Community Resilience & the Comprehensive Plan

Eric Wojchik, Senior Planner
December 13, 2016
“Stop worrying about missed opportunities and start looking for new ones.”

- I.M. Pei
What is the Role of the Comprehensive Plan?

- Official Controls
- Zoning Ordinances
- Subdivision Ordinances
- Capital Improvement Plan
- Small Area Studies
- Feasibility Studies
- New Programs
- Update Ordinances

Comprehensive Plan

Implementation Actions

PlanIt
2040 Comprehensive Plan

Community Vision

Desired Conditions

Existing Conditions

Policies & Strategies

Implement & Evaluate

2040 Comprehensive Plan
Comprehensive Planning Process

**Existing Conditions**
- Compile Community Baseline Data
- Consider Barriers to Engagement
- Assess Staff & Financial Resources
- Synthesize Information

**Desired Conditions**
- Community SWOT* Analysis
- Engagement – Public & Political
- Identify Short & Long-term Priorities
- Focus Prioritization

**Policies & Strategies**
- Vision & Goals
- Policies
- Implementation Strategies
- Evaluation

*Strengths, weaknesses, opportunities, & threats

PlanIt
Policies & Strategies

Implementation Strategies

- Encouragement
- Incentives
- Regulation
- Lead by Example

From Minnesota’s Local Government Project for Energy Planning (LoGoPEP)
Integration of Resilience

- Land Use
- Transportation
- Water Resources
- Parks & Trails
- Housing
- Economic Competitiveness
- Implementation
## Strategic Plan Assessment

**APPENDIX C: PLAN SCORING MATRIX**

<table>
<thead>
<tr>
<th>BEST PRACTICES FOR PLAN PRINCIPLES</th>
<th>N/A</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>Source</th>
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<tbody>
<tr>
<td><strong>1. LIVABLE BUILT ENVIRONMENT</strong>—Ensure that all elements of the built environment, including land use, transportation, housing, energy, and infrastructure, work together to provide sustainable, green places for living, working, and recreation, with a high quality of life.</td>
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<td>1.1. Plan for multimodal transportation.</td>
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<td>1.2. Plan for transit-oriented development.</td>
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<td>1.3. Coordinate regional transportation investments with job clusters.</td>
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<td>1.4. Provide complete streets serving multiple functions.</td>
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<td>1.5. Plan for mixed land-use patterns that are walkable and bikeable.</td>
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<td>1.6. Plan for infill development.</td>
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<td>1.7. Encourage design standards appropriate to the community context.</td>
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<td>1.8. Provide accessible public facilities and spaces.</td>
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<td>1.9. Conserve and reuse historic resources.</td>
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<td>1.10. Implement green building design and energy conservation.</td>
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<td>1.11. Discourage development in hazard zones.</td>
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<tr>
<td><strong>TOTAL SCORE: 1. LIVABLE BUILT ENVIRONMENT</strong></td>
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N/A = Not applicable; 0 = Not present; 1 = Low achievement; 2 = Medium Achievement; 3 = High Achievement; Source (indicate where in the plan each best practice is discussed)

**From APA Sustaining Places: Best Practices for Comprehensive Plans**
Integration of Resilience Planning into the 2040 Comprehensive Plan

How to Succeed

• Establish a staff & City Council resilience lead
• Institutionalize & embed resilience planning
• Source “actionable science” at the local level
• Front-load the process
• Brand the community
• Engage often for buy-in
• Meet in the middle
• Think & plan beyond community boundaries
• Build capacity through partnerships
• Do what you can, not what you ought to
• Be aspirational yet specific
• Consider co-benefits
• Strategically assess/score the Plan to ensure integration
Resources


http://www.metrocouncil.org/Handbook/PlanIt.aspx
PlanIt

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651-602-1330
Integrating Sustainability and Resiliency Planning in the City Comprehensive Plan

Conference

December 13, 2016
Brett Emmons - EOR
Sue Bast – City of Burnsville
Mark Koegler - HKGi
City of Burnsville

- City of Burnsville
- Located just south of the Minnesota River
- Population: 61,434
- 76 Parks
- WMI Landfill
- Black Dog Xcel energy
- Minnesota Valley Wildlife Refuge
Sustainability & Resiliency in City of Burnsville

- Sustainability Guide Plan
- Sustainability Team
- Policies
- Sustainability Coordinator
- Resiliency
- Indicators
- Awards/Certifications

The Three Spheres of Sustainability

- Social-Environmental
  - Environmental Justice
  - Natural Resources Stewardship
  - Locally & Globally
- Environmental
  - Natural Resource Use
  - Environmental Management
  - Pollution Prevention
  - Air, Water, Land, Waste
- Economic-Social
  - Business Ethics
  - Fair Trade
  - Worker’s Rights

Adapted from the 2003 University of Michigan Sustainability Assessment

www.burnsville.org
Sustainability Guide Plan

• Two year sustainability review process including input from a broad base of experts and stakeholders
• Developed 14 priority areas of sustainability termed Best Practice Areas
• In 2009 Burnsville City Council adopted the Sustainability Guide Plan
• PNRC to provide a forum for community input into the Sustainability Guide Plan
Best Practice Area Groups

Energy
3. Greenhouse Gas Reductions
6. Alternative Energy
7. Energy Efficiency

Waste and Recycling
2. Product Stewardship
10. Recycling and Waste Reduction
12. Sustainability Education (ARROW)

Products and Materials
1. Environmentally Preferable Purchasing
5. Sustainable Transportation

Planning and Natural Systems
4. Sustainable Land Use Policies
8. Sustainable Building Practices
9. Community Health
11. Healthy Urban Forests
13. Surface & Groundwater Resources
## The Process

<table>
<thead>
<tr>
<th>Step 1</th>
<th>Step 2</th>
<th>Step 3</th>
<th>Step 4</th>
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<tbody>
<tr>
<td>Review Existing Plans</td>
<td>Conduct Energy Audit for City Hall</td>
<td>Hold Series of Meetings to Review BPAs with Staff</td>
<td>Conduct Focused Training Session</td>
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<table>
<thead>
<tr>
<th>Step 5</th>
<th>Step 6</th>
<th>Step 7</th>
<th>Step 8</th>
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<tr>
<td>Develop Implementation Strategies, Performance Indicators and Implementation Cost Estimates</td>
<td>Develop Overall Implementation Strategy</td>
<td>Hold Draft Strategy Review Meeting with Staff</td>
<td>Present Sustainability Plan to the City Council</td>
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</tbody>
</table>
Plan Overview

Sustainability in the City of Burnsville ensures city operations are aligned so that the people, environment, and finances of Burnsville are supported over the long term.

Plan is aligned to the City Council adopted guiding principle:

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.
Plan Overview

• Sustainability Guide Plan outlines in each of the 14 Best Practice Areas
  – Guiding strategies
  – Specific short-term and long-term action items
  – Performance indicators to measure progress
  – Implementation strategy to guide the city in the implementation of the full plan.
Energy

• Focus of Energy BPAs
  – Leveraging efficient and renewable technologies to reduce the energy costs and carbon footprint of city operations
  – Best Practice Areas
    • 3 – Greenhouse Gas Reductions
    • 6 – Renewable Energy
    • 7 – Energy Efficiency
Energy

• **Sustainability Strategies**
  – BPA 3 – Greenhouse Gas Reductions
    • Reduce City Carbon Emissions
  – BPA 6 – Renewable Energy
    • Utilize Solar Energy
    • Utilize Biofuels and Hybrid Technologies
    • Utilize Geothermal Systems
    • Evaluate Wind Energy Potential
  – BPA 7 – Energy Efficiency
    • Increase Energy Efficiency of City Buildings
Energy

- **Recommended Initial Action Plan**
  - **BPA 3 – Greenhouse Gas Reductions**
    - Establish CO2 emission tracking procedure with annual reporting to gather baseline data
      - $1,500
      - To provide understanding of city status and progress
  - **BPA 6 – Renewable Energy**
    - Install a solar thermal domestic hot water system on City Hall
      - $25,000
      - To provide 50-75% of hot water usage
      - 8 year to 10 year average payback period
    - **Purchase Wellspring wind energy**
      - $6,000 for City Hall
      - To dramatically reduce CO2 emissions
  - **BPA 7 – Energy Efficiency**
    - Implement recommendations of City Hall Energy Audit
      - $2,400 - $55,000 depending on project
      - To reduce energy use expenditure
      - 2 year to 9 year payback period depending on project
Implementing Sustainability

• Seem Daunting?
  – Implementation will spread out to all departments
  – Change in mindset and actions so that sustainability becomes the way things are done
Implementing Sustainability

• How could this be applied?
  – Highlight the Ice Center as an initial showcase
    • Signage and tours highlighting the:
      – Geothermal heating system
      – Energy efficient lighting
      – Visible and comprehensive recycling
      – Low water use landscaping
      – Onsite stormwater management
  – Ensure that development in the Minnesota River Quadrant is designed for sustainability from the ground up
    • Plan for or require:
      – Geothermal district heating system using quarry lake
      – All buildings follow sustainable building guidelines (LEED or B3)
      – Land use design considers transit, trail connectivity, stormwater, urban forests, natural corridors
Sustainability Team

• Develop and implement projects that address City of Burnsville’s Sustainability Guide Plan strategies, establish sustainable practices for our organization and raise the sustainability awareness of employees

• Facilitate effective sustainability networking between all departments and other groups
Sustainability Policies

- Sustainable Infrastructure Policy
- Environmentally Preferable Purchasing Policy
- Emerald Ash Borer Management Plan ($2.8 million)
Sustainability Coordinator

- Point person for sustainable ideas
- Keep updated on new concerns and issues
- Bring topics and training to Sustainability Team
- Research and write policies
- Produce Sustainability Updates
Resiliency

- **Climate Mitigation:** Reducing greenhouse gas emissions to limit magnitude or progression of climate change (sustainability)

- **Climate Adaptation:** Developing/implementing strategies, initiatives and measures to help human and natural systems address climate change impacts

- **Climate Resiliency:** Planning tool for communities to understand and prepare for climate-related events. Resiliency incorporates both mitigation and adaptation into city functions and operations
The difference between weather and climate is a measure of time. Weather is what conditions of the atmosphere are over a short period of time, and climate is how the atmosphere "behaves" over relatively long periods of time.
City of Burnsville Resiliency Activities

- Adopted the Atlas 14 Rainfall Distribution standards
- Received a Blue Star Award/Certification for stormwater management practices
- Adopted EAB Plan with a replacement tree diversity guideline “10 – 20 – 30”
- Planning an emergency preparedness plan in conjunction with Dakota County. Includes a threats/vulnerability analysis
- Developed Climate Resiliency Insert for Bulletin
Climate Resiliency Workshop

- Grant from the MPCA
- September 24, 2015
- Increase climate resilience of communities
- Improve understanding of climate changing impacts for communities
- Identify key areas of vulnerability in city services
Climate Resiliency Insert

• Impacts of climate change
• Resiliency tips
• Emergency preparedness kit
• Vulnerability survey
Sustainability Dashboard

ENERGY EFFICIENCY

City Property Conservation Measures

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<tr>
<th>Year</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>Total</th>
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<tr>
<td>Lights replaced or permanently removed</td>
<td>142</td>
<td>94</td>
<td>527</td>
<td>412</td>
<td>1,732</td>
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<tr>
<td>Annual kilowatt hours saved</td>
<td>91,423</td>
<td>171,834</td>
<td>77,587</td>
<td>115,276</td>
<td>465,120</td>
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<tr>
<td>Annual cost savings</td>
<td>$6,763</td>
<td>$18,059</td>
<td>$6,614</td>
<td>$11,108</td>
<td>$46,518</td>
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Production and Distribution of Potable Water

Case Study: Heart of the City Parking Deck

In 2014 the City of Burnsville enlarged the parking deck at the Heart of the City by 30%. Originally, there were 68 lights at the parking deck and the cost to light the deck annually was $10,110. In late 2014 the 56 lights were updated to LED lights and an additional 10 LED lights were added to the expanded parking area. Even with a substantial increase in lighting fixtures and parking space, the change to LED technology reduced the total parking deck lighting budget to $7,130, a 30% reduction. There was a reduction of 115,000 kilowatt hours from 2014 to 2015.
Sustainability Dashboard

SUSTAINABILITY ACTION

Healthy Urban Forests
For the past three years, the City has been implementing its plan to deal with the invasive species, the Emerald Ash Borer (EAB), which is killing every unprotected ash tree in the city. This is the most destructive and economically costly forest insect ever to invade North America.1

The City’s EAB Management Plan incorporates the most cost-effective and environmentally sound strategies by promptly removing low-quality public ash trees (40% of the ash trees) and protecting the high-quality trees (60% of the ash trees). Compared to the outdated strategy that relied solely on tree removal and replacement to manage the infestation, studies have shown that the City’s science-based approach can lower public costs over a 20-year period by 40% while preserving twice the economic and environmental benefits.2

What’s Next?

COMPREHENSIVE PLAN
Burnsville’s long-range plan for development, redevelopment, parks, public utilities, transportation, natural resources, city facilities, housing, youth and neighborhoods incorporates sustainability into each area to provide guidance for the next 10 years.3

The Comprehensive Plan establishes the foundation for community development and sets the stage for future improvements.

FLEET MANAGEMENT SYSTEM
The new Fleet Management System integrates fleet maintenance software, fueling system and GPS tracking system. It allows the City to increase fleet efficiencies, improve the productivity by tracking the usage of vehicles, and get the necessary information to right size the fleet. It also will reduce fuel usage and emissions by monitoring vehicle condition, limiting idle time and monitoring vehicle usage.

WATER METER READERS
The Automated Meter Infrastructure (AMI) will allow the City to better analyze water sold versus water pumped from the Quarry and ground water wells. Meter readings will be transmitted daily with alarm parameters set so we can immediately spot properties with issues. This will help conserve water.

COMMUNITY SOLAR GARDENS
The City Council approved awarding twelve contracts for solar energy production with community solar garden developers for approximately 41% of the energy provided to City of Burnsville facilities by Xcel Energy. Developers are working with Xcel Energy and hope to be producing solar energy in the 4th quarter of 2016.

For more information on the MN GreenStep program and Burnsville’s performance metrics go to http://greenstep.pca.state.mn.us/steps.cfm
Integrating Resilience into Comprehensive Plans
Two Approaches

1. Create a separate chapter in the plan

2. Resiliency is interwoven throughout the plan
Example Plan

- Add existing plan example here – when available!
Preferred Approach

• Overwhelming choice so far is to weave resiliency/sustainability throughout the plan.
• Approach chosen for the Burnsville Comprehensive Plan
References and Benchmarks

• Existing Sustainability (Resilience) Plans, Policies, Strategies, Programs, etc.
• Green Step Cities Program – 29 best practices, 175 unique actions.
• Resiliency Action List – comprehensive listing of resilient design criteria.
Incorporate Current Plans

Sustainability Guide Plan
Green Step Cities

- Twenty-nine best practice areas related to:
  - Transportation
  - Buildings and Lighting
  - Environmental Management
  - Land Use
  - Economic and Community Development
GreenStep Cities

Step 1 Cities

Step 2 Cities
GreenStep Cities

Step 3 Cities

Step 4 Cities
GreenStep Cities

Legend
Current Green Step
1
2
3
4

www.burnsville.org
Applying GreenStep Practices

Plan Chapters

– Community Overview
– Future Land Use
– Redevelopment
– Economic Development
– Housing
– Neighborhoods
– Youth
– Natural Resources
– Transportation
– City Services and Facilities
– Water Resources
– Implementation

Best Practices

– Transportation
– Buildings and Lighting
– Environmental Management
– Land Use
– Economic and Community Development
Example – Heart of the City

Heart of the City

Proposed BRT Stop

Proposed BRT Stop
HOC - 2040 Plan
HOC – 2040 Plan
Applying Best Practice to HOC

- Efficient Buildings
- New Green Buildings
- Efficient Outdoor Lighting
- Building Redevelopment
- Efficient City Growth
- Mixed Uses
- Mobility Options
- Demand-side Travel Planning
- Stormwater Management
- Parks and Trails
- Surface Water Quality
- Business Synergies
## Resiliency Action List

**RELi RESILIENCY ACTION LIST (FULL)**

For Communities, Buildings, Homes + Infrastructure

An Action List + Strategic Resource Incorporated into the Green + Resilient Property Underwriting Standards


### RELi ACTION LIST C3LivingDesign.org / RELi

<table>
<thead>
<tr>
<th>S</th>
<th>C</th>
<th>Action Item</th>
<th>Status</th>
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<td>S</td>
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<td>Poly-Credit 2: Community Connectivity: Walkability, Public Transit, Non-motorized Transit</td>
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</table>
“Resilience is all about being able to overcome the unexpected. Sustainability is about survival. The goal of resilience is to thrive.”

Jamais Cascio
Thank You
PlanIt

Questions?