

12. RESILIENCE AND SUSTAINABILITY

Goal: Promote resiliency and sustainable design practices in the preservation, development, redevelopment, and maintenance of the City's natural and built environment.

To achieve this *resilience and sustainability goal*, the following policies are proposed:

- Promote best practices for sustainable design in the construction and operations of new development, additions, and building renovations.
- Evaluate energy use that contributes to energy and climate uncertainty.
- Encourage the use of site sensitive planning and design to protect significant natural features throughout the City.
- Support the use of renewable energy.
- Support the efficient use of land and development that reduces reliance on fossil fuels.
- Work to reduce carbon emissions at City facilities, from City vehicles, and overall City design.
- Work to protect air, water quality, and healthier indoor environment.
- Encourage programs that reduce waste and increase recycling.
- Ensure the stability of public infrastructure systems in consideration of changing climate trends.

The need for communities to address environmental sustainability, green building practices, energy efficiency, and conservation is becoming more apparent in the face of energy uncertainty and climate change. While Arden Hills has a relatively small impact, the City does play a role in protecting the environment and encouraging sustainable development and redevelopment. If more cities adopt environmentally sustainable practices, the combined impact is substantial regardless of city size.

Resiliency and sustainability incorporates a range of techniques, such as environmentally sensitive site planning, using resource efficient building materials, enhancing indoor and outdoor air quality, enhancing the use of daylight, reducing the need for automotive travel. In addition to the environmental benefits associated with implanting these practices, they also bring benefits to the community in terms of improved public health and economic competitiveness.

The City joined the Minnesota GreenStep Cities program in 2016. This voluntary program is managed by the Minnesota Pollution Control Agency and is designed to assist cities achieve sustainability and quality-of-life goals. Many of the goals outlined in this chapter are also identified as best practices by the GreenStep Cities program. The City is committed to continuing its participation in this program.

This particular chapter discusses the overarching policies, practices, information, and implementation techniques that apply throughout the Plan. There are policies, tools, and implementation techniques in other chapters that directly relate to resilience and sustainability, though may not be repeated in this chapter. The goal of this chapter is to recognize the importance of resilience and sustainability as well as to coordinate these efforts throughout the Comprehensive Plan.

12.1 WHAT IS SUSTAINABILITY AND SUSTAINABLE DESIGN?

Sustainability: The concept of meeting present needs without compromising the ability of future generations to meet their needs.

Sustainable Design: Design that seeks to avoid depletion of energy, water and raw material resources; prevent environmental degradation caused by facility and infrastructure development over their life cycle; and create environments that are livable, comfortable, and safe and that promote productivity.

12.2 GREEN BUILDING PRACTICES

The industry focus is toward overall improved design of buildings to conserve energy and produce a healthier living environment. Leading programs are Leadership in Energy and Environmental Design (LEED), and the US Green Building Council. Additional organizations working on these efforts include the U.S. Environmental Protection Agency, MN Pollution Control Agency, and American Institute of Architects.

The most notable rating system currently in use is the LEED rating system, which is organized to promote action in the following areas:

- Location and Transport
- Sustainable Sites
- Water Efficiency
- Energy and Atmosphere
- Materials and Resources
- Indoor Environmental Quality

While gaining LEED certification has become important for the environmental aspects, it has also become a marketing tool. Encouraging the use of LEED standards may help the City be more competitive over the long term. With redevelopment in commercial and industrial districts and redevelopment of the TCAAP property, the City and developers have the opportunity to employ LEED standards and other sustainable techniques.

Existing structures and practices can also be modified or upgraded to reduce their environmental impact. For example, using energy efficient lighting, increasing insulation, reducing automobile usage, and other similar measures can reduce a person's impact at home and at work.

12.3 LOW IMPACT DESIGN

Municipal land use and transportation planning decisions directly influence whether people and businesses will have mobility choices that allow them to save energy and money. Through zoning codes, building codes, public incentives, and the permitting process, municipalities can encourage building and site design that reduces energy needs, resources, and greenhouse gas emissions.

Environmental sustainability and low impact design also includes ecology and open space planning. Some of the practices and tools that coordinate development with protecting the environment and open spaces include:

- LEED and other similar design standards;
- Water gardens, porous or structured parking, and minimizing paved areas;
- Storm water control, collection, and filtration before entering storm sewers;
- Wetlands preservation and control;
- Access to local foods, materials, building supplies;
- Walkable and bikeable community;
- Increased landscaping with more trees and vegetation;
- Smart design and location for structures – east, west, south exposure for solar gain, natural ventilation to reduce air-conditioning, recycled and natural building products.
- Transportation hubs and depots – walkable, bikeable, electric vehicle distance to local community centers or business districts.

This section does not include all low impact design practices and tools. As technology and ideas are available, they should be evaluated to determine if they could advance the City's goals. The above practices and tools could be encouraged or required through the City's regulations.

12.4 CARBON REDUCTION

Planning for energy uncertainty and climate change will require proactive planning at every level of government. In Arden Hills, a significant contributor of carbon and greenhouse gas emissions is traffic passing through on Interstates I-694, I-35W, Highway 10, Highway 96, Snelling Avenue, and Lexington Avenue. Although the City has limited ability to regulate these roads, the City can encourage other governmental units to use these tools to help lower emissions:

- Lowering speed limits
- Higher mpg vehicles
- Using fuel efficient, hybrid and/or alternative fuel buses
- Using electric cars or personal vehicles
- Traffic roundabouts that slow speeds but do not stop traffic
- Improving public transit options for residents and employees in Arden Hills

Cities, counties, and the state need to work cooperatively on other regulatory measures that encourage carbon emission reduction. Reducing carbon emissions will take cooperation at all levels to be successful, and Arden Hills is in support of finding ways to reduce carbon emissions.

12.5 IMPLEMENTATION STRATEGIES

Future sustainability projects that will benefit the City and region include, but are not limited to:

- Develop an energy conservation policy for City buildings and equipment.
- Encourage geothermal heating and cooling for individual buildings and for district heating/cooling size installations.
- Increase recycling at all uses.
- Develop regulations that encourage the use of pervious surfaces, green roofs, and other environmentally sensitive site and building design practices.
- Promote LEED/green building practices through, zoning, codes, and possible incentives.
- Encourage the use of renewable energy and work to protect access to direct sunlight for solar energy systems.
- Work with Metro Transit on opportunities to improve public transit facilities.
- Develop zoning regulations and public infrastructure systems that support healthy community transportation and access to recreation and open space. Advocate for the use of renewable energy on AHATS.

The above strategies should not be considered all-inclusive. New opportunities and strategies should be identified to further advance the City's resilience and sustainability goal and policies.