cost: I= Implementation A= Annual Cost	Potential Benefits
D	Develop a city Sustainability Team that incorporates individuals representing all aspects of city operations.	Recycling	Short Term	Sustainability Coordinator & Existing Staff	Prioritize ongoing initiatives, identifies current needs
E	Establish recycling and waste reduction goals.	Recycling	Short Term	Existing Staff	Increase recycling & reduce waste
F	Replace Styrofoam cups with reusable cups and a dishwasher.	Recycling	Short Term	I = $1,100 A = Existing Staff	Reduce waste
G	Require recycling via recreation rental agreements.	Recycling & Recreation	Short Term	Existing Staff	Reduce waste, increase recycling
H	Adopt green meeting policy.	Recycling	Short Term	Existing Staff	Increase recycling & reduce waste

	ACTIVITY / DESCRIPTION	Lead Department	Timeframe	Cost: I= Implementation A= Annual Cost	Potential Benefits
Strategy 2 – Increase Residential Recycling and Waste Reduction					
A	Expand the residential source separated organics collection program to the entire city.	Recycling	Short Term	I= $2,500-5,000 A = Existing Staff	Residents helping to meet Sustainability goals
B	Improve public space recycling.	Recycling	Long Term	I = Dependant on project A = Existing Staff	Increase recycling & reduce waste
Strategy 3 – Promote Commercial and School Recycling & Waste Reduction					
A	Increase recycling promotion through the ARROW (Awards for the Reduction and Recycling of Waste) Program.	Recycling	Short Term	Existing Staff	Businesses helping to meet Sustainability goals
B	Assist in developing a commercial organics collection program.	Recycling	Short Term	Existing Staff	Reducing Waste

Possible Partners & Funding Sources

- Minnesota Pollution Control Agency
- Dakota County
- Eureka Recycling
- Recycling Association of Minnesota
- Minnesota Waste Wise
- Association of Recycling Managers

Performance Indicators

- Increase recycling in city buildings by 10% annually.
- Decrease paper use in city buildings by 5% annually.
- Expand the residential organics collection program.
- Increase ARROW participants by 5 businesses annually.

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Healthy Urban Forests

Sustainability Best Practice Area 11

Burnsville will strive to maintain a healthy urban forest; promote tree planting by establishing programs to annually increase tree canopy within the City and to develop an incentive program that encourages private sector owners to plant trees within parking lots and other areas of the City.

Strategy 1 – Increase Tree Cover and Diversity

Increasing tree cover will mitigate impacts from urban heat island effects by shading hard surfaces and increasing transpirational cooling. Trees also absorb carbon dioxide, trap rainfall, absorb air and water pollutants and can be aesthetically pleasing. Forests also provide long-term storage of carbon and can assist the city in offsetting the impact of energy use. Increasing tree diversity reduces susceptibility of the overall tree canopy to a particular disease and better ensures that the city will be able to sustain the benefits of its urban forests over time.

The Urban Forest BPA is closely coupled to BPA 13 for surface and groundwater resource protection in two key ways. First, healthy urban forests substantially influence the trapping of precipitation and infiltration into the shallow groundwater table, one of the key features in the vision for mimicking pre-development hydrology and water quality. Second, healthy urban forests reduce thermal impacts to surface flowages beneath the canopy. Cumulatively and city-wide these functions of healthy urban forests play a significant roll in a healthy water cycle.

Healthy urban forests can also be quantified for their carbon sequestration benefits. Credits for this benefit are being considered by the Chicago Climate Exchange and calculations are part of the stormwater management benefits identified by the Center for Neighborhood Technology in Chicago and other some other organizations in the country.

The city's Natural Resources Master Plan (NRMP) includes many strategies that will assist the city in meeting the goal of increasing tree cover and diversity. Some of the key strategies from the NRMP that should be implemented and funded to support this sustainability strategy are to establish:

- Design standards and planting goals for each type of woodland. Woodland types include boulevard trees, as well as tree communities in commercial areas, residential areas, natural areas, and pristine areas. Planting goals should be based on species mix, and percent canopy cover.
- Design standards for tree plantings in urban settings such as plazas, parking lots, and urban area sidewalks, that include standards for minimum green area per tree, allowed species, and details showing tree pit dimensions, cover type and subgrade drainage.
- Begin an aggressive tree planting program on city rights-of-ways.
- Expand the inventories of street and park trees.
- Provide support staff to complete inventory of city park and street trees.
- Create a Polka Dot Forest Regeneration Program.
- Plan greenways as opportunities to increase tree cover and diversity.
- Plant more berry- and fruit-producing trees to provide alternate food to buckthorn berries.

Strategy 2 – Reduce Tree Loss

As mentioned in the City's Natural Resource Management Plan, trees are a vital part of the City's health by filtering pollutants, transpiring carbon dioxide into oxygen, reducing stormwater flow rates, shading paved and vegetated surfaces, reducing wind speeds, increasing humidity, and ameliorating microclimate extremes. Therefore, to maintain these benefits, the City should reduce and prevent tree loss.

Current potential threats include fungal, viral and bacterial diseases, mechanical damage from insects, mechanical damage from construction activities. Some threats are present in Minnesota, a few are moving toward Minnesota. Over time additional arboreal diseases will likely enter Minnesota, and practices should be implemented to reduce stress to trees so that the trees are not weak and therefore more vulnerable to infection.

By improving the condition in which trees grow, or are planted, tree cover will increase and tree health, and the health of the City's environment, will be easier to sustain despite the occurrence of additional threats. This overall approach is laid out in the Natural Resource Management Plan - Urban Forest Management section. This strategy provides some additional measures to reduce impacts to trees and sustain a healthy urban forest.

Strategy 3 – Reduce Maintenance Needs

A sustainable urban forest system is one that does not require extensive ongoing maintenance. Reducing the need for forestry maintenance minimizes the resources used including staff time, vehicle usage, and fuel. Creating a more self-sufficient urban forest will reduce energy usage, minimize staff time needed to maintain the forest, and will ensure that the forest will continue providing benefits long into the future.

A more self-sufficient urban forest includes species that require less ongoing pruning or shaping, have low water needs, and have less invasive root systems that will be less likely to clog utilities lines and conduits. However, many of the more self-sufficient trees are species that do not maximize carbon capture as quickly. Many of the trees that capture the greatest amounts of carbon can also be weak-wooded or have root systems that affect site infrastructure. The City will need to prioritize which of these features is more important in different areas of the City. It may be best to plant high capture rate species in undeveloped areas where safety, utilities, and aesthetics are less of an issue. Carbon capture can be estimated from changes in the urban forest canopy over time and supplemented with savings in carbon dioxide emissions from decreased maintenance activities if species with low maintenance requirements are planted. The City has already initiated a number of steps to minimize forest maintenance needs, and these steps are further formalized as part of this plan.

Implementation Activities

	ACTIVITY / DESCRIPTION	Lead Department	Timeframe	Cost: I= Implementation A= Annual Cost	Potential Benefits
Strategy 1 – Increase Tree Cover and Diversity					
A	Implement the Urban Forestry components of the Natural Resource Master Plan (NRMP).	Natural Resources	Initial Plan	Budgeted in Natural Resource Management Plan	Maintain and enhance natural environment
B	Increase the ratio of overstory trees to smaller trees in city parks.	Forestry	Short Term	Utilize existing funding	Sequester more carbon
C	Evaluate and track carbon storage capacity of city's forests.	Sustainability	Long Term	TBD	Ensures implementation
D	Implement Boulevard Tree Planting Permit Program for residents	Natural Resources	Initial Plan	Existing Staff	Maintain and enhance natural environment

	ACTIVITY / DESCRIPTION	Lead Department	Timeframe	Cost: I= Implementation A= Annual Cost	Potential Benefits
Strategy 2 – Reduce Tree Loss					
A	Implement the Urban Forestry components of the Natural Resource Master Plan (NRMP).	Natural Resources	Initial Plan	Budgeted in Natural Resource Management Plan	Maintain and enhance natural environment
B	Increase disease awareness.	Forestry	Short Term	I = Minimal additional cost	Preserve Trees
C	Coordinate tree planting with utility location database.	Forestry	Short Term	I = Minimal additional cost	Reduce future problems
D	Reduce the use of heavy machinery that overly compacts soil.	Forestry	Short Term	I = Minimal additional cost	Preserves Trees

	ACTIVITY / DESCRIPTION	Lead Department	Timeframe	Cost: I= Implementation A= Annual Cost	Potential Benefits
E	Select common varieties instead of specialty cultivars.	Forestry	Short Term	No additional cost	Enhance tree health
	Strategy 3 – Reduce Maintenance Needs				
A	Choose trees with lower maintenance needs.	Forestry	Short Term	Minimal additional costs	Enhance tree health
B	Conduct formative pruning early.	Forestry	Short Term	Budgeted in Natural Resource Management Plan	Enhance tree health
C	Use Plant materials that are locally grown or produced.	Forestry	Short Term	No additional costs	Enhance tree health and reduce energy use

Possible Partners & Funding Sources

- Minnesota Tree Trust
- Minnesota Department of Natural Resources
- Dakota County
- USEPA Smart Growth Implementation Grants
- USDA Forest Service
- University of Minnesota
- National Arbor Day Program
- Minnesota Pollution Control Agency

Performance Indicators

- Increase aereal tree cover by 30 percent by the year 2020.

- Establish permanent releves at scattered locations within the community. Periodically conduct sampling to track how species (desirable or invasive) composition is changing.

- Track labor and materials costs and budgets for maintaining urban forests. While a reduction in net costs is desirable, as the forest cover increases, savings from more efficient operations will be balanced by a larger urban forest to maintain.

Sustainability Education

Sustainability Best Practice Area 12

Burnsville will strive to provide education on how the public can incorporate sustainable practices into daily activities/operations.

Strategy 1 – Empower the Public through Education to Create a Sustainable Future

Issues that face cities such as housing, jobs, business development, crime, public participation, and the natural environment are complex, difficult to isolate, and costly. The emerging concept of sustainability can provide direction. Sustainability calls upon us to invest our time and energy in efforts which simultaneously strengthen the environmental, economic and social dimensions of any issue.

Working in partnership with other governmental entities, residents, businesses, schools, and congregations the City of Burnsville can move in the direction of sustainability. First we all need to have an understanding of sustainability and then have significant policy discussions regarding sustainability. Terms such as environmentally preferable purchasing, green building, renewable energy, pollution prevention, rain gardens, infiltration basins, zero waste, cradle to cradle, product stewardship, and Natural Step are used to describe measures that can help to restore balance in the environment, and allow us to meet our needs without diminishing the prospects of future generations. The topic of sustainability is a very large and complex. Education is needed in order to have residents, businesses, schools, and congregations understand how sustainability can help us meet our current needs in ways that enable future generations to also meet theirs.

Implementation Activities

	ACTIVITY / DESCRIPTION	Lead Department	Timeframe	Cost: I= Implementation A= Annual Cost	Potential Benefits
Strategy 1 – Empower the Public through Education to Create a Sustainable Future					
A	Develop a city sustainability website.	Recycling & Comm.	Initial Plan	Existing Staff	Increased sustainability awareness
B	Select a city building/property (e.g. Ice Center) a city model of sustainability.	Recycling	Initial Plan	I = Sustainability Coordinator & Sustainability Team A = Existing Staff	Increased sustainability awareness
C	Use current community events to promote sustainability messages.	Recycling	Initial Plan	I = Sustainability Coordinator & MPCA Staff A = Existing Staff and MPCA Staff	Increased sustainability awareness
D	Work with churches and other religious organizations and nonprofit organizations promoting sustainability messages/education.	Recycling	Short Term	Existing Staff	Increased sustainability awareness

Possible Partners & Funding Sources

- Congregations Caring for Creation
- Churches and other religious organizations
- Dakota County
- Minnesota Pollution Control Agency
- Alliance for Sustainability

Performance Indicators

- Development of city website.
- Create at least 5 sustainability messages to different sectors of the public.

Surface & Groundwater Resources

Sustainability Best Practice Area 13

Burnsville will strive to protect and improve surface and groundwater resources. Towards that end the City will develop an educational program aimed at reducing groundwater use, investigate new design standards and incentives to emphasize the use of natural drainage systems over built storm water systems, and seek ways to modify street improvement projects to provide less impervious surface utilizing practices such as porous pavement.

Strategy 1 – Promote Infiltration and Water Quality Protection

Surface water and groundwater quality is important to a sustainable Burnsville. High quality surface water resources increase property values, increase recreational uses, improve quality of life, and support diverse aquatic and shoreline ecosystems. Promoting infiltration throughout the City of Burnsville has multiple benefits: protects and improves water quality (e.g. lakes), replenishes groundwater supplies, sustains groundwater dependent natural resources (e.g. fens, trout streams), and mimics the natural pre-development hydrology. Infiltration enhances water quality in multiple ways: 1) by filtering stormwater through the soil, 2) by limiting the excess volume of runoff entering water bodies, and 3) by reducing the transport of pollutants into water bodies through conduits such as storm sewers. Promoting infiltration will allow the city to mimic pre-development hydrology by releasing water downstream only after a portion of the water has filtered into the soil.

The City of Burnsville has five listed impaired lakes (Alimagnet Lake, Crystal Lake, Earley Lake, Keller Lake, and Lac Lavon) and one impaired reach of the Minnesota River. Total Maximum Daily Load standards are in the process of being developed for Crystal Lake, Earley Lake, and Keller Lake. The city has established water quality goals based on water clarity for each of its lakes with a goal of no decrease in water quality for lakes that meet the quality needed to support the intended uses (such as swimming and fishing), and a goal to increase to at least a swimmable status, any lakes not meeting this standard. The city has established a stormwater utility to fund completion of a number of water quality protection projects targeted at surface waters.

The City of Burnsville has already completed a high-profile infiltration project with the Crystal Lake Rainwater Gardens Project, which supports the overall goal of increased use of infiltration as a stormwater management practice. The project was a successful test-case for the use of raingardens in Burnsville and has increased public interest in raingardens throughout the city. The city's Water Resource Management Plan also highlights infiltration and Low Impact Development (LID) as key methods to protect all of the city's water resources by reducing the rate and volume of runoff and providing some level of thermal protection for the city's trout streams, fen, and other groundwater dependent natural resources. Relevant low impact design considerations and practices for residential sites include directing drainage from impervious areas such as roofs and driveways to vegetated areas, directing sump pump outlets to vegetated areas, tree planting and preservation, rain barrels for irrigation water, and installing raingardens. Relevant practices for commercial sites include directing drainage from impervious areas such as roofs and parking lots to vegetated areas or designed infiltration practices, below-grade infiltration practices for densely developed sites, using porous pavement for frequent use parking lots and reinforced turf products for less-

frequent or overflow parking areas, green roofs, tree planting and natural area preservation, and installing raingardens as functional landscaping features.

The strategy to *Promote Infiltration and Water Quality Protection* builds on the city's current initiatives and policies to fully integrate infiltration practices into the city. The suggested short-term implementation steps focus on city projects and new development and the long-term implementation moves to existing properties to address current conditions that are not sustaining water resources. This allows the city to model the actions it desires from Burnsville residents and businesses before asking residents and businesses to change their actions.

Strategy 2 – Sustainable Use of Groundwater Supply

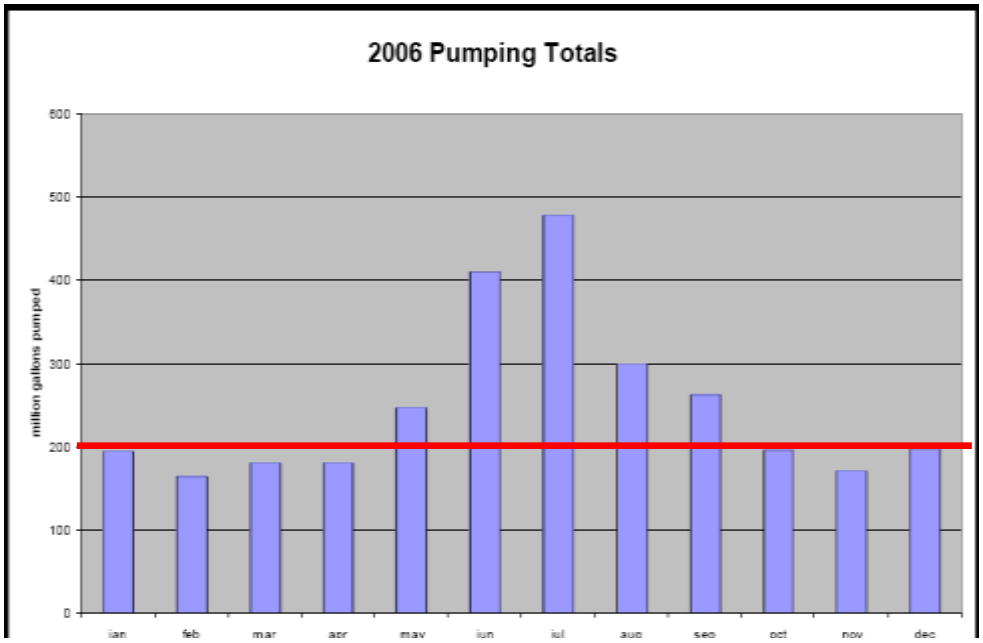

Figure 1: 2006 Monthly Pumping Totals from Burnsville Drinking Water Report 2006.

Groundwater is a renewable, regional resource providing potable water for much of the Twin Cities Area including the City of Burnsville. Groundwater also supplies necessary baseflow to area streams, lakes, and wetlands. Sustainable use of groundwater is defined by the Mn DNR as "use of water for the needs of society, now and in the future, without unacceptable social, economic, or environmental consequences". Groundwater use has the potential to impact lakes, streams and natural resources in the city.

For use of the groundwater supply to be sustainable the amount of water replenishing the aquifer must equal or exceed the amount of water taken out of the aquifer through wells. The regional nature of groundwater aquifers means that sustainable use of the aquifer depends not only on the City of Burnsville, but also on all other users of the aquifer. Despite this regional context, the City of Burnsville can make great strides toward sustainable use of groundwater resources.

Water conservation and the use of alternative water supplies are two key methods limiting the burden on groundwater aquifers while reducing the need for expensive capital improvements including new water supply wells. The City of Burnsville has been proactive in water conservation having already implemented summer irrigation/sprinkler restrictions. The city is also in the process of supplementing

the city's groundwater-based potable water supply with water from the Kraemer Mining & Materials mining operation in the northwest quadrant. These initiatives provide a base to support additional efforts to maintain sustainable groundwater use in the City of Burnsville.

Strategy 3 – Maintenance of the Stormwater Management System

The long-term sustainability of the quality of the city's water resources depends on the long-term function of the stormwater management features. The stormwater management system captures nutrients, sediment, and pollutants and infiltrates runoff in order to protect downstream resources. Over time, the system's function decreases if sediment and nutrients build up to a point where the system is no longer allowing infiltration or is no longer storing a large enough portion of the nutrients, sediment or pollutants that enter the system. Periodic maintenance is needed to ensure that the system functions effectively.

Burnsville has a number of stormwater management facilities that are managed by the city itself. However, many of the facilities important to the overall function of the stormwater management system are managed by the landowners, not the city. The city maintenance plan, therefore, needs to include conducting maintenance of the facilities managed by the city and ensuring that needed maintenance is conducted on private facilities. The city establishes agreements regarding maintenance of private stormwater facilities, but currently has no organized program to orchestrate reporting, tracking, or inspections of maintenance activities on private facilities.

The sustainability strategy on *Maintenance of the Stormwater Management System* builds on the city's Storm Water Pollution Prevention Program (SWPPP) to further ensure that the city's efforts at developing stormwater management infrastructure to protect and improve the city's water resources provide the desired long-term function.

Strategy 4 – Education and Stewardship

The sustainability of the City of Burnsville will initially be guided by the city itself as a role model; however, the long term sustainability of Burnsville will also depend on citizens to follow the city's example. Building a city culture of sustainability will ensure that the plan is implemented long into the future.

The city has set a model for low-impact stormwater management, such as through the Crystal Lake Rainwater Gardens project which has increased citizen interest in raingardens. To support citizen-led efforts for lake protection and water quality improvement the city currently offers grants to assist residents in implementing innovative projects. The city also promotes awareness and enforcement of irrigation/sprinkling standards. The Burnsville Bulletin has proven to be an effective means to distribute educational information regarding stormwater management and protection of lakes, wetlands, streams, and groundwater. Involvement of local schools will interest the next generations in thinking about sustainability.

Efforts for the *Education and Stewardship* strategy will initially focus on promoting awareness of city activities as the example to follow and will move on to providing support and assistance for city residents who would like to implement similar practices or activities.

Implementation Activities

	ACTIVITY/DESCRIPTION	Lead Dept.	Timeframe	Cost: I = Implementation A = Annual Cost	Potential Benefit(s)
Strategy 1: Promote Infiltration and Water Quality Protection					
A	Update current Low Impact Development guidance.	Natural Resources	Short Term	I = $8,000 - $10,000	5-10% cost reduction for construction
B	Develop a city inter-departmental guidance document for public infrastructure work.	Natural Resources & Public Works	Short Term	I = $15,000 - $20,000	Efficient internal coordination 5-10% cost reduction for construction
C	Set lawn design standards to require restoration of soil permeability after construction activity.	Planning & Natural Resources	Short Term	I = $3,000	Reduce flooding, reliance on stormsewers, protect water quality
D	Amend city standards to allow native vegetation in residential, commercial, and public lawns.	Planning & Natural Resources	Long Term	I = $3,000.	Reduce irrigation needs, reduce runoff (flooding, water quality)

	ACTIVITY/DESCRIPTION	Lead Dept.	Timeframe	Cost: I = Implementation A = Annual Cost	Potential Benefit(s)
E	Implement surface water quality protection strategies from Water Resources Management Plan.	Engineering & Natural Resources	Short & Long Term	Already included in Capital Improvement Plan.	Improve water quality
F	Target incentive programs to priority watersheds.	Natural Resources	Short Term	I= Existing Staff A = $5,000	Improve water quality
G	Incentivize incorporation of infiltration practices on existing commercial sites.	Natural Resources & Public Works	Long Term	I = $25,000 A = Varies depending on program developed	Reduce the need for new projects, lower burden on stormsewers
H	Upgrade all city facilities to meet the long-term volume control standard.	Natural Resources & Public Works	Long Term	I = $50,000 - $300,000 A = Varies depending on practices utilized	Reduce stormsewer expenditure, improve lake quality

	ACTIVITY/DESCRIPTION	Lead Dept.	Timeframe	Cost: I = Implementation A = Annual Cost	Potential Benefit(s)
Strategy 2: Sustainable use of Ground Water Supply					
A	Complete surface water treatment facility	Natural Resources	Initial Plan		
B	Conduct a water use audit and install conservation equipment in city owned facilities.	Facilities	Short Term	I = $70,000 - $160,000	Reduce water use & pumping; resource protection
C	Retrofit city-owned sprinkler systems with rain sensors.	Natural Resources / Parks	Short Term	I = $50-100 per sensor plus staff time to implement program	Reduce water use & pumping; resource protection
D	Develop cost-share program for installing rain sensors.	Natural Resources / Finance	Short Term	I = $3,000 A = $10,000 plus staff time for 3-5 years	Reduce water use & pumping; resource protection

	ACTIVITY/DESCRIPTION	Lead Dept.	Timeframe	Cost: I = Implementation A = Annual Cost	Potential Benefit(s)
E	Evaluate alternative water supplies.	Utilities	Short Term	Existing Staff	Reduce water use & pumping; resource protection
F	Cost-share for water use audits for businesses and residents.	Utilities	Short Term	I = $3,000 A = $20,000	Reduce water use & pumping; resource protection
G	Review existing water utility rate structure.	Finance	Short Term	Existing Staff	Reduce water use & pumping
Strategy 3: Maintenance of the Stormwater Management System					
A	Continue inspection and maintenance tracking system for city-maintained stormwater systems.	Natural Resources &Public Works	Short Term	Existing Staff & WRMP funding	Sustained water quality protection

	ACTIVITY/DESCRIPTION	Lead Dept.	Timeframe	Cost: I = Implementation A = Annual Cost	Potential Benefit(s)
B	Implement inspection and tracking system for privately-maintained stormwater systems.	Natural Resources	Long Term	A = $10,000	Sustained water quality protection
C	Develop assistance program for monitoring and investigation of privately-maintained stormwater systems.	Natural Resources	Long Term	I = $5,000 A = $15,000 as a cost-share with private system owners.	Sustained water quality protection
Strategy 4: Education and Stewardship					
A	Continue to use Burnsville Bulletin to provide educational information to city residents and businesses.	Communication	Short Term	Existing Staff	Increase voluntary water quality improvement efforts
B	Education program for homeowners associations and businesses that have responsibility for stormwater facility maintenance.	Natural Resources & Public Works	Initial Plan	Existing Staff	Sustained water quality protection

	ACTIVITY/DESCRIPTION	Lead Dept.	Timeframe	Cost: I = Implementation A = Annual Cost	Potential Benefit(s)
C	Implement demonstration projects at city facilities.	Natural Resources	Long term.	I = $65,000	Increase voluntary water quality improvement efforts
D	Develop a Sustainability water-themed trail.	Natural Resources	Long Term	I = $50,000 - $60,000.	Increase voluntary water quality improvement efforts

** Cost estimates are made based on an assumption that the majority of the task work is to be completed by outside contractors and consultants. Estimates are presented in 2008 dollars based on the information available at the time the report was prepared. A more detailed cost estimate should be prepared prior to budgeting or implementation as the Implementation Activity is further refined.*

Possible Partners & Funding Sources

- Metropolitan Council
- Minnesota Department of Natural Resources
- Dakota County
- Vermillion River Watershed JPO
- Lower MN River Watershed District
- Black Dog WMO
- University of Minnesota
- Dakota County SWCD
- Minnesota Pollution Control Agency
- MN Board of Soil & Water Resources

Performance Indicators

- Continue lake water clarity monitoring program to track progress towards identified goals.

- Decrease Ground Water use by 25% by the year 2015.

Innovative Opportunities

Sustainability Best Practice Area 14

Burnsville will strive to look for innovative opportunities to improve the environment. Identify ways to partner with local utility and power providers, manufacturers, etc. to establish regular meetings to brainstorm and implement environmental outreach programs, encourage neighborhood environmental initiatives, and investigate funding programs for local environmental initiatives/improvements.

Strategy 1 – Leverage Local Support

The City of Burnsville has an engaged and active network of volunteers who support the activities and infrastructure of the city. The city also depends on the support of local businesses. The city's sustainability efforts will be most effective when the efforts leverage local support.

Strategy 2 – Support Sustainable Food Systems

Food systems are increasingly seen as an essential component to community sustainability. A sustainable food system has been defined by the Alliance for Sustainability as being one that is ecologically sound, economically viable, socially just and humane, meaning that it embodies our highest values in terms of how we treat people, animals and the earth. Such a system supports long term human health and minimizes impact on the environment from how the food is grown, how the inputs are produced, how it's transported, served and then composted. Locally grown food minimizes the "carbon footprint" of the food because it does not take as much fuel to transport the food if it is grown and transported locally. Food grown with no use or minimal use of pesticides reduces hazards to the environment and sustains the health of those who eat the food as well as the health of those who grow the food.

The City of Burnsville has a farmers market open two days a week and has started a community garden to support residents who wish to grow some of their own food within the city. Farmers markets and community gardens promote positive interaction between community residents and supply fresh local food to city residents. In the city's internal operations, food supplied at meetings has been including more fresh food options.

Implementation Activities

	ACTIVITY / DESCRIPTION	Lead Department	Timeframe	Cost: I= Implementation A= Annual Cost	Potential Benefits
Strategy 1 – Leverage Local Support					
A	Leverage volunteers to provide support for sustainability initiatives by assisting at community events; adopting rain gardens & recycling containers; hosting neighborhood parties to kick of events such as energy challenge.	Recycling	Initial Plan	Existing Staff	
B	Network with businesses, congregations, schools, neighborhood groups and community groups regarding sustainability.	Recycling	Initial Plan	I = Sustainability Coordinator & Sustainability Team A = Existing Staff	
Strategy 2 – Support Sustainable Food Systems					
A	Consider additional community gardens.	Recycling	Short Term	Parks CIP	Residents helping to meet Sustainability goals

	ACTIVITY / DESCRIPTION	Lead Department	Timeframe	Cost: I= Implementation A= Annual Cost	Potential Benefits
B	Support backyard organic gardening by offering workshops on natural pest control & composting and distributing backyard composters at a discount cost.	Recycling	Short Term	Existing Staff	Residents helping to meet Sustainability goals
C	Serve locally grown, organic food at city meetings and events when possible.	Recycling	Short Term	Existing Staff	Residents helping to meet Sustainability goals
D	Promote Community Supported Agriculture (CSA's).	Recycling	Short Term	Existing Staff	Residents helping to meet Sustainability goals

Possible Partners & Funding Sources

- Local Businesses
- Congregations
- Dakota County
- Schools
- Neighborhood Groups
- Rotary Club, Lions Club, Chamber of Commerce
- Vendors at the Burnsville Farmers Market
- Valley Natural Foods and other supermarkets
- Vending machine suppliers
- MN Department of Agriculture Farm Fresh and Sustainable Agriculture Programs
- University of Minnesota master Gardeners Program
- Cooperative Extension Service

Performance Indicators

- Increase education on how consumer food choices can supports long term human health and minimizes impact on the environment.

- Develop network system of sustainable activities/education with schools, congregations, and businesses.