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2040 Comprehensive Plan Update Advisory Committee Agenda
Wednesday, November 8, 2017
5:00 – 7:30 PM
Hopkins Fire Station – Conference Room

1. Arrival and Dinner (5:00-5:30)
    - Table discussions

2. Process Overview (5:30-5:35) – Jason

3. Railvolution Update (5:35-5:40) – Larry

4. Built Form Update (5:40-5:55) – Andrew
    - What we heard at last meeting
    - What's next

5. Natural Environment Overview (5:55-6:10) – Haila/Mike
    - Definition, themes, and trends
    - Water planning update

6. Natural Environment Preference Exercise (6:10-7:00) – Sam
    - Topics and best practices
    - Live polling and discussion:
        - What's important?
        - What should the City's role be?

7. Group Discussion and Next Steps (7:00-7:30) – Haila
    - What big ideas are coming up that we should include?
    - What are we still missing?

Next Meeting: Wednesday, January 10, 2018
Economic environment (economic development, affordability, access/transportation)

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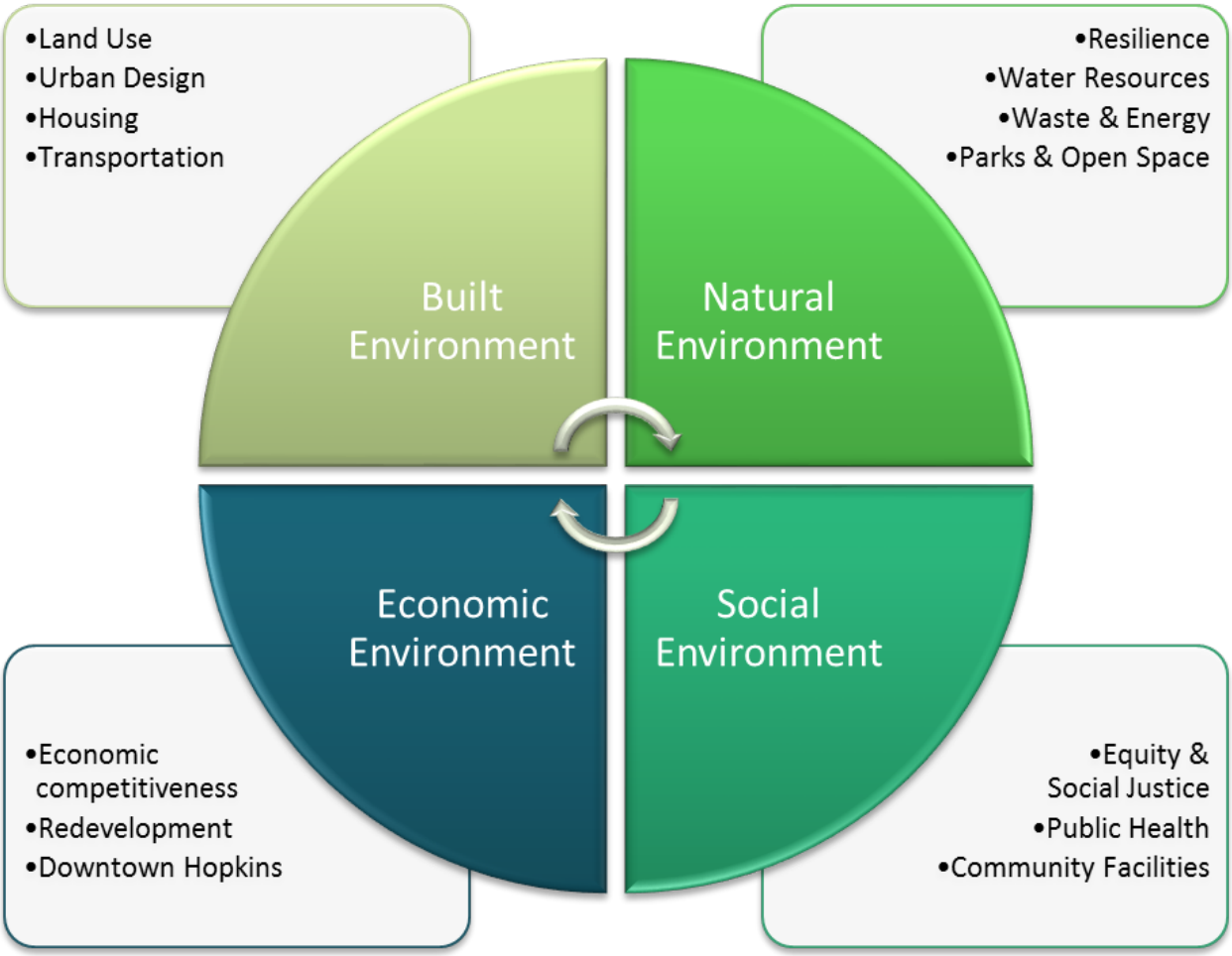
Comprehensive Plan
Sustainability Briefing Book

10/31/17 DRAFT



Overview

Purpose

The purpose of this briefing book is to provide background information and data to inform the development of sustainability policy as part of the Cultivate Hopkins comprehensive plan update. Sources of this information include:

- What we've heard from comprehensive plan outreach to date
- Existing goals and policies developed by the City related to sustainability
- City progress to date on sustainability initiatives, particularly GreenStep Cities
- National best practices on addressing sustainability in comprehensive planning
- Information, data, and maps related to existing conditions in Hopkins

Sustainability and the Comprehensive Plan

The comprehensive plan is organized around an overall vision of a sustainable community, as viewed through four environments as shown on the graphic on the front cover: built, natural, economic, and social environments. Each of these will be explored in depth throughout the planning process.

The intent is to have sustainable aspects of the plan infused throughout the plan, to provide a complete and integrated approach to pursuing sustainability goals. It is the intent that the broader policy statements developed for the comprehensive plan can eventually be used to inform the development of specific metrics and indicators to track progress toward goals over time.

Main Ideas

- Hopkins has taken several steps to improve and expand sustainability in the City. The City is involved with many programs and has earned awards and recognition for the work they have accomplished.
- Compared to neighboring and comparable cities, Hopkins emits fewer carbon emissions and uses the least amount of water. However, this may be due to the City's smaller population; per capita, Hopkins' emissions and water usage are average.
- Many of the City's GreenStep best practices have involved mobility and transit, including transit-orientated development and multi-modal transportation. This aligns with community interest in more biking, walking, and public transportation options.
- There are multiple additional opportunities to expand sustainability.

Trends and Challenges

- **Retrofitting and redevelopment.** As a fully developed City, Hopkins is faced with the challenge of retrofitting and redeveloping to meet sustainability and resiliency goals. However, this creates the opportunity to incorporate more sustainable practices and infrastructure as part of routine maintenance, which can spread out initial expenses overtime.
- **The first steps are the easiest.** Hopkins has been working to be more sustainable for several years. Most likely, Hopkins started with "low-hanging fruit" or smaller, easier changes in practice

or policy to reduce emissions. To continue to reduce its carbon footprint, the City will need to address harder or more complicated changes in policies or procedures. This will require cross-sector collaboration (both scales of government and private/public partnerships) and continued support from Hopkins residents and businesses.

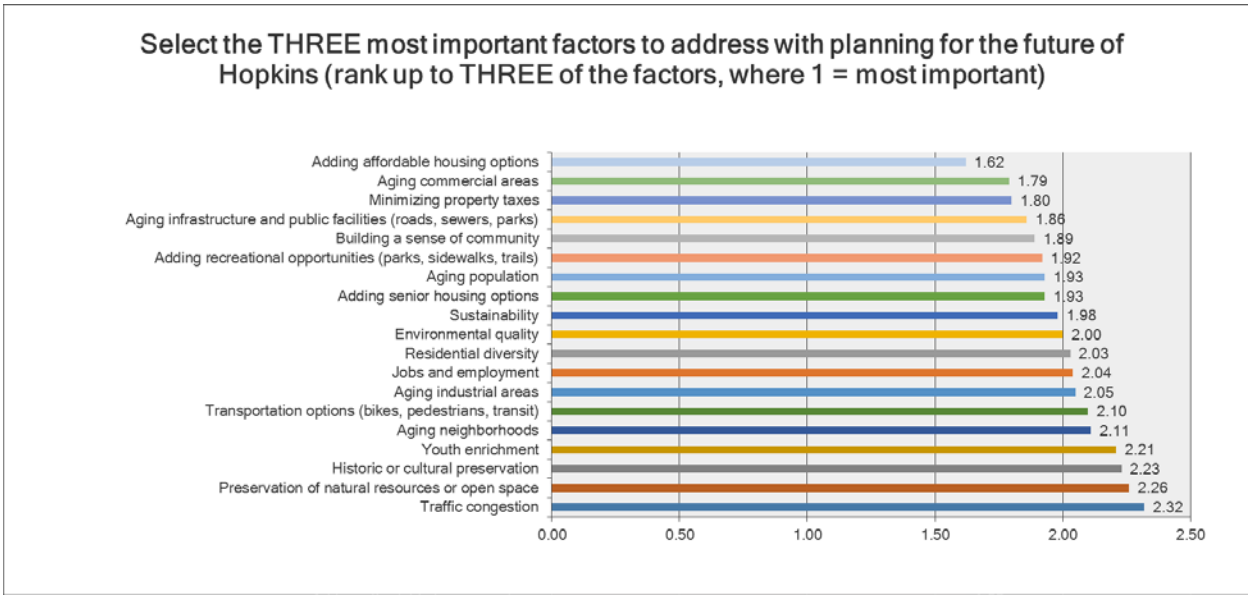
- **More than emissions.** "Sustainability" is much more than reducing carbon footprints. It includes the development of strong and diverse economic systems that can weather recessions or changes in the market, offering a range of employment options. It also includes fostering a sense of community to build social connections, expand social circles, encourage and support civic participation, and create a community identity. Examining "sustainability" from environmental, economic, and social/community frameworks can help create a vibrant, well-rounded city.

What We've Heard

City of Hopkins Survey

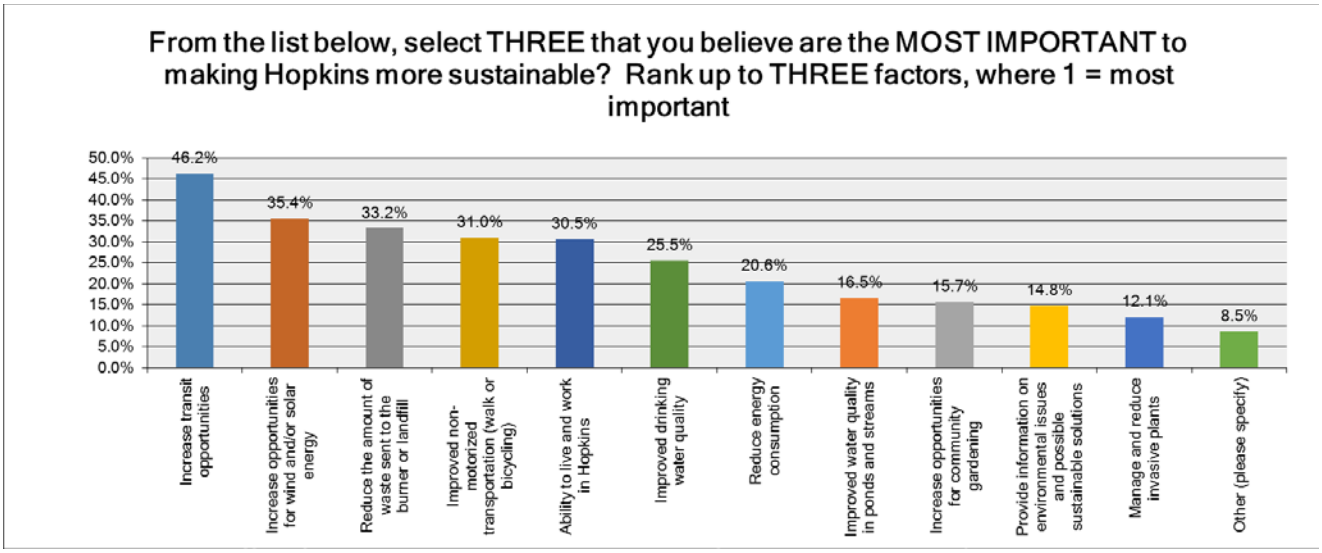
From 2016 through early 2017, the City of Hopkins administered a community survey to assess issues, ideas, concerns, and priorities to inform the development of the comprehensive plan. Over 400 people responded. Results applicable to sustainability are summarized below.

When asked about what factors were most important to address in planning for the future of Hopkins, sustainability was ranked in about the middle of the pack.



In response to a question asking what factors are most important in making Hopkins more sustainable, the top responses were:

- Increase transit opportunities
- Increase opportunities for wind and/or solar energy
- Reduce the amount of waste
- Improve non-motorized transportation options
- Ability to live and work in Hopkins



Cultivate Hopkins Ideas Map

The City has also maintained an online ideas map, where members can add comments to specific geographic locations, with categories that indicate if a location is either a positive neighborhood feature, community asset, place that needs improvement, or one of several other categories.

There were few comments that related to the abstract concept of sustainability, though many pointed towards more topically specific areas that are needed to support a sustainable community overall. These will be covered in other sections of the plan, so do not need to be addressed in detail here.

Existing Goals and Policies

Existing Comprehensive Plan Policies

While there are a number of policies that may relate broadly to sustainability in the comprehensive plan, it is not called out specifically in many place in the existing plan. One overall goal covers it broadly:

- Protect and Enhance Green Space, Park Environments and Sustainability
    - Our natural environmental assets should be protected.
    - Green development should be encouraged. Work should continue on trail connections and updating parks. Developers should be encouraged to incorporate more green space in projects. Additional revenue sources to support this goal should be identified.

City Council Goals and Strategic Plan

The City Council formally adopted its current goals and strategic plan in 2017. Like with the existing comprehensive plan, there are a number that relate generally to sustainability, but much more limited references to the concept specifically.

Goal II – Urban Design: Do It Right

- Strategy 2: Practice environmental responsibility
    - Implement the sidewalk and trail master plan and partner with other agencies to improve and update paths, trails, and crossings in the community, supporting “Complete Street” initiatives
    - Explore local transportation opportunities.
- Strategy 4: Engage in LRT Planning and Transit Oriented Development
    - Continue to explore and promote sustainability programs and initiatives in our community

GreenStep Cities

Minnesota GreenStep Cities is a voluntary program to help cities establish, track, and reach their sustainability goals. The goals are based on 29 best practices covering several areas and metrics in buildings and lighting, land use, transportation, economic and community development, and natural resource management. Hopkins became a GreenStep City in 2010 and most recently became a Step 3 City in 2013.

As of April 2016, the City of Hopkins has completed 44 actions in 18 Best Management Practices, described in more detail below. For each Best Management Practice, cities can earn between 1 and 3 stars for the actions they take, with 3 stars being the best rating possible. For reference, overarching categories are in bold type, the best management practices are the numbered/underlined items, the actions taken are lettered, and additional details and rankings are included below the actions.

Buildings and Lighting

1. Efficient Existing Public Buildings

a. Enter building information in to the Minnesota B3 database to record monthly energy and water use data for all City buildings
    i. Hopkins has been entering and benchmarking data since 2009
    ii. 3 stars earned
b. Indoor lighting and operational changes in City owned buildings to reduce energy costs
    i. City Hall installed a controller in the parking ramp that controls lights with a timer and has upgraded City Hall's air conditioning system to be more energy efficient.
    ii. 3 stars earned
c. Invest in large energy efficiency projects
    i. City Hall received new boilers in 2010, which has saved the City money on energy costs. The light timer mentioned in the previous best practice was also a larger energy-saving investment
    ii. 2 stars earned

2. Efficient Outdoor Lighting and Signals

a. Require energy efficient outdoor lighting fixtures on City owned/private buildings and facilities
    i. The City installed Dark-Sky compliant outdoor lighting at Cottageville Park
    ii. 1 star earned
b. Coordinate traffic signals to minimize car idling at intersections while maintaining safety and acceptable vehicle speeds.
    i. Traffic lights are on fully actualized systems wherever possible. Lights are triggered by overhead cameras detecting a car's presence of from the pavement and a magnet loop.
    ii. 1 star earned
c. Use LED/solar power lighting for a flashing sign or in a street/parking lot/park project
    i. Solar-powered flashing lights for trail crossing signs in Burnes Park and installation of solar panels at the Depot Coffee House.
    ii. 1 star earned

d. Replace existing traffic signals with LEDs
    i. 1 star earned

Land Use

1. Comprehensive Plans

a. Adopt a comprehensive plan that was adopted by a county or regional entity
    i. Hopkins is required by State law to do this every 10 years
    ii. 1 star earned
b. Demonstrate that regulatory and zoning ordinances comply with the comprehensive plan
    i. 1 star earned

2. Resilient City Growth

a. Limit barriers to higher density housing by zoning neighborhood single-family density at 7 units/acre or higher and zoning multi-family housing at a gross density of at least 15 units/acre adjacent to commercial or transit nodes.
    i. The City has implemented a mixed-use zoning ordinance. Single-family lot sizes in this district require a minimum of 6000 sq. ft., allowing a density of 7.26 units per acre. Multi-family housing is allowed in this zoning district at 15 units per acre or greater.
    ii. 1 star earned

3. Mixed Uses

a. Have a downtown zoning district allowing residential and compatible commercial development
    i. Hopkins has a downtown overlay district intended to preserve the small-town character of the downtown, complement existing architecture and structure, enhance pedestrian orientation, and encourage a “human-scaled” streetscape.
    ii. 3 stars earned
b. Create incentives for vertical mixed-use developments in appropriate locations
    i. Vertical mixed-use is outlined in the mixed land use category in the land use plan and is directed toward LRT station development
    ii. 1 star earned

Transportation

1. Living Streets

a. Adopt a Complete Streets Policy that also addresses stormwater and street trees.
    i. Resolution adopted in 2010
    ii. 1 star earned
b. Modify a street in compliance with the City’s Complete Street Policy
    i. Documentation of trees, green stormwater infrastructure, and utility renovations during street construction. City is currently working to narrow more streets to create more greenspace/add sidewalk area
    ii. 2 stars earned
c. Identify and remedy street-trail gaps between city streets and off-road trails

i. Sidewalk connection to Blake Road from Excelsior Boulevard to Highway 7, connecting residential areas to the Southwest Regional Trail
ii. 3 stars earned

2. Mobility Options

a. Promote walking, biking, and transit through accessible route info, increased facility use, additional bus infrastructure, increased employee multi-modal commuting and/or recognition and a Walk or Bike Friendly City.
iii. Active Living campaigns, employee wellness programs and challenges, Hopkins in Motion event
iv. 1 star earned
b. Launch an Active Living Campaign
v. Hopkins is a member of Active Living Hennepin County, hold community events
vi. 2 stars earned
c. Prominently identify mobility options
vii. Posted on City website
viii. 2 stars earned
d. Promote carpooling or ridesharing among community members, City employees, businesses, high schools, and higher education institutions.
ix. Park-and-ride lot at the Hopkins Transit Center. City is part of the Minnesota Rideshare carpooling program.
x. 2 stars earned

3. Efficient City Fleets

a. Phase-in no-idling practices, operational and fuel changes, and equipment changes for city or local transit fleets
xi. Monitoring of Police, Fire, and Public Works fuel usage and costs. Two electric car permits stalls with outlets in the public downtown parking ramp. Bikes available for City inspectors.
xii. 1 star earned
b. Phase-in bike, foot, or horseback modes of transport for police, inspectors, and other City staff.
xiii. Bike police patrols, bikes available for City inspectors.
xiv. 2 stars earned

4. Demand-Side Travel Planning

a. Require or provide incentives for the siting of high density housing at transit/density nodes
xv. TIF incentives and other State and County grants for siting high density housing. High density housing planned for LRT station areas.
xvi. 1 star earned
b. Adopt a travel management plan for city employees or incorporate into development regulations or transit-orientated development (TOD) standards
xvii. Addressed in Comprehensive Plan, mixed-use zoning ordinance (TOD)
xviii. 1 star earned

Environmental Management

1. Sustainable Purchasing

a. Adopt a sustainable purchasing policy or guidelines directing that the City purchase Energy Star certified equipment and appliances and paper containing at least 30% post-consumer recycled content
    i. Hopkins follows state statues on Energy Star purchasing and purchased 30% post-consumer recycled paper
    ii. 1 star earned
b. Require printing services to be purchase from companies certified by Minnesota Great Printers of by the Sustainable Green Printing Partnership.
    i. City purchases printing supplies from a Minnesota Great Printers certified member.
    ii. 1 star earned

2. Urban Forests and Soils

a. Certify as a Tree City USA
    i. Hopkins has been named a Tree City USA at least 30 times and budgets more for urban forestry that required by the Tree City program. The City also has a tree ordinance.
    ii. 3 stars earned
b. Maximize tree planting along downtown streets or throughout the City.
    i. 60% of Mainstreet has trees planted on both sides of the street.
    ii. 1 star earned

3. Stormwater Management

a. Complete the Blue Star City stormwater management assessment and be recognized for implemented actions.
    i. Hopkins was one of the first four cities in the state to receive the Blue Star Award in 2010. The City has also adapted a Water Resource Management Plan.
    ii. 3 stars earned

4. Parks and Trails

a. Achieve minimum levels of city green space and maximize the percent of space within a ten-minute walk of community members
    i. 90% of residents live within a ½ mile of a park or protected greenspace. The City uses a standard of 7 acres of public greenspace per 1,000 people for park planning purposes.
    ii. 3 stars earned
b. Certify at least 1 golf course in the Audubon Cooperative Sanctuary Program.
    i. The Meadowbrook Golf Course has been certified in this program for over 10 years.
    ii. 1 star earned
c. Develop a program to involve community members in land restoration and stewardship projects.

i. The City holds Earth Day volunteer clean-ups annually.
ii. 1 star earned

5. Solid Waste Reduction

a. Adopt and meet reduction goals for waste/toxins generated from internal city operations.
    i. The City has a solid waste plan and tracks waste from seven Hopkins facilities. Roughly 69% of total material collected in 2012 was recycled or organic.
    ii. 2 stars earned
b. Adopt and meet recycling and composting goals for waste/toxins generated from internal city operations
    i. The City regularly provides promotional materials and activities to educate residents on waste reduction, reuse, recycling and purchasing recycled products. Current purchasing policies advocate the purchase of products made with recycled content. The City also has an organic recycling program. The City has completed audits of the recycling program to track progress.
    ii. 2 stars earned
c. Publicize, promote, and use businesses and services that collect and market used, repaired, and rental consumer goods in the city/county.
    i. Hopkins participates in Recyclopedia, a waste reduction program. Information on businesses and services with used/repaired goods is featured on the City website and handed out at City events.
    ii. 2 stars earned
d. Arrange for a residential of business/institutional separated organics collection or management program.
    i. Organic recycling is available at community events. While the City has received grant money in the past to help businesses and civic organizations implement organics programs, no businesses have done so (as of 2012).
    ii. 1 star earned
e. Implement one or more city-wide solid waste collection/recycling systems that: require collection of 3 or more recyclable materials from commercial entities; require collection of recyclables in multi-family housing units; or organize regular residential solid waste collection to link one or more neighborhoods to only one hauler.
    i. City Code requires all residential (single and multi-family) and commercial properties to separate and collect recyclables. The City of Hopkins owns and operates its own refuse collection in addition to recycling collection.
    ii. 3 stars earned

6. Local Air Quality

a. Regulate outdoor residential wood burning for either recreational burning or outdoor residential wood boilers.
    i. The City requires a permit for recreational burning if it does not meet DNR, state, and City regulations.
    ii. 1 star earned
b. Install, assist with, and promote one or more public fueling stations for plug-in hybrid and full electric vehicles, flex-fuel vehicles, and/or CNG vehicles.

i. Hopkins has two electric car permit stalls with outlets in the downtown public parking ramp.
ii. 1 star earned

Economic and Community Development

1. Benchmarks and Community Engagement

a. Use a committee to lead, coordinate and report to community members on implementation of GreenStep best practices.
    i. All information is recorded on the City of Hopkins website
    ii. 3 stars earned
b. Organize goals and outcome measures for all city plans and report data tracking progress to community members
    i. This information is supplied every 10 year in the Comprehensive Plan. Information is also posted to the City website. The Planning and Development department also provides an Annual Report on housing activity to the Metropolitan Council.
    ii. 2 stars earned

2. Green Business Development

a. Lower the environmental and health risk footprint of a brownfield remediation or redevelopment project.
    i. Cargill/Excelsior Crossing, LA Fitness, Hopkins Business Center, Hopkins Honda were given clean up money for development. The Excelsior Crossing project was also a LEED certified building, reducing the building's carbon footprint.
    ii. 3 stars earned
b. Conduct or participate in a buy local campaign for community members and local businesses.
    i. The Think Hopkins marketing campaign promotes local businesses, including a website. The Hopkins Farmer's Market has been operating for 25 years and provides the community with local produce and goods.
    ii. 2 stars earned

3. Renewable Energy

a. Enable a new or demonstrate prior city collaboration for installed private sector renewable energy or energy efficient generation capacity.
    i. The Depot Coffee House received a grant through the MNDNR to install solar panels, saving 10 tons of CO2 in the first year.
    ii. 2 stars earned

4. Local Food

c. Create, assist with and promote local food production or distribution in the City
    i. The Hopkins Farmer's Market has been operating for over 25 years. There are also community garden sites in Valley Park.
    ii. 2 stars earned

Best Practices

While resiliency and sustainability are not required in the Metropolitan Council comprehensive planning process, the City of Hopkins can choose to incorporate sustainability goals and objectives as they relate to other planning elements or as a chapter on their own. There are many ways the City can think about sustainability as part of the comprehensive planning process. The following three frameworks are nationally recognized and can serve as inspiration and guiding principles for the City to incorporate environmental, social, and economic sustainability into all components of the comprehensive plan.

Sustaining Places Approach

Sustaining Places was developed by the American Planning Association as an overall framework for addressing community sustainability through the comprehensive planning process. In developing sustainability goals, it can be easy to dig into policy and procedure specifics, which is out of the scope of a comprehensive plan. As a long-term guiding document, including and supporting sustainability practices in the comprehensive plan can establish a foundation for policy and actions to be built upon.

Sustaining Places identifies six principles, two processes, and two attributes of sustainability in the comprehensive plan, all of which are implemented through best practices. Scores for Sustaining Places are determined by how the plan addresses best practices of the principles, processes, and attributes. Scores can be given for no (0), low (1), medium (2), and high (3) inclusion of best practices. Items or best practices not applicable to individual communities are removed from point totals.

The six principles and their best practices are:

1. **Livable Built Environment:** 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 recreating, with a high quality of life.
    - Plan for multimodal transportation.
    - Plan for transit-oriented development.
    - Coordinate regional transportation investments with job clusters.
    - Provide complete streets serving multiple functions.
    - Plan for mixed land-use patterns that are walkable and bikeable.
    - Plan for infill development.
    - Encourage design standards appropriate to the community context.
    - Provide accessible public facilities and spaces.
    - Conserve and reuse historic resources.
    - Implement green building design and energy conservation.
    - Discourage development in hazard zones.
2. **Harmony with Nature:** Ensure that the contributions of natural resources to human well-being are explicitly recognized and valued and that maintaining their health is a primary objective.
    - Restore, connect, and protect natural habitats and sensitive lands.
    - Plan for the provision and protection of green infrastructure.
    - Encourage development that respects natural topography.
    - Enact policies to reduce carbon footprints.
    - Comply with state and local air quality standards.
    - Encourage climate change adaptation.
    - Provide for renewable energy use.
    - Provide for solid waste reduction.

- Encourage water conservation and plan for a lasting water supply.
- Protect and manage streams, watersheds, and floodplains.

3. **Resilient Economy:** Ensure the community is prepared to deal with both positive and negative changes in its economic health and to initiate sustainable urban development and redevelopment strategies that foster green business growth and build reliance on local assets.
    - Provide the physical capacity for economic growth.
    - Plan for a balanced land-use mix for fiscal sustainability.
    - Plan for transportation access to employment centers.
    - Promote green businesses and jobs.
    - Encourage community-based economic development and revitalization.
    - Provide and maintain infrastructure capacity in line with growth or decline demands.
    - Plan for post-disaster economic recovery.
4. **Interwoven Equity:** Ensure fairness and equity in providing for the housing, services, health, safety, and livelihood needs of all citizens and groups.
    - Provide a range of housing types.
    - Plan for a jobs-housing balance.
    - Plan for the physical, environmental, and economic improvement of at-risk, distressed, and disadvantaged neighborhoods.
    - Plan for improved health and safety for at-risk populations.
    - Provide accessible, quality public services, facilities, and health care to minority and low-income populations.
    - Upgrade infrastructure and facilities in older and substandard areas.
    - Plan for workforce diversity and development.
    - Protect vulnerable populations from natural hazards.
    - Promote environmental justice.
5. **Healthy Community:** Ensure public health needs are recognized and addressed through provisions for healthy foods, physical activity, access to recreation, health care, environmental justice, and safe neighborhoods.
    - Reduce exposure to toxins and pollutants in the natural and built environments.
    - Plan for increased public safety through the reduction of crime and injuries.
    - Plan for the mitigation and redevelopment of brownfields for productive uses.
    - Plan for physical activity and healthy lifestyles.
    - Provide accessible parks, recreation facilities, greenways, and open space near all neighborhoods.
    - Plan for access to healthy, locally grown foods for all neighborhoods.
    - Plan for equitable access to health care providers, schools, public safety facilities, and arts and cultural facilities.
6. **Responsible Regionalism:** Ensure that all local proposals account for, connect with, and support the plans of adjacent jurisdictions and the surrounding region.
    - Coordinate local land-use plans with regional transportation investments.
    - Coordinate local and regional housing plan goals.
    - Coordinate local open space plans with regional green infrastructure plans.
    - Delineate designated growth areas that are served by transit.
    - Promote regional cooperation and sharing of resources.
    - Enhance connections between local activity centers and regional destinations.
    - Coordinate local and regional population and economic projections.

- Include regional development visions and plans in local planning scenarios.
- Encourage consistency between local capital improvement programs and regional infrastructure priorities.

The two processes and their best practices are:

1. **Authentic Participation:** Ensure the planning process actively involves all segments of the community in analyzing issues, generating visions, developing plans, and monitoring outcomes.
    - Engage stakeholders at all stages of the planning process.
    - Seek diverse participation in the planning process.
    - Promote leadership development in disadvantaged communities through the planning process.
    - Develop alternative scenarios of the future.
    - Provide ongoing and understandable information for all participants.
    - Use a variety of communication channels to inform and involve the community.
    - Continue to engage the public after the comprehensive plan is adopted
2. **Accountable Implementation:** Ensure that responsibilities for carrying out the plan are clearly stated, along with metrics for evaluating progress in achieving desired outcomes.
    - Indicate specific actions for implementation.
    - Connect plan implementation to the capital planning process.
    - Connect plan implementation to the annual budgeting process.
    - Establish interagency and organizational cooperation.
    - Identify funding sources for plan implementation.
    - Establish implementation benchmarks, indicators, and targets.
    - Regularly evaluate and report on implementation progress.
    - Adjust the plan as necessary based on evaluation.

The two attributes and their best practices are:

1. **Consistent Content:** Ensure the plan contains a consistent set of visions, goals, policies, objectives, and actions that are based on evidence about community conditions, major issues, and impacts.
    - Assess strengths, weaknesses, opportunities, and threats.
    - Establish a fact base.
    - Develop a vision of the future.
    - Set goals in support of the vision.
    - Set objectives in support of the goals.
    - Set policies to guide decision making.
    - Define actions to carry out the plan.
    - Use clear and compelling features to present the plan.
2. **Coordinated Characteristics:** Ensure the plan includes creative and innovative strategies and recommendations and coordinates them internally with each other, vertically with federal and state requirements, and horizontally with plans of adjacent jurisdictions.
    - Be comprehensive in the plan's coverage.
    - Integrate the plan with other local plans and programs.
    - Be innovative in the plan's approach.
    - Be persuasive in the plan's communications.
    - Be consistent across plan components.
    - Coordinate with the plans of other jurisdictions and levels of government.
    - Comply with applicable laws and mandates.

- Be transparent in the plan's substance.
- Use plan formats that go beyond paper.

EPA Smart Growth Recommendations

To help cities mitigate and adopt to climate change, the Environmental Protection Agency developed a policy change strategy guide based on Smart Growth land use practices and specific climate change threats. The intention of the guide is to help cities think about climate change and identify starting points for action, including how it can be addressed through planning documents such as the comprehensive plan. The table below is a modified version of the policy summary table in the guide. While the policies recommended here are not an end-all list, they are recommended by the EPA because they can offer other social or economic benefits.

Modest changes are designed to be revisions to existing policies or regulations. Major changes are large policy changes, including changing the structure of existing codes or ordinances or adding new classifications. System changes involve creating new regulations, frameworks, and city priorities to specifically address climate change and potential threats.

Level of Strategy	Type of Policy Change	Policy Change Action	Flooding and Precipitation	Extreme Heat	Drought
Modest Change	Planning or Mapping	Use regional climate change, population, demographics, transportation demand, and related projections to understand where community assets could be vulnerable	X	X	X
Modest Change	Planning or Mapping	Align land use, hazard mitigation, transportation, capital improvement, and other plans so all plans work toward the same goals.	X	X	X
Modest Change	Planning or Mapping	Conduct a safe growth audit to determine if land use, transportation, or other plans are allowing growth in hazardous areas.	X		X
Modest Change	Regulatory; Incentives	Create a list of desired development elements in vulnerable areas and encourage or require developers to implement a certain number of them.	X	X	X
Modest Change	Regulatory; Incentives	Evaluate development incentives to see if they encourage development in particularly vulnerable areas.	X		X
Modest Change	Education or Outreach	Improve public education about the risks of developing in sensitive areas	X		X
Modest Change	Education or Outreach	Assess and address the needs of people who might be particularly vulnerable and/or are likely to be most affected, especially if they live in higher-risk areas.	X	X	X
Major Change	Planning or Mapping	Use scenario planning to inform local planning and policies	X	X	X
Major Change	Planning or Mapping	Incorporate fiscal impact analysis into development review, includeing costs related to climate change impacts.	X	X	X
Major Change	Planning or Mapping,	Incorporate into the land use map, comprehensive plan, and economic	X		X

	Incentives	development plan locations where it makes sense to encourage economic growth. Encourage businesses to locate there.			
Major Change	Regulatory	Adopt flexible zoning. • Adopt elements of dynamic zoning, or building flexibility into codes. • Adopt a floating zone or overlay zone.	X	X	X
Major Change	Regulatory	Allow a mix of land uses	X	X	X
Major Change	Regulatory, Collaboration or Partnership	Encourage on-site renewable energy and storage: • Amend codes or adopt ordinances allowing renewable energy on individual properties and in communal installations. • Use public-private partnerships to promote renewable energy.	X	X	
Systems Change	Planning or Mapping, Regulatory	Incorporate into capital projects features that enhance resilience and bring multiple other benefits.	X	X	X
Systems Change	Planning or Mapping, Regulatory	Plan for post-disaster redevelopment before disaster strikes. • Create a post-disaster redevelopment plan. • Adopt a post-disaster redevelopment ordinance.	X		X

STAR Communities Approach

The STAR Communities approach provides guidance for moving from policy to implementation. The STAR Community Rating System is a framework and certification program to help cities address environmental, social, and economic sustainability. This whole-system, triple-bottom line approach is designed to be flexible and adaptive, allowing cities to identify and prioritize issues most important to their community. There are eight overall goal areas to guide and narrow community goals toward more specific objectives and actions. These goal areas are focused around interconnected approaches and solutions to sustainability. The goal areas and their overarching objectives are:

1. **Built Environment**: Achieve livability, choice, and access for all where people live, work, and play through:
    a. ambient noise and light, water systems, compact and complete communities, housing affordability, infill and redevelopment, public parkland, and transportation choices.
2. **Climate & Energy:** Reduce climate impacts through adaptation and mitigation efforts and increase resource efficiency through:
    a. climate adaptation, greenhouse gas mitigation, green energy, energy efficiency, water efficiency, local government emissions and resource footprint, and waste minimization.
3. **Economy & Jobs:** Create equitably shared prosperity and access to quality jobs though:
    a. business retention and development, green market development, local economy, quality jobs and living wages, targeted industry development, and workforce readiness.
4. **Education, Arts & Community:** Empower vibrant, educated, connected, and diverse communities through:
    a. arts and culture, community cohesion, educational opportunity and attainment, historic preservation, social and cultural diversity, and aging in the community.

5. **Equity & Empowerment:** Ensure equity, inclusion, and access to opportunity for all community members through:
    a. civic engagement, civic and human rights, environmental justice, equitable services and access, human services, and poverty prevention and alleviation.
6. **Health & Safety:** Strengthen communities to be healthy, resilient, and safe places for residents and businesses through:
    a. active living, community health, emergency management and response, food access and nutrition, health systems, hazard mitigation, and safe communities.
7. **Natural Systems:** Protect and restore the natural resource base upon which life depends through:
    a. green infrastructure, biodiversity and invasive species, natural resource protection, outdoor air quality, water, and working lands.
8. **Innovation & Process:** Support the evolution of practices through:
    a. best management practices, good governance, exemplary performance, and local innovation

Objectives, outlined in each goal area, are achieved through either measurable community level outcomes, such as trend lines, targets, or thresholds, or local actions like education, plan and policy create or amendment, practice improvement, or enforcement. STAR awards points to cities based on their achieved objectives. Each goal area is worth 100 points (except Innovation and Process, which is worth 50 points), with each objective worth between 10 and 20 points. STAR rankings are determined based on the number of points earned. The point structure helps provide cities with clear definitions, goals, and data to track progress and achievements while allowing for community and national comparisons.

While Hopkins has not taken steps to become recognized as a STAR Community, the City recognizes that many of the community's goals and current issues align with objectives in the STAR system. The STAR system may serve as an inspiration or framework for a whole-systems approach to planning in this iteration of the City's Comprehensive Plan.

Climate Resilience Workshop Series

In early 2017, the City of Hopkins participated with six other cities in a climate resilience workshop series. The purpose of this was to identify opportunities to build resilience related to local climate change, including:

- Understand climate-related changes that are already happening, future predictions, and how these communities are vulnerable.
- Generate valuable information on priorities and strategies to increase resilience that can be included in the Resilience chapter of a city's Comprehensive Plan.
- Network with neighboring communities and watershed districts to foster collaboration in planning and implementing resilience plans.

The workshops were sponsored by multiple agencies, including the Minnesota Pollution Control Agency, Nine Mile Creek Watershed District, Freshwater Society, Metropolitan Council, Barr Engineering, and Riley Purgatory Bluff Creek Watershed District.

On the following two pages is a summary of the results from this workshop, including some recommendations for shaping policy and implementation approaches. This information will be used as a resource in the development of the final policy framework related to this topic in the comprehensive plan.

3 INFRASTRUCTURE

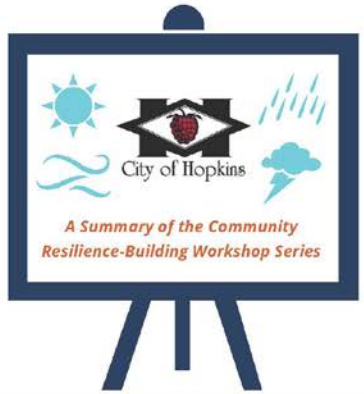
Primary impacts of concern to the built infrastructure in Hopkins are failures of storm sewers, sanitary sewers, and the drinking water system either from severe storms, heat or simply extended use. Another concern is a lack of green space in Hopkins — there could be more.

Source: Splash On Line

HOPKINS IS PREPARING!

Making Adaptation Plans for Minnesota's Changing Climate

The City of Hopkins participated in a workshop series to identify opportunities to build resilience related to local climate change. Climate change is one of the greatest challenges facing society today. In Minnesota, there is a risk due to increases in extreme heat, extreme rainfall, higher summertime dew points, warmer winters, and the intensity of severe storms. Outcomes from the workshop series are being used to inform recommendations for building resilience. These recommendations will be included in the upcoming Hopkins Comprehensive Plan, estimated for completion in early 2018.



WORKSHOP RECOMMENDATIONS

Protecting Hopkin's Built Infrastructure:

- Conduct a study of the City's potable water system to understand its vulnerabilities — If the system is stressed from overuse or a serve weather event, where might it fail?
- Review City stormwater management standards and consider changing requirements to accommodate increasing rainfall volumes — Look closely at flooding issues in south Hopkins and neighborhoods of high density. Plan flood alleviation projects.
- Include protective measures as part of maintenance projects — With on-going street reconstruction efforts, consider protective measures such as burying power lines and increasing the amount of stromwater storage or detention.
- Consider changes to development standards — Reevaluate development standards and consider changes to require investments in green space.

Moving Forward

Hopkins is beginning the planning process to adapt to Minnesota's changing climate and the multiple impacts that the community will experience. Proactive planning is the economically efficient route to climate adaptation, rather than reacting to the impacts of heat, storms, ice, and warm winters as they occur.

The purpose of the workshops was to build relationships across the community, create a shared knowledge base, and harvest potential strategies. They were intended to be the first of many community conversations to make Hopkins resilient in the face of climate change. This planning effort is being used to inform Hopkin's Comprehensive Plan, which is in the works.

The Climate Adaptation Planning Process *The workshop series walked Hopkins participants through the first three stages of climate planning, shown above. The workshop began the process of brainstorming strategies to address Hopkin's climate concerns to be incorporated into the City's 2018 Comprehensive Plan. Implementation and operation of solutions to follow.*

WORKSHOP SPONSORS

Minnesota Pollution Control Agency · Riley Purgatory Bluff Creek Watershed District · 9 Mile Creek Watershed District · Freshwater Society · Metropolitan Council · BARR

Hopkin's Top Climate Hazards

Climate hazards are natural events or patterns related to climate change that can cause harm to people, infrastructure, and the environment. Workshop participants identified the following four hazards as the ones of most concern in Hopkins:

Extreme Heat

Although not currently experiencing abnormal heat events, Hopkins is experiencing greater summer humidity, which pushes up the heat index and makes it harder to cool off. Extreme heat is predicted for the not-too-distant future. Climatologists point out that within Minnesota's normal range of weather extremes is the drought of the dustbowl days in the 1930s, indicating an increased likelihood of drought.

Extreme Precipitation

An increase in large storm events is documented in Minnesota. Hopkins experienced this issue in June of 2014. Duluth's staggering 2012 extreme precipitation event demonstrated the serious impacts of such storms.

Strong Storms/Wind

Strong winds are on the increase as evidenced by the number of electrical lines brought down by falling branches or entire trees. The pattern of dangerous storms grows more uncertain with climate change. Tornado alley is predicted to eventually move north into Minnesota.

Warmer Winters

Hopkins is currently experiencing an increase in winter nighttime low temperatures. In general, winter temperatures are rising and more often fluctuating around the freezing point. This results in more precipitation events coming in the form of freezing rain and ice.

Climate Impacts & Recommendations for Hopkins

Participants of the workshops focused on three sectors of the community and impacts from locally changing climate:

1. Impacts to Society
2. Impacts to the Environment
3. Impacts to Built Infrastructure

Participants listed solutions to these impacts and set priorities. The top ranked priorities for actions to bolster resilience are listed below.

SOCIETY

Primary areas of concern for people include impacts to vulnerable populations—the elderly, disadvantaged children, and the disabled—in times of emergency, such as flooding. Sixty-seven percent of Hopkins' population lives in rental housing, including an ethnically diverse population and others that are financially challenged. Concern exists about reliable public transportation and communications with such a diversity of residents. Hopkins has a strength in well-organized neighborhood associations and civic groups.

Source: Milwaukee Community Journal

WORKSHOP RECOMMENDATIONS

Protecting Hopkin's People:

- Continue to establish clear lines of communication — Work with property manager organizations, civic groups, and neighborhood associations to communicate procedures for times of emergency. Continue providing interpretive services and translated information. Encourage community connectedness through a variety of activities and programs.
- Build on Hopkins' well-established emergency services system — Communicate with aging community members and other vulnerable populations the locations of cooling centers in case of extreme heat. Many apartment buildings do not have air-conditioning. Continue practicing emergency situation drills.
- Continue to develop a reliable public transportation system during emergencys — Economically vulnerable people can't miss a day of work.

ENVIRONMENT

Primary impacts of concern to the environment in Hopkins are the effects of extreme heat and the accumulation of heat in pavement and buildings (urban heat island effect). Heat impacts the quality of the urban forest by stressing trees and making them more susceptible to disease and death. It also dries up streams and lakes while warming waters which results in algal blooms which can cause fish death. Concern also exists for air quality. Ozone levels increase dramatically on hot humid days impacting both wildlife and people.

WORKSHOP RECOMMENDATIONS

Protecting Hopkin's Natural Environment:

- Continue and further fund Hopkin's urban forest management program — Consider implementing a tree preservation ordinance to require mature trees to be preserved, and consider planting tree species that will tolerate warmer, and both drier and wetter growing conditions (species that currently grow south of here).
- Continue to provide and improve alternative transportation options — Among other things this prevents air pollution from multiple automobiles. Continue to improve the walkability of the city to allow for safe, easy access to schools and work places.
- Conserve groundwater and other drinking water supplies — Consider alternative landscapes (other than lawn) that do not require irrigation, or consider implementing a watering ban ordinance.
- Encourage energy efficiency/conservation — Demonstrate energy efficiency/conservation in City buildings and provide incentives for others to do the same. Move towards alternative energy sources. This could include educational programs, changes in building standards/codes, and the provision of incentives.
- Reduce deicing salt use by educating public and private plow operators — Participate in the Watershed District's deicing education program.

Current Conditions

The Regional Indicators Initiative is a voluntary program that measures and collects annual sustainability and consumption metrics for participating cities. Hopkins is one of 22 cities statewide to participate in the program. This section details data for Hopkins in comparison to neighboring and comparable communities.

Energy

The City of Hopkins' existing energy conditions were assessed in mid-2017 by the Great Plains Institute, as part of the Minnesota Local Government Project for Energy Planning (LoGo PEP) program. This program builds upon existing efforts to engage local governments in committing to actionable strategies for energy and greenhouse gas emission reductions. LoGoPEP provides communities with planning tools and actual results to measure progress toward their goals. The following information is excerpted from a report generated through this program.

Hopkins is a Step 3 GreenStep City and is committed to building a sustainable community. The city is interested in better understanding how energy is consumed in its community so it can implement strategies to reduce energy consumption and increase clean energy production, and to reduce greenhouse gas (GHG) emissions from buildings and transportation. The information for this report includes data from the Regional Indicators Initiative (2013) and Xcel Energy's Community Energy Reports (2016).

Energy Use Profile

Businesses and residents in Hopkins are served by Xcel Energy for electricity and CenterPoint Energy for natural gas. The types of energy used in Hopkins for buildings and industrial processes are primarily electricity and natural gas. Few residents may use heating fuel, biomass, or propane as their primary heating source, but that is not captured in this report. Figure 1 demonstrates that consumers use more natural gas than electricity, with 60% of the energy consumed in buildings coming from natural gas. Natural gas is primarily used for space and water heating, cooking, and various industrial processes.

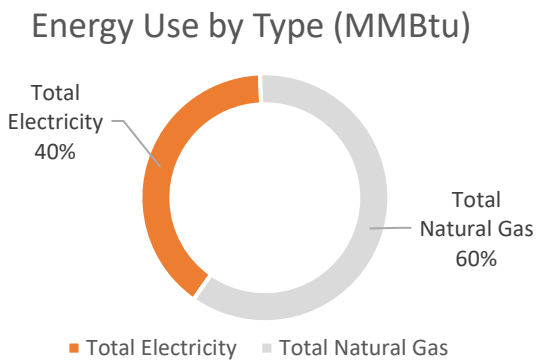


Figure 1 Data Source: 2013 Regional Indicators Initiative Report, 2016 Community Energy Report from Xcel Energy

Electricity is used for appliances, water and space heating, space cooling, lighting, commercial and industrial processes, as well as other electronic devices. Figure 2 illustrates that commercial consumers use a greater share of total energy than residential consumers. The commercial sector makes up 71% of total commercial energy use (natural gas and electricity).

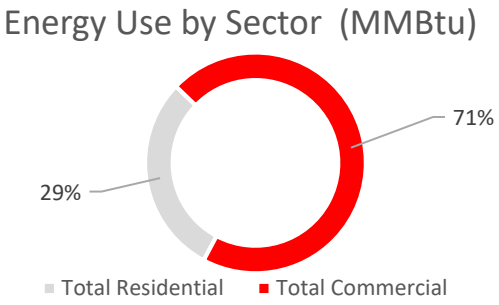


Figure 2 Data Source: 2013 Regional Indicators Initiative Report, 2016 Community Energy Report from Xcel Energy

According to the Community Energy Report from Xcel Energy, Hopkins residents and businesses spent $20.8 million on electricity in 2016; an average of $771 per household, $4,975 per commercial customer, and $43,830 per industrial customer. This information is not available for natural gas use at this time. According to the Energy Information

Administration, Minnesota households spent $1,108 on electricity in 2015, and Minnesota businesses spent $7,585, on average.

There are 8,290 residential customers and 1,152 commercial customers in Hopkins. Consumption of natural gas has largely remained steady between 2007 and 2013. As mentioned, natural gas is the primary fuel for space heating. In Minnesota, it is especially important to have reliable and affordable heating systems. Inefficient homes and high energy costs have a greater impact on low- and moderate-income residents who are less able to respond to such changes and bear a greater energy burden (energy costs as a percentage of total income) than higher income residents.

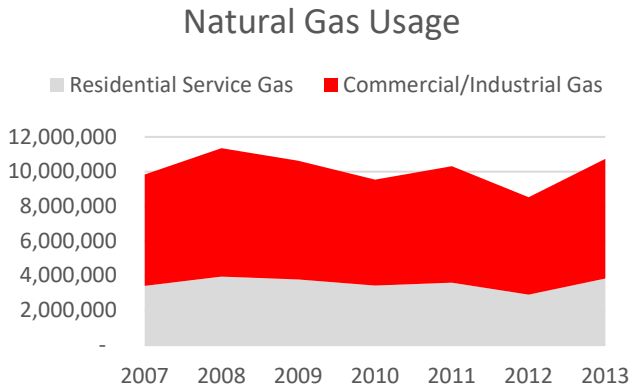


Figure 3 Source: CenterPoint Energy

Greenhouse gases (GHG) are emitted from burning conventional fuels like coal and natural gas, which are both inputs in the production of electricity. GHGs are also emitted from burning natural gas, propane, or fuel oil for the purpose of space and water heating, as well as cooking and other uses. Figure 4 indicates that the greatest source of GHG emissions from all buildings (commercial and residential) in Hopkins (57%) come from consumption of electricity as compared to heating fuels.

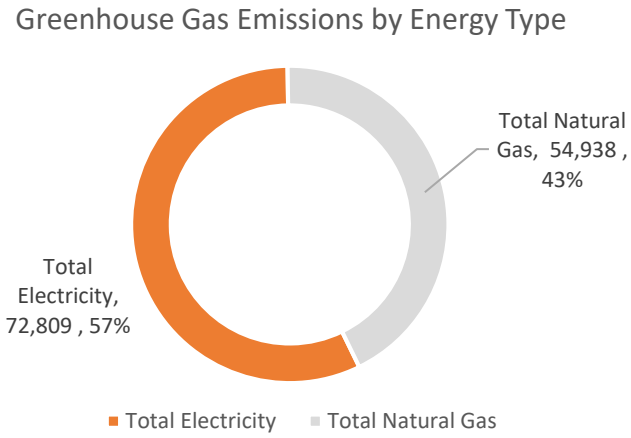


Figure 4 Data Source: 2013 Regional Indicators Initiative Report

Using carbon free (wind and solar) or carbon-neutral (biomass) energy sources and investing in energy efficiency can significantly reduce the amount of greenhouse gases that are attributable to building energy use. Hopkins' electric energy supply is getting cleaner as Xcel Energy adds more clean energy each year. Developing local clean energy capacity for homes and businesses, or through mechanisms such as community shared solar systems, is an alternative to a supply-side effort.

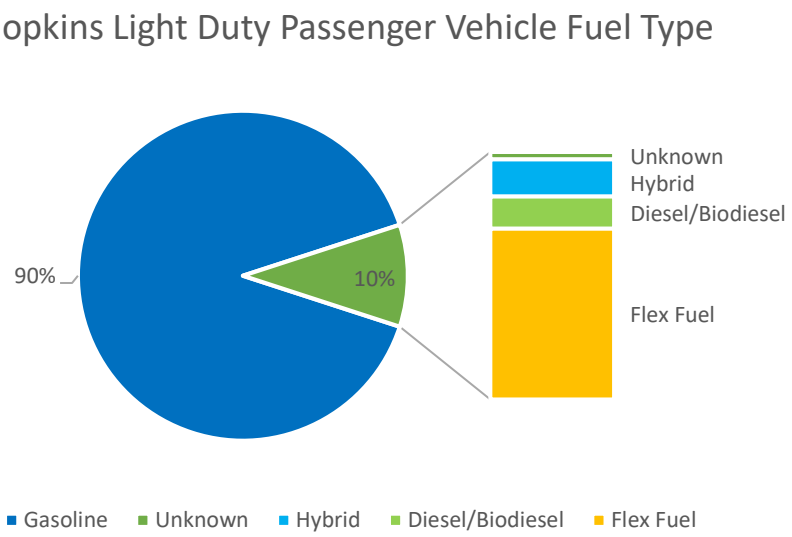
The commercial sector makes up 72% of the GHGs emitted from building energy use. Because there are fewer business customers, there is greater opportunity to reduce GHG emissions among fewer large commercial customers than there is residential. Much of those emissions are from industrial processes.

A.

Transportation Energy Use Profile

Transportation energy is almost exclusively attributable to car and truck travel, and is estimated by the vehicle miles traveled (VMT) within the city boundaries (regardless of through traffic or with an origin or destination in the city).

The VMT includes commercial and freight vehicles, personal cars, and mass transit vehicles. VMT does not capture energy attributable to rail and airplanes, but those are generally a very small portion of transportation energy. Regional Indicators Initiative data shows that 93,604,485 vehicle miles were traveled within Hopkins in 2014. The greenhouse gas emissions associated with this travel is approximately 41,794 tonnes of CO2e, or about 25% the city's total GHG emissions. The U.S. Department of Energy reports that there are 15,500 light duty vehicles in the Hopkins market with an average fuel economy 23.4 miles per gallon. 90% of these vehicles use gasoline as the primary fuel; flex fuel (e85) makes up the next highest fuel source.



Greenhouse Gas Emissions Summary

The energy use data gathered for building energy consumption and transportation illustrate a clear picture of the major sources of GHG emissions in the community, as seen in Figure 6. The largest share of emissions come from residential and commercial (buildings) energy consumption, making up 75% of total emissions. Broken down by sector, residential energy use accounts for 21% of emissions, while the commercial sector emits 54% of all emissions. Transportation makes up 25% of total emissions.

Additional sources of emissions not included in this graph are those associated with regional facilities such as air travel, solid waste, and wastewater treatment. While these sources are significantly smaller than those evaluated in this report, a GHG inventory that meets the U.S. community protocol or the Global Protocol would consider these emissions. The city can determine whether to conduct the additional analysis to be compliant with the protocol as part of a deeper GHG inventory.

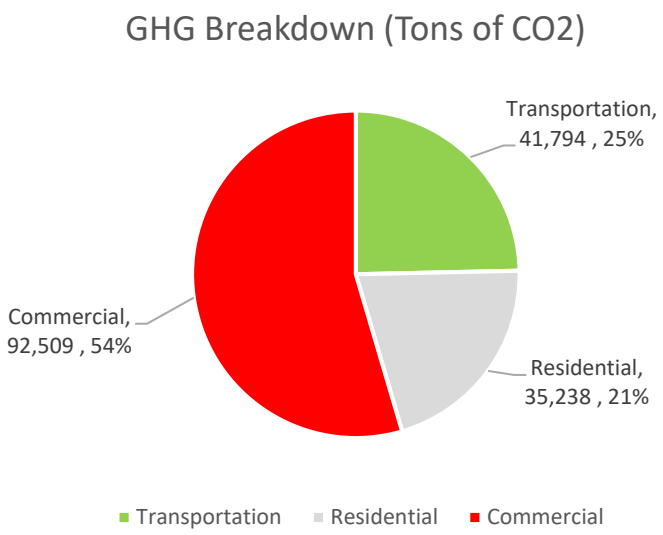


Figure 6 Data Source: 2013 Regional Indicators Initiative Report

Efficiency Resource

The city's efficiency resource is measured by looking at current energy use. The greater the energy consumption, the greater resource available for Hopkins to be more efficient. As noted in the energy use profile, the energy use - and therefore the efficiency resource - is largest in businesses as compared to households. Energy use in the commercial and industrial sector is 55% of the city's total building energy use. Further, electricity is a greater use among businesses, while heating fuels dominant residential energy use. It is also important to note that while commercial buildings consume a majority of the energy, they comprise only 20% of the square footage, and represent little over 10% of the number of buildings in the community.

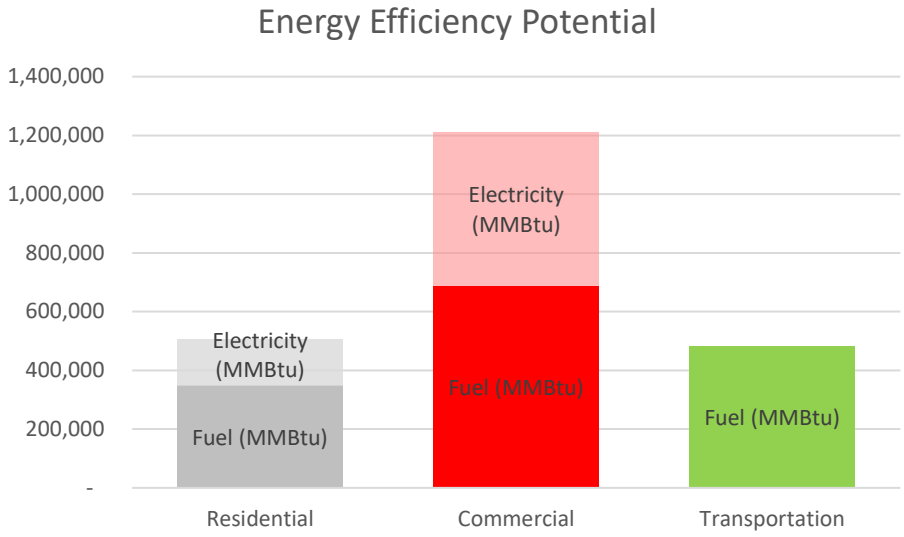


Figure 7 Source: RII 2013, and Xcel CER 2016

Focusing on commercial and industrial building energy use is a potentially high-impact strategy for

capturing the city's efficiency resource; a single successful efficiency investment could reap the efficiency benefits of dozens of residential successes. Residential building efficiency opportunities tend to be more standardized than commercial use, even if the efficiency resource is distributed across many buildings rather than being concentrated in relatively few. Residential efficiency opportunities are in building envelopes, heating and cooling equipment, lighting, appliances, and plug loads. These uses have efficiency solutions that do not need to be customized, and can reduce typical residential household use by 20-25%.

Xcel Energy offers incentives to residential and business customers to help increase energy efficiency action. Participation rates for these programs can be found in the Community Energy Reports. For Hopkins, 2016 participation rates by businesses and residents were:

Table 1 Participants in Xcel Energy's rebate program

Sector	Rebates Given	Electricity Savings (kWh)
Business	46	2,688,030
Residential	139	93,763

Table 1 Xcel Energy's rebate program summary

Transportation efficiency is another significant resource, as travel comprises 25% of the city's GHG emissions. GHG emissions can be reduced with three distinct strategies:

- fuel switching to a low-carbon or carbon-free fuel;
- improved efficiency (miles per gallon) or right-sizing vehicles to the vehicle use;
- mode shifting, or increased use of non-motorized or transit options.

Electric vehicle markets are poised for rapid expansion over the next decade and the city has opportunities to accelerate market transformation and reduce GHG emissions associated with transportation fuels and vehicle use. For example, including EVs in city fleets, investing in public charging stations, and promoting EV benefits can help drive consumers to choose electric vehicles.

Improved efficiency in vehicles is likely to occur via increased use of hybrid models. These still burn gasoline, but have long-ranges and now come in a variety of vehicle types used by residents and businesses.

Hopkins is already well attuned to creating opportunities for mode-shifting, particularly related to creating pedestrian and bicycle friendly transportation infrastructure and urban design. There will be additional opportunities for the city to expand transit-oriented development as Metro Transit expands light rail service through the community.

Solar Resource

The University of Minnesota developed a high-resolution statewide solar resource map that allows cities to calculate how much electricity they could potentially receive from locally installed solar energy systems. These data (see map, next page) were used to calculate Hopkins' solar resource, or the city's "solar reserves." The solar reserves are how much solar energy is reasonably economically available for development, similar to how oil or gas reserves are measured. The solar map shows the good sites for solar installations and helps identify where there may be land use conflicts with solar development. Table 2, below, shows the amount of solar energy reasonably available for development in Hopkins. The gross potential includes the total available resource, regardless of location; rooftop capacity and generation include only the resource available on the rooftops of commercial buildings located in the city.

Table 2. Hopkins Rooftop Solar Resource

Community	Total Generation Potential	Rooftop Generation Potential	Rooftop Capacity	Top 10 Rooftop Potential
Hopkins	5,402,574 MWh/year	111,590 MWh/year	86 MW	30,195 MWh/year

The total capacity of the commercial rooftop solar resource in Hopkins is 86 MW, equal to approximately 55% of all the electricity consumed in the city. This means that if the city wanted to maximize its entire commercial rooftop solar resource, it could set a solar generation goal of up to 55% on-site solar generation (this is an upper limit, and does not consider individual site limitations due to roof structure, ownership, or local regulations that might limit solar installations). If buildings undergo high levels of energy efficiency investment, the solar resource could meet a higher percentage of electric needs. The efficiency and solar resources are, in this analysis, calculated independently of each other.

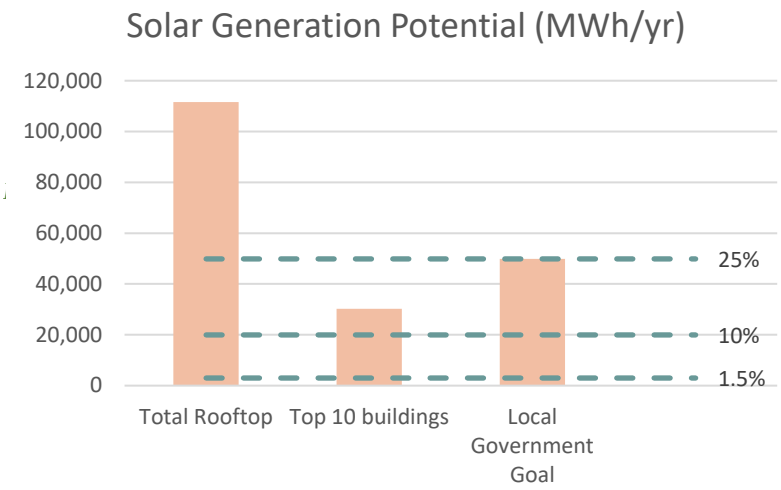


Figure 8 City of Hopkins solar generation potential

Solar installations are not limited to rooftop applications. This analysis does not include ground-mount systems, but the city will want to develop criteria for where they would and would not allow solar installations. For instance, commercial parking lots may make good solar resources, or public right of ways; while areas planned for future development or park space may not. These criteria can be used to recalculate potential solar generation and redefine future solar goals for local development.

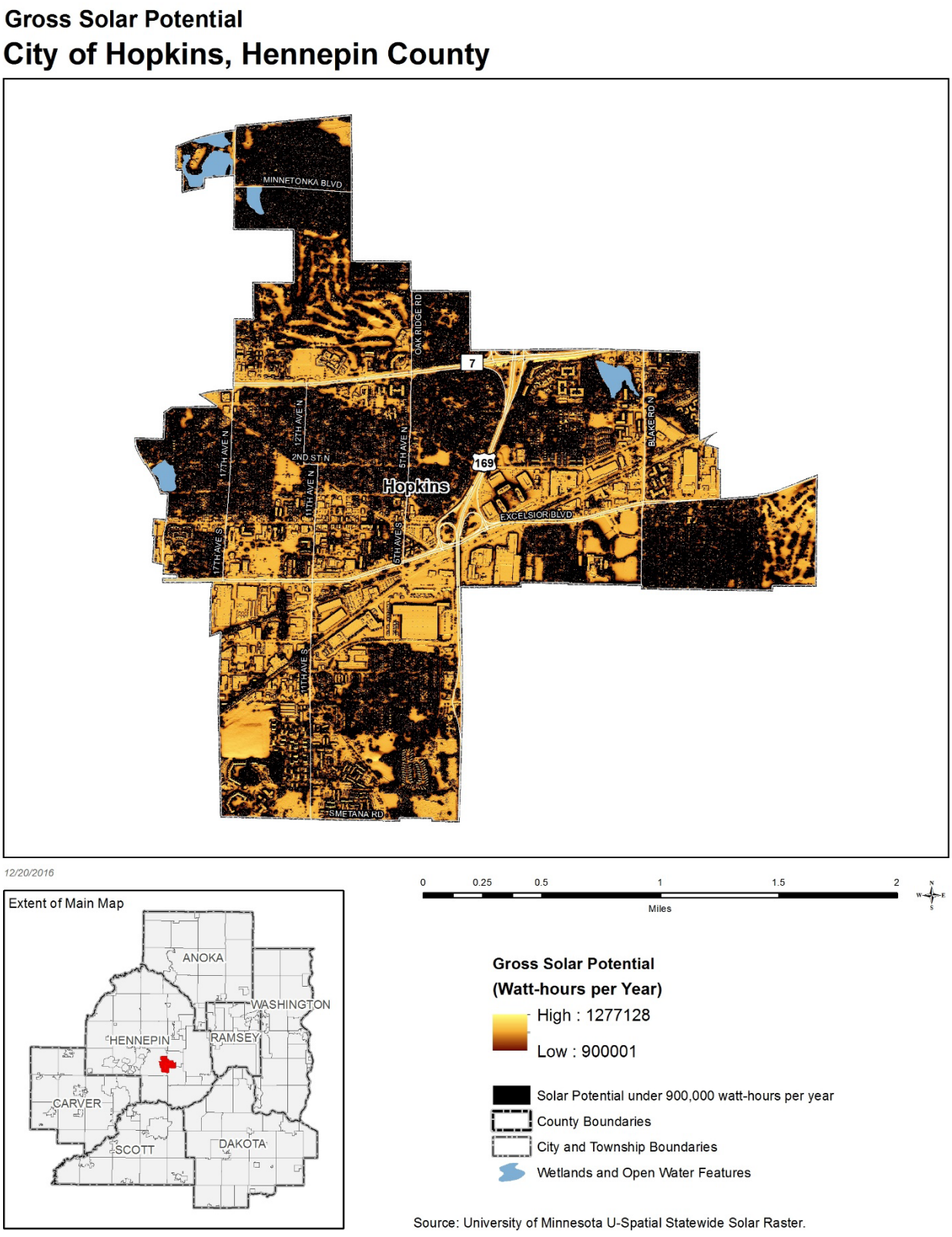


Figure 9 Solar Resource Map, Metropolitan Council Community Page

Wind Resource

Wind Resource

A good wind energy site needs to meet a number of characteristics, the most important of which is a good wind resource. Other characteristics include soils that can support the weight of the turbine; a site large enough to accommodate safety setbacks from neighboring properties, structures, or other uses; and surrounding land uses for which the visual impact and potential nuisances will not create a conflict. Regarding the wind resource, the height the rotor needs to be above any disturbance within an ideal radius of 500 feet. The Distributed Wind Energy Association offers this guidance:

> The industry guidance on minimum wind turbine height states that the lowest extension of a wind turbine rotor must be 60 feet above the ground, assuming no surrounding obstacles. Where obstacles are present, the wind turbine rotor should be at least 30 feet above the tallest obstacle within a 500-foot radius. If trees are not fully grown, then the tower height must be adjusted for the growth over the next two or so decades, the life of the wind turbine.

Hopkins is a suburban community with small town characteristics and varying suitability for towers above a certain height. The Minnesota Department of Commerce developed wind speed maps at a 500-meter resolution to give a general sense of the wind resource at various tower heights, these are not adequate for a specific site assessment (Figure 8).

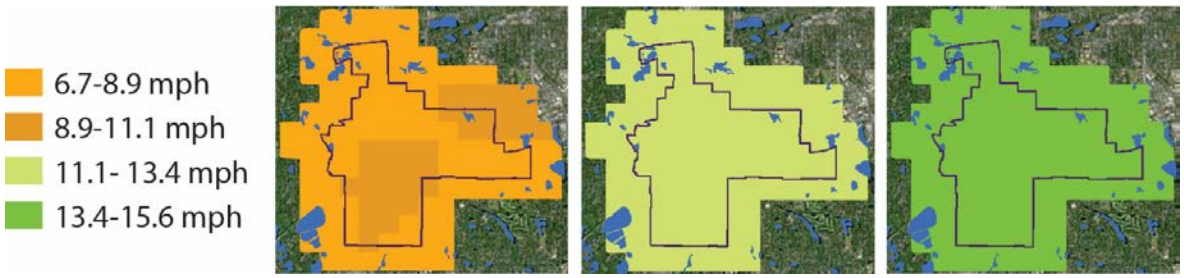


Figure 10 Wind speeds at different tower heights, 30 meters, 80 meters, and 100 meters from left to right. Source: MN Department of Commerce

A good rule of thumb is that 12 mph is typically the minimum average annual wind speed for a good wind resource. At 30 meters, much of Hopkins has an average wind speed of less than 9 miles per hour, below the optimal speed needed for a productive wind energy system, suggesting that taller towers would be necessary from a production standpoint. At 80 meters, wind speeds are between 11 and 13 mph, and at 100 meters, wind speeds are up to 13-15 mph. While there may be some opportunity to capture the resource at taller tower heights, it may not be feasible in Hopkins. The taller towers would require deeper foundation, which may not work in areas where the water table is too high. Additionally, the community may run into resistance if residents do not agree that tall wind turbines fit the community's character.

While the city does not have many opportunities for wind energy development, residents and businesses can participate in Xcel Energy's Windsource® or Renewable*Connect programs. These programs provide the clean energy benefit of having local wind (and solar) energy, although the economic benefits of clean energy development are realized elsewhere. According to Xcel Energy, two businesses are subscribed to a total of 16,207 kWh of wind energy, 296 residences are subscribed to a total of 609,390 kWh of wind energy.

Biomass Resource

Fuel derived from biomass can be used in several processes as a source of renewable energy, including electricity, waste heat, and renewable gas. Minnesota has several facilities that use biomass to generate electricity and/or heat. Biomass resources include municipal solid waste, landfill gas, wood waste, and agricultural byproducts, food processing residue and other organic waste. Much of the biomass resource can come from the metropolitan area, particularly for solid waste and landfill gas, as well as yard and urban forest waste.

Information about the type of biomass resources at the community level is difficult to acquire; there is little standardized assessment of potential biomass resources, and the types of resources vary across communities. All of the refuse that is not recycled or composted in Hopkins goes to one of two waste-to-energy facilities: Hennepin Energy Resource Company or NRG Elk River (NSP) Resource Recovery. In its draft master solid waste management plan, Hennepin County seeks to expand organics recycling by adding capacity to receive, transfer, and process organics close to where the materials are generated and collected. Organic materials are the largest portion of trash, making up approximately 25% of the waste stream. As part of its strategies, the County will release a request for proposals for an anaerobic digestion project to be in operation no later than the end of 2022. The County is looking at technologies to create renewable, bio-based energy and green chemicals.

Biomass as Renewable Energy

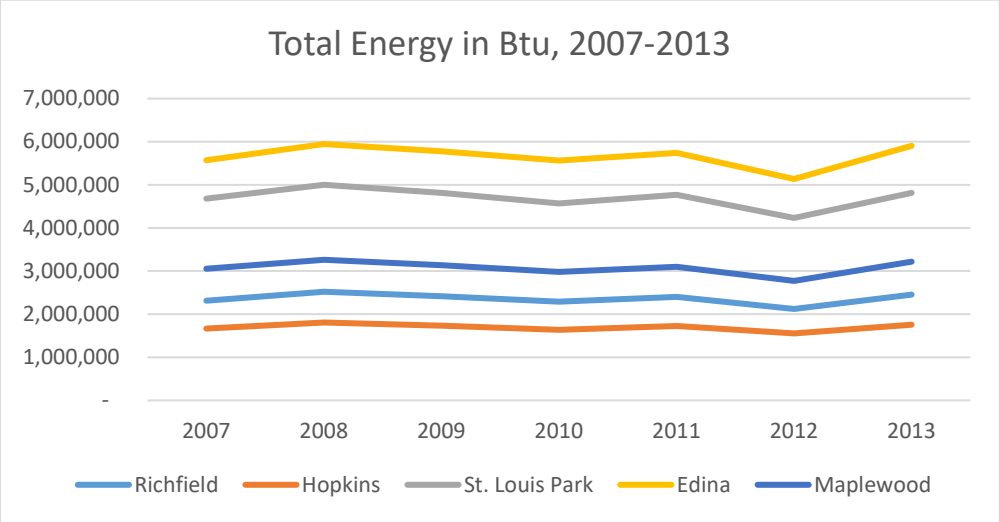
Anaerobic digestion is a process that uses captured biogas (methane and carbon dioxide) from the decomposition of organic material to generate heat and/or electricity. Biogas generated from this process can also be cleaned to remove carbon dioxide and other impurities to produce a renewable product equivalent to conventional natural gas, referred to as renewable natural gas. Renewable natural gas (or biogas) can serve as a replacement for any natural gas application and can also be compressed to provide a source of transportation fuel in place of conventional natural gas.

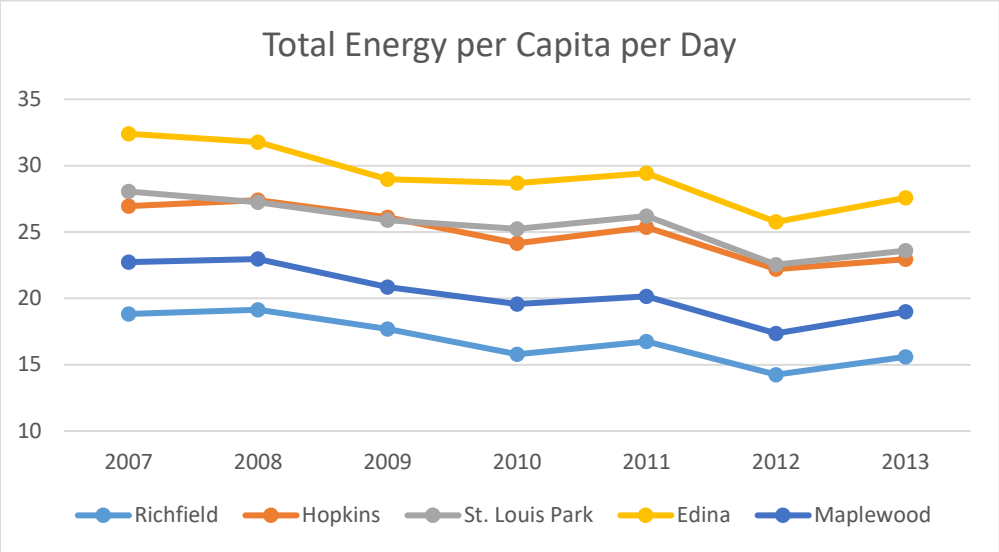
Biogas can be used to generate electricity in a process called combined heat and power. Combined heat and power (CHP) systems simultaneously generate electricity and thermal energy within a single system. By using the thermal energy, CHP systems efficiency is much greater than conventional power generating systems. While this system is well established in Minnesota, there is still great potential to harness this resource. Benefits CHP application include:

- Power is produced at a cost below retail electricity
- Enhance local power reliability
- Produces more useful energy than biogas that is used solely for thermal loads
- Reduces greenhouse gas emissions and other air pollutants

Energy Comparisons to Other Cities

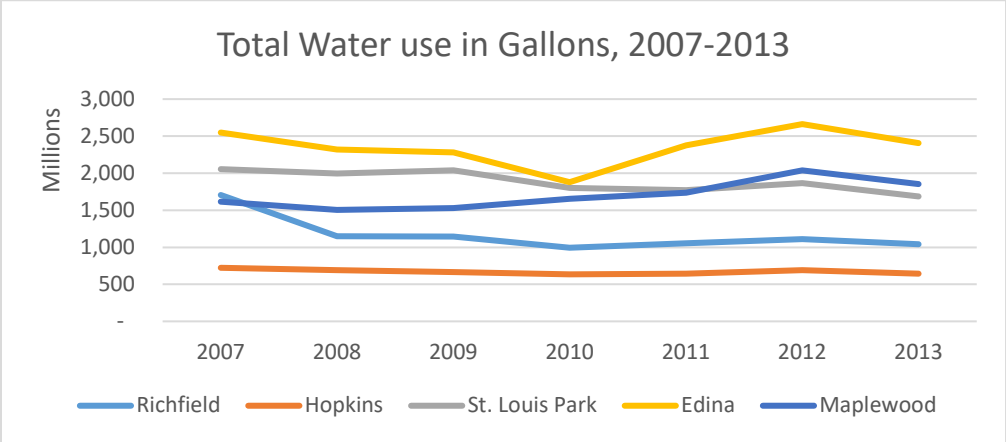
Hopkins has the lowest total energy use among comparable and neighboring communities. Energy use in Hopkins gradually decreased between 2008 and 2012 and saw an increase in use in 2013; this trend is also seen in neighboring and comparable communities. Hopkins's commercial energy use is greater than its residential energy use. However, Hopkins has a somewhat higher per capita/per day energy use than comparable and neighboring communities. In 2013, the average Hopkins household consumed 174.5 kBtu of energy per day, which is about 14 tonnes of CO2.

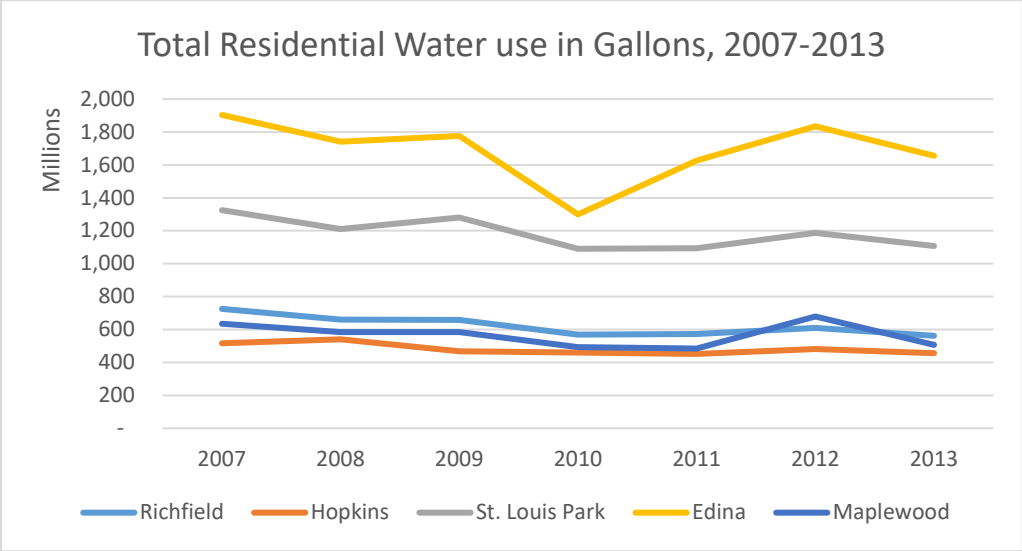


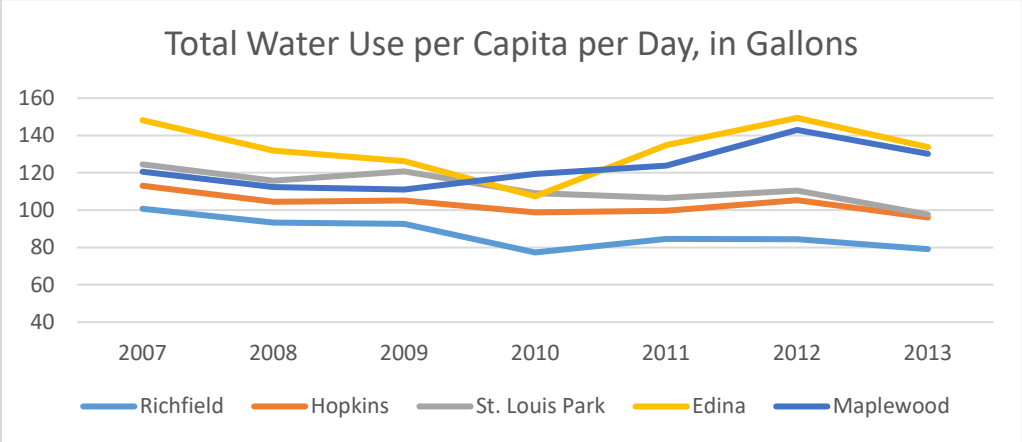


Water Use

Hopkins has the lowest water use among comparable and neighboring cities, when measured in terms of the amount of water sold. Hopkins's water use has gradually decreased since 2007. Unlike energy, residential water use is higher than commercial/industrial water use. In 2013, water use in Hopkins was about 96 gallons per capita per day.



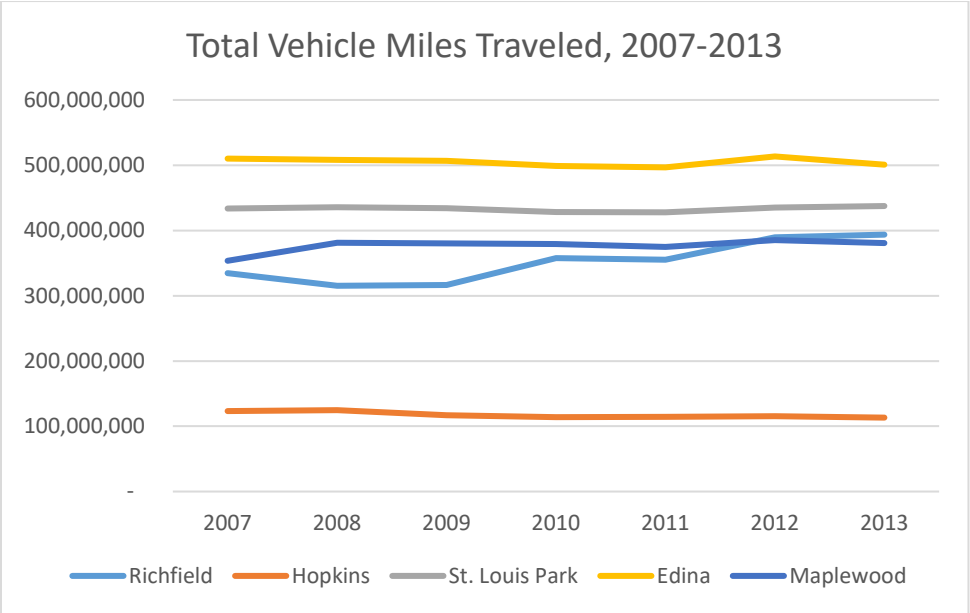


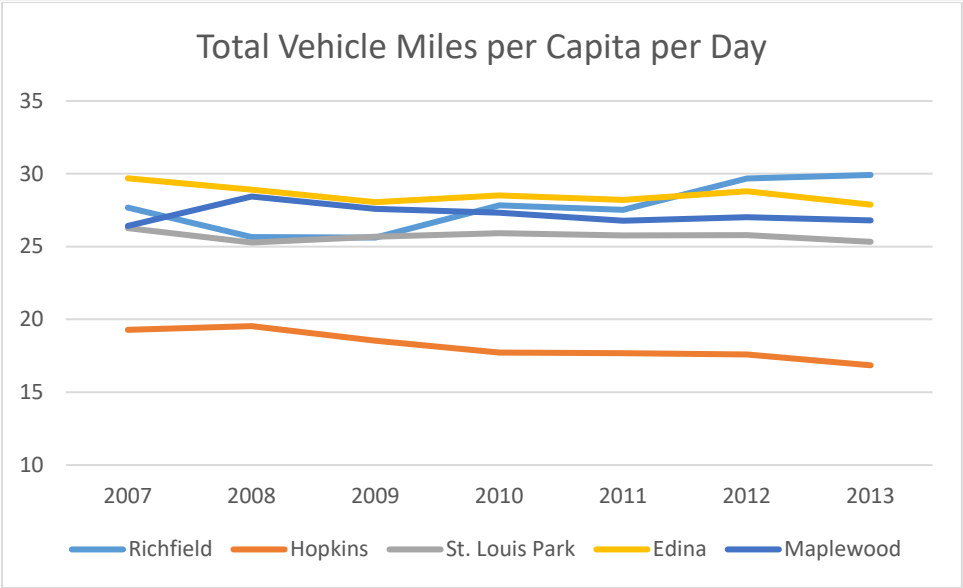


Vehicle Miles Traveled

Hopkins residents travel much fewer vehicle miles annually than residents in nearby and comparable cities. As a result, Hopkins has fewer CO2 emissions due to vehicle travel. Interestingly, per capita vehicles miles traveled by Hopkins residents has been decreasing since 2007. Most other comparable cities have remained at a fairly constant rate, except Edina, who has also decreased per capita vehicle miles. The low vehicle miles traveled may be a testament to the strength of public transit routes in Hopkins. If so, vehicles miles traveled and their respective CO2 emissions will likely continue to decrease with the opening of the Southwest LRT.

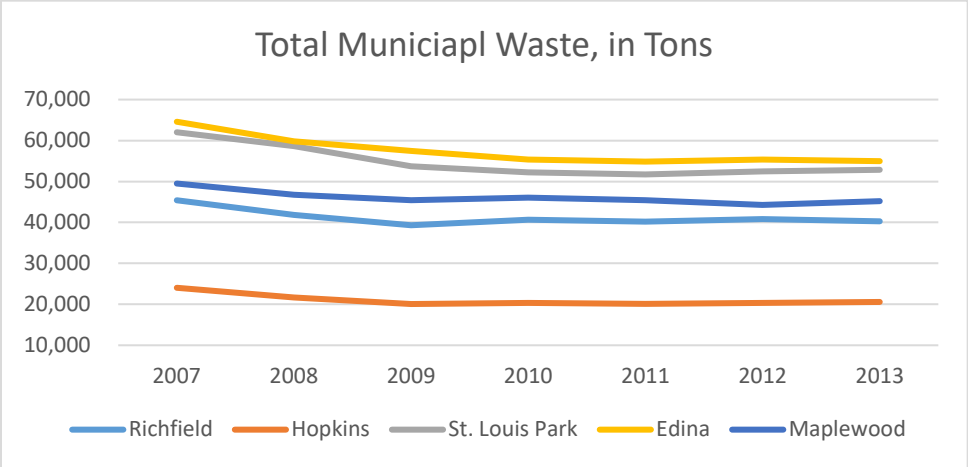
In both 2013 and 2015, about 5% of Hopkins households lacked access to a vehicle. Most households have 1-2 cars. (American Community Survey, 2009-2013; 2011-2015.) An On The Map analysis of Hopkins residents commuting patterns in 2013 shows about 74% of Hopkins residents lived less than 10 miles from their work, which helps reduce total vehicles miles traveled regardless of mode of transportation used.

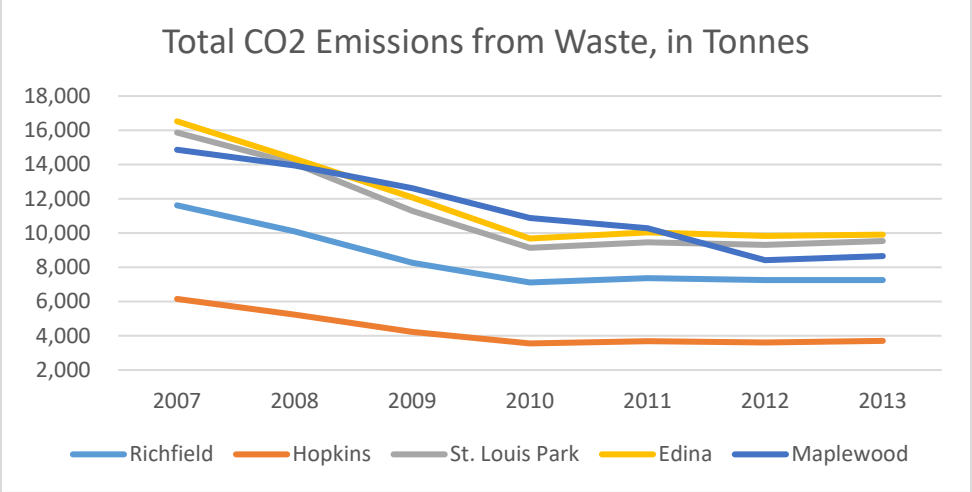


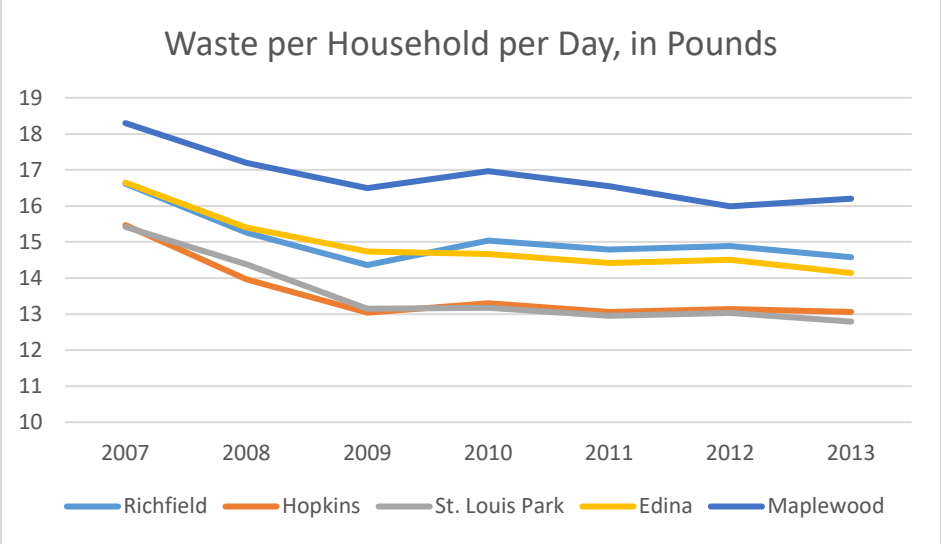


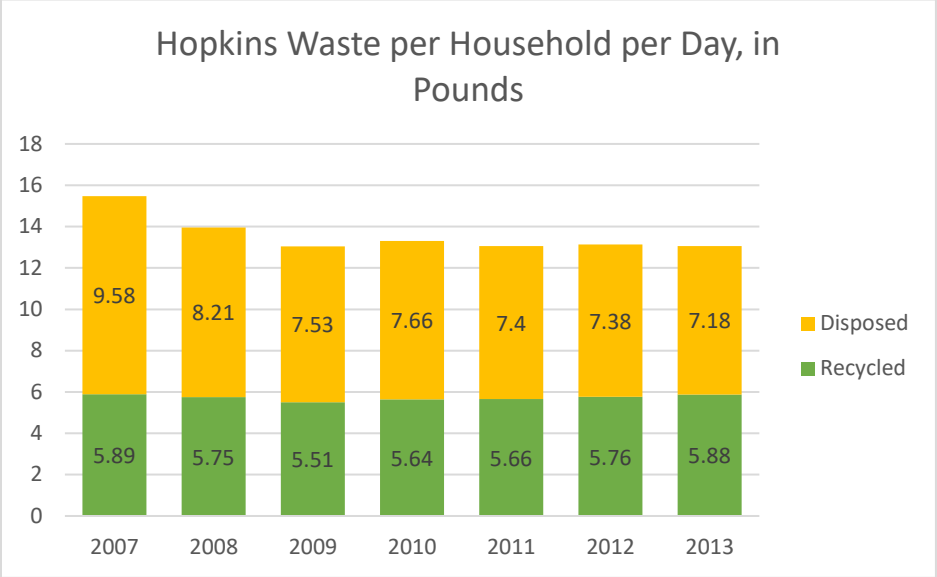
Waste Production

Hopkins has much less municipal waste than neighboring and comparable communities. As a result, the City has fewer CO2 emissions from waste. The trends in available data witnessed in Hopkins are also seen in other neighboring and comparable communities. Most communities have somewhat plateaued in waste reduction efforts. Most communities cut tons of waste and tonnes of CO2 emitted from 2007-2009/2010 but have struggled to make further reductions. Waste per household per day has decreased in Hopkins and other neighboring and comparable communities, but the rate of reductions decrease after 2009. In Hopkins, the amount of landfilled and incinerated trash has decreased while the amount of recycled trash has remained fairly constant.



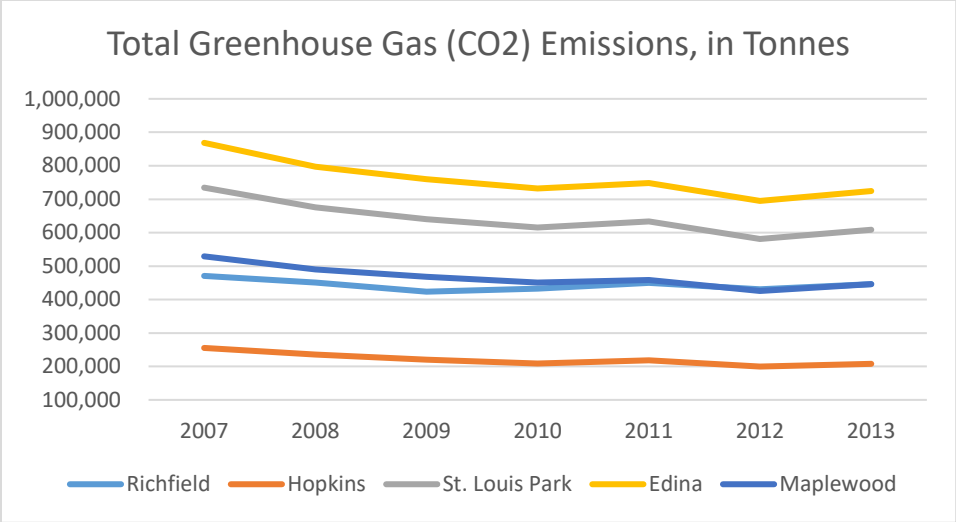


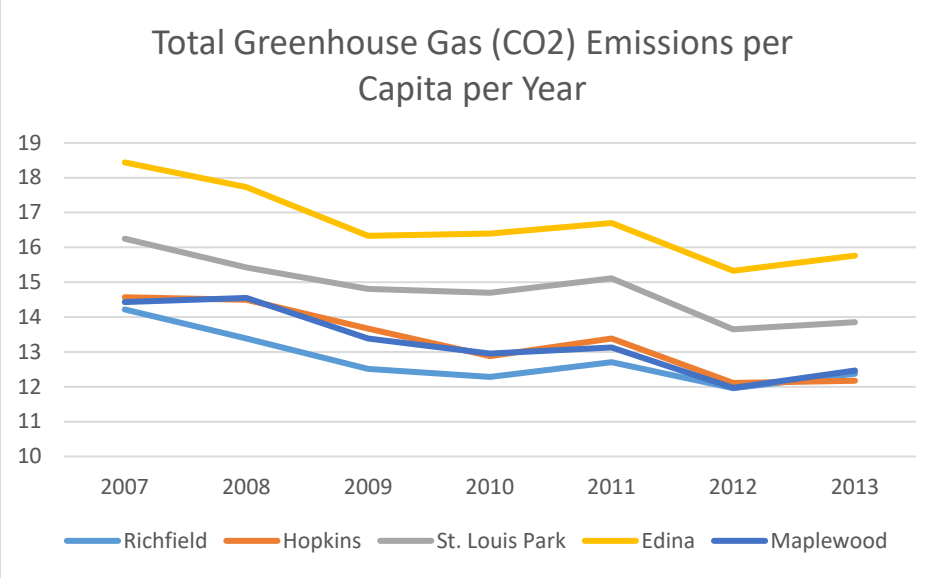

Waste per Household per Day, in Pounds
19
18
17
16
15
14
13
12
11
10
2007
2008
2009
2010
2011
2012
2013
Richfield
Hopkins
St. Louis Park
Edina
Maplewood


Hopkins Waste per Household per Day, in Pounds
18
16
14
12
10
8
6
4
2
0
9.58
8.21
7.53
7.66
7.4
7.38
7.18
5.89
5.75
5.51
5.64
5.66
5.76
5.88
2007
2008
2009
2010
2011
2012
2013
Disposed
Recycled

Greenhouse Gas Emissions

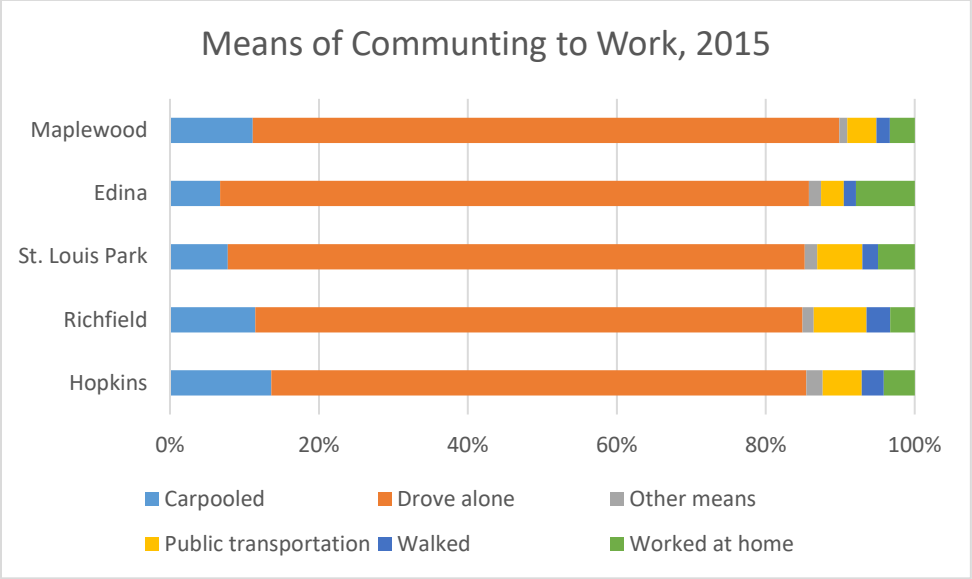
Hopkins has the lowest total greenhouse gas emissions among neighboring and comparable cities. This holds for all categories considered: energy, waste, travel, and other sources. However, Hopkins has comparable emissions per capita per year compared to neighboring and comparable communities. The City's lower emissions are likely a result of having a smaller population than other cities used in this comparison.

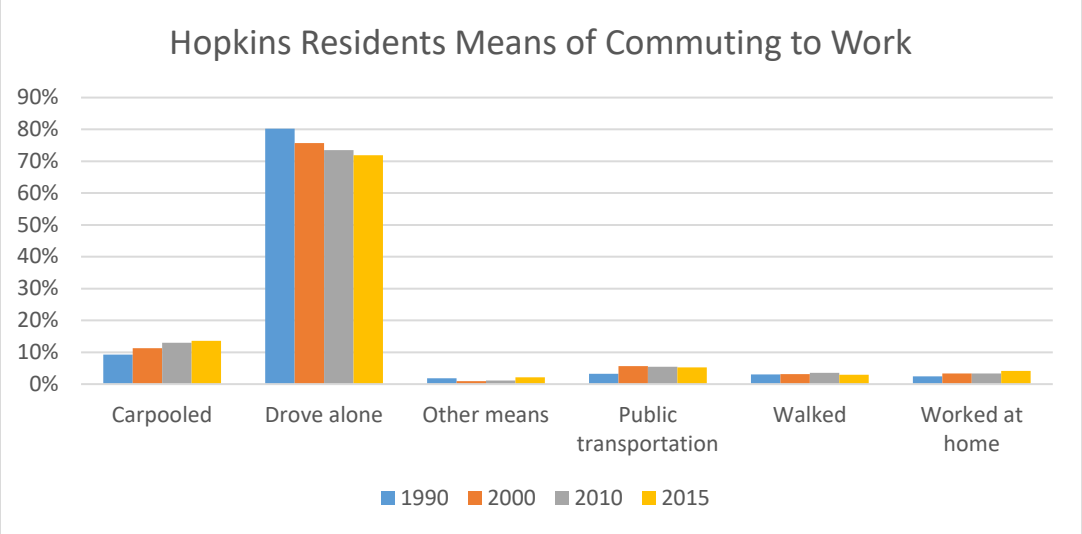




Journey to Work

Hopkins has the lowest percentage of commuters driving alone to work and the highest percentage of carpooling among neighboring and comparable cities. This shift from solo to shared driving is the most noticeable trend in Hopkins for available data years. There has been a small increase in the number of residents working from home between 1990 and 2015. Hopkins is similar to compared communities for all other modes of transportation considered.





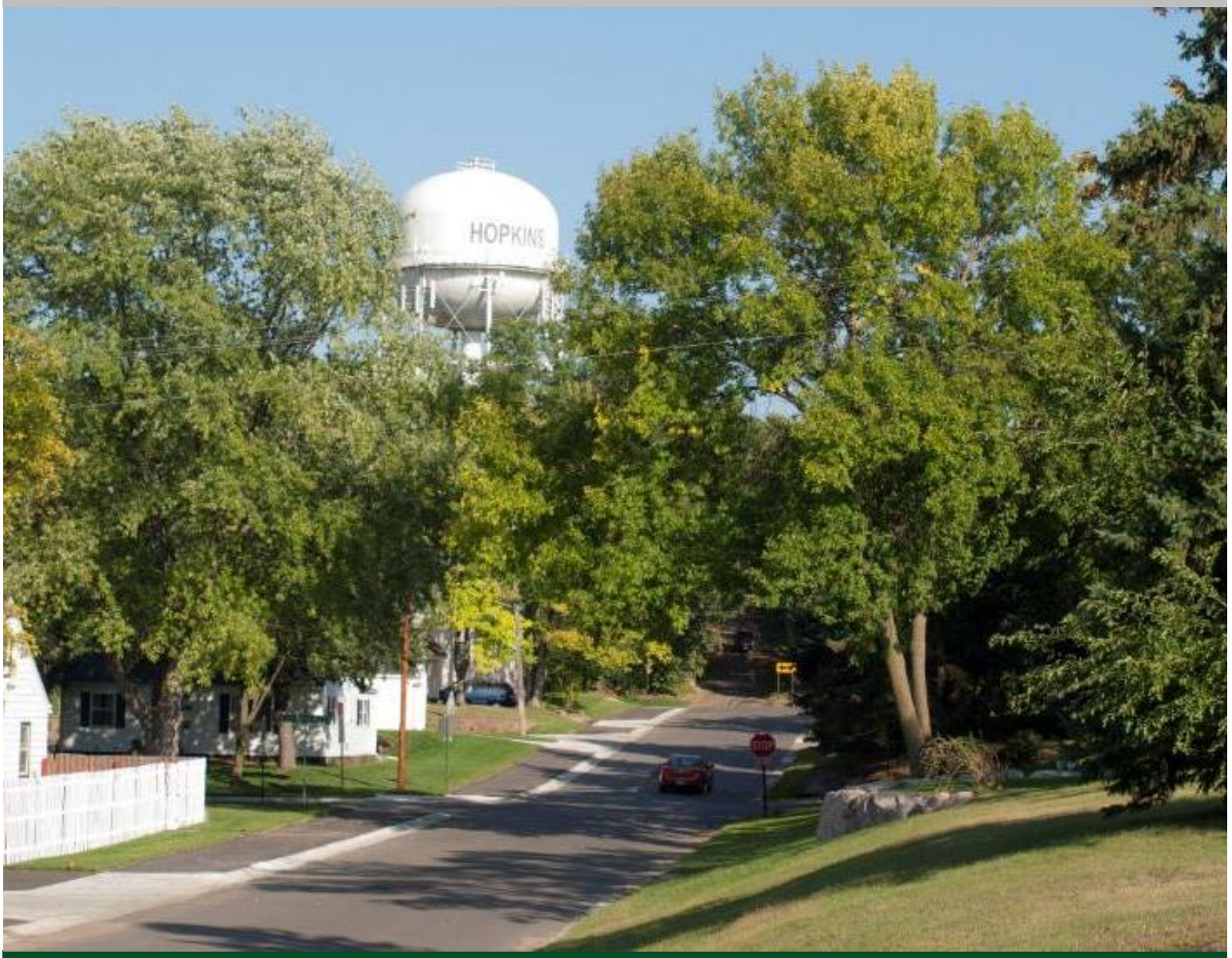
cultivate HOPKINS

Rooted. Vibrant. Connected. Resilient.

Comprehensive Plan

Natural Environment Briefing Book

10/31/17 DRAFT



Overview

Purpose

The purpose of this briefing book is to provide background information and data to inform the development of natural environment related policy as part of the Cultivate Hopkins comprehensive plan update. Sources of this information include:

- What we've heard from comprehensive plan outreach to date
- Existing goals and policies developed by the City related to sustainability
- City progress to date on sustainability initiatives, particularly GreenStep Cities
- National best practices on addressing sustainability in comprehensive planning
- Information, data, and maps related to existing conditions in Hopkins

The planning process provides an opportunity to explore existing conditions and trends, and to evaluate policy options that align with city goals and objectives. The intent is a comprehensive policy framework that will guide implementation for at least the next ten years (until the next comp plan update).

Main Ideas

- **The role of a developed city in the larger environmental context.** As a fully built out city, opportunities to expand open space and parks in Hopkins will be limited and strategic. There are not large undeveloped natural areas left to preserve. Instead, much of the focus will be on improving the quality and features of existing areas.
- **Connecting natural systems**. The city's urban form means that many opportunities to improve the natural environment involve creating and enhancing linear connections between areas. Developing connections will both support the natural function of these systems and increase value to users.

Trends and Challenges

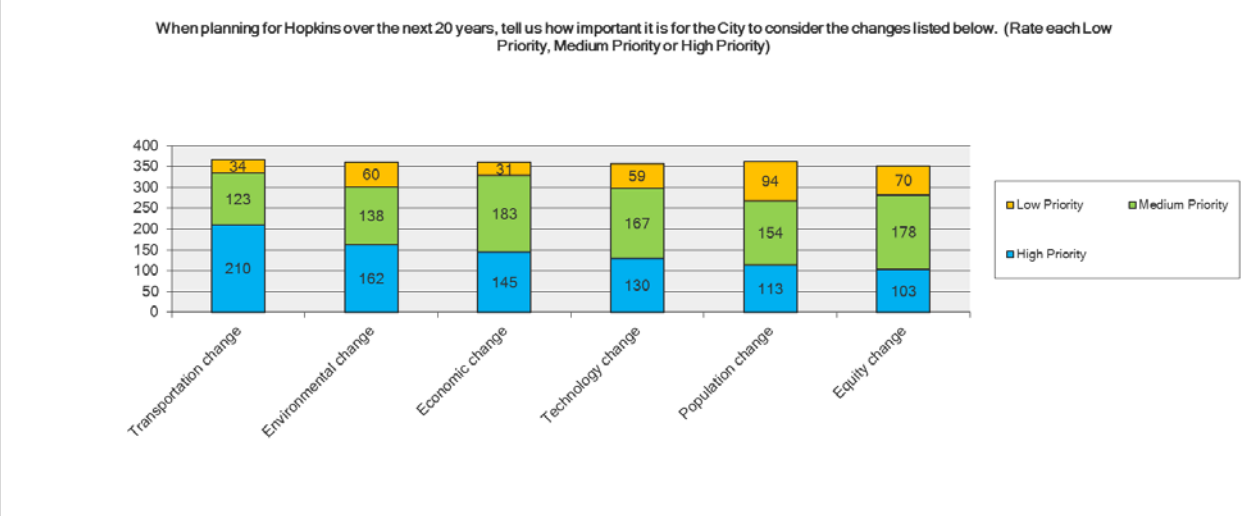
- **Limited land for open space and other functions.** Limits in land availability mean looking for multiple stacked functions in green spaces, including recreation, habitat, stormwater, etc.
- **Changing and diverse needs for open space.** While this section is focused on natural resources, human users are always a consideration. The changing population of Hopkins may mean different needs for these spaces.
- **Aging infrastructure.** Updating the city's existing systems provides both a challenge and opportunity.
- **Environmental contamination.** As Hopkins has been fully developed, many natural resources have been impacted significantly by development. Cleanup and restoration of natural resources are therefore important – not necessarily to return land to a pre-development state, but to restore some ecological function and reduce pollution.

What We've Heard

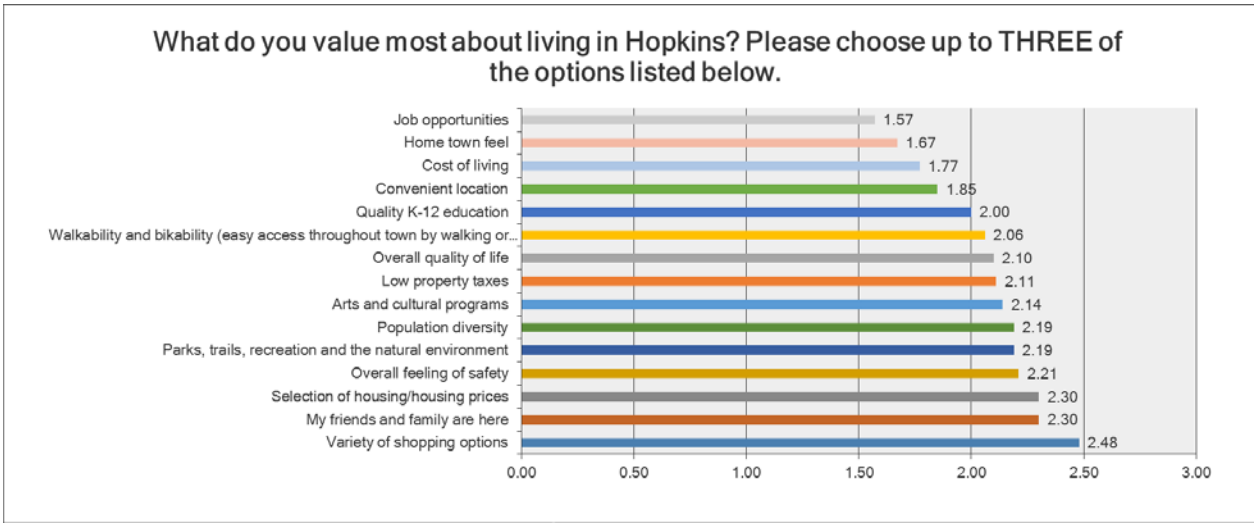
City of Hopkins Survey

From 2016 through early 2017, the City of Hopkins administered a community survey to assess issues, ideas, concerns, and priorities to inform the development of the comprehensive plan. Over 400 people responded. Results applicable to the natural environment are summarized below.

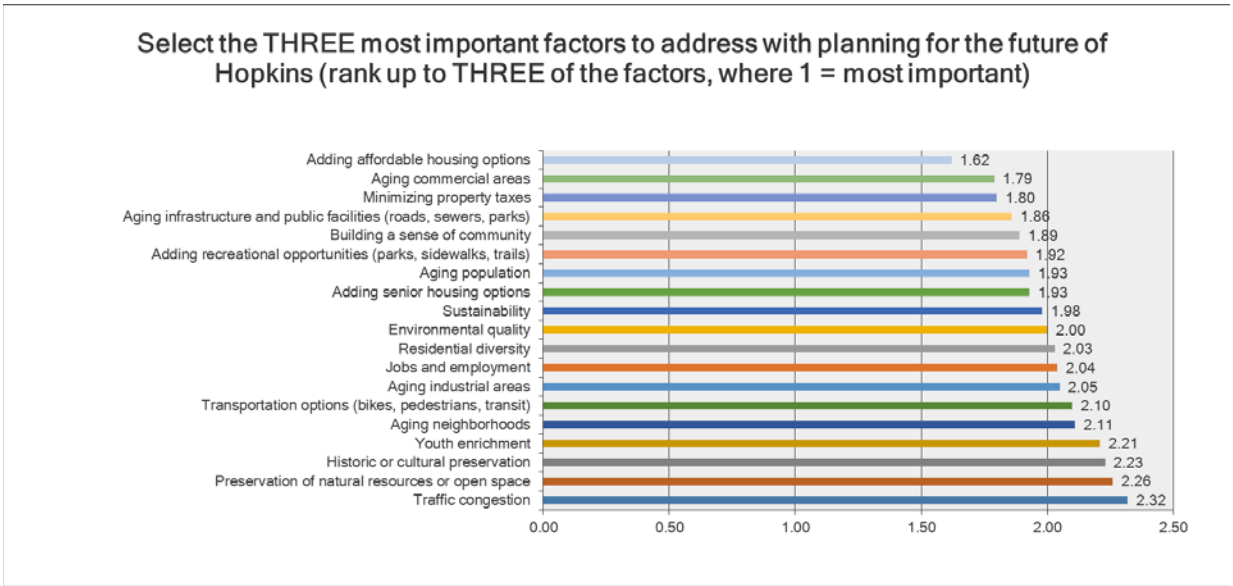
Over 83% of survey respondents said that environmental change in the City of Hopkins is a medium or high priority over the next 20 years.



Parks, trails, and the natural environment were in the middle of the pack in terms of an assessment of the valued thing about living in Hopkins.



Environmental quality also ended up in the middle of the pack with regards to planning factors to address.



Cultivate Hopkins Ideas Map

The City has also maintained an online ideas map, where members can add comments to specific geographic locations, with categories that indicate if a location is either a positive neighborhood feature, community asset, place that needs improvement, or one of several other categories.

Looking at the map responses, parks and open spaces are typically (and not surprisingly) identified as community assets. There are not too many comments attached to these designations.

There are some that show improvements needed. Most of these relate to recreational use of the park areas, and suggestions for improvements in park facilities. Recreational use is not being addressed as part of this natural environment element – we will revisit this in more detail in the social environment discussion.

Existing Goals and Policies

Existing Comprehensive Plan Policies

The following goals and policies in the existing comprehensive plan relate directly to the natural environment. They are located in the current chapters on parks, waste, and water. The parks chapter has a number of additional policy statements, but they relate primarily to the active and recreational uses of these facilities, which will be covered in more detail in the social environment element of the plan.

- Protect and enhance green space, park environments, and sustainability (Overall)
- Use the park to protect natural resources (Park)
- Meet regulatory requirements for water resources, and plan for future alterations in drainage system due to redevelopment (Water)
- Provide residential refuse collection necessary to ensure public health and safety (Waste)
- Encourage residents to reduce solid waste generation (Waste)
- Provide recycling services to 1-3 unit residential and enforce mandatory ordinance (Waste)
- Maximize efficiency with regard to refuse and recycling collections. (Waste)
- Support alternatives to disposal which emphasize the reuse of materials whenever possible. (Waste)
- Keep the community clean. (Waste)
- Provide adequate, reliable and effective waste disposal and recycling at reasonable cost to residents. (Waste)

City Council Goals and Strategic Plan

The City Council formally adopted its current goals and strategic plan in 2017. The following elements relate to the natural environment:

Goal I – Preserve the Home Town Feel of Hopkins

- Strategy 3: Provide Accessible and Friendly City Services
  - Promote interactive park, trails and facilities directory on website.
- Strategy 4: Embrace and Strengthen Partnerships
  - Continue to grow partnerships with: joint recreation in Minnetonka, Hennepin County, Hopkins School District, watershed districts, Met Council, Three Rivers Park District, surrounding cities

Goal II – Urban Design: Do It Right

- Strategy 2: Practice Environmental Responsibility
  - Implement the sidewalk and trail master plan and partner with other agencies to improve and update paths, trails, and crossings in the community, supporting “Complete Street” initiatives
  - Explore local transportation opportunities.

Best Practices

Sustainable Comprehensive Plan Standards

Sustaining Places was developed by the American Planning Association as an overall framework for addressing community sustainability through the comprehensive planning process. The following elements from this framework address topics specific to the natural environment.

Harmony with Nature

2.1 Restore, connect, and protect natural habitats and sensitive lands.

2.2 Plan for the provision and protection of green infrastructure.

2.3 Encourage development that respects natural topography.

2.4 Enact policies to reduce carbon footprints.

2.5 Comply with state and local air quality standards.

2.6 Encourage climate change adaptation.

2.7 Provide for renewable energy use.

2.8 Provide for solid waste reduction.

2.9 Encourage water conservation and plan for a lasting water supply.

2.10 Protect and manage streams, watersheds, and floodplains.

Livable Built Environment

1.10 Implement green building design and energy conservation.

1.11 Discourage development in hazard zones.

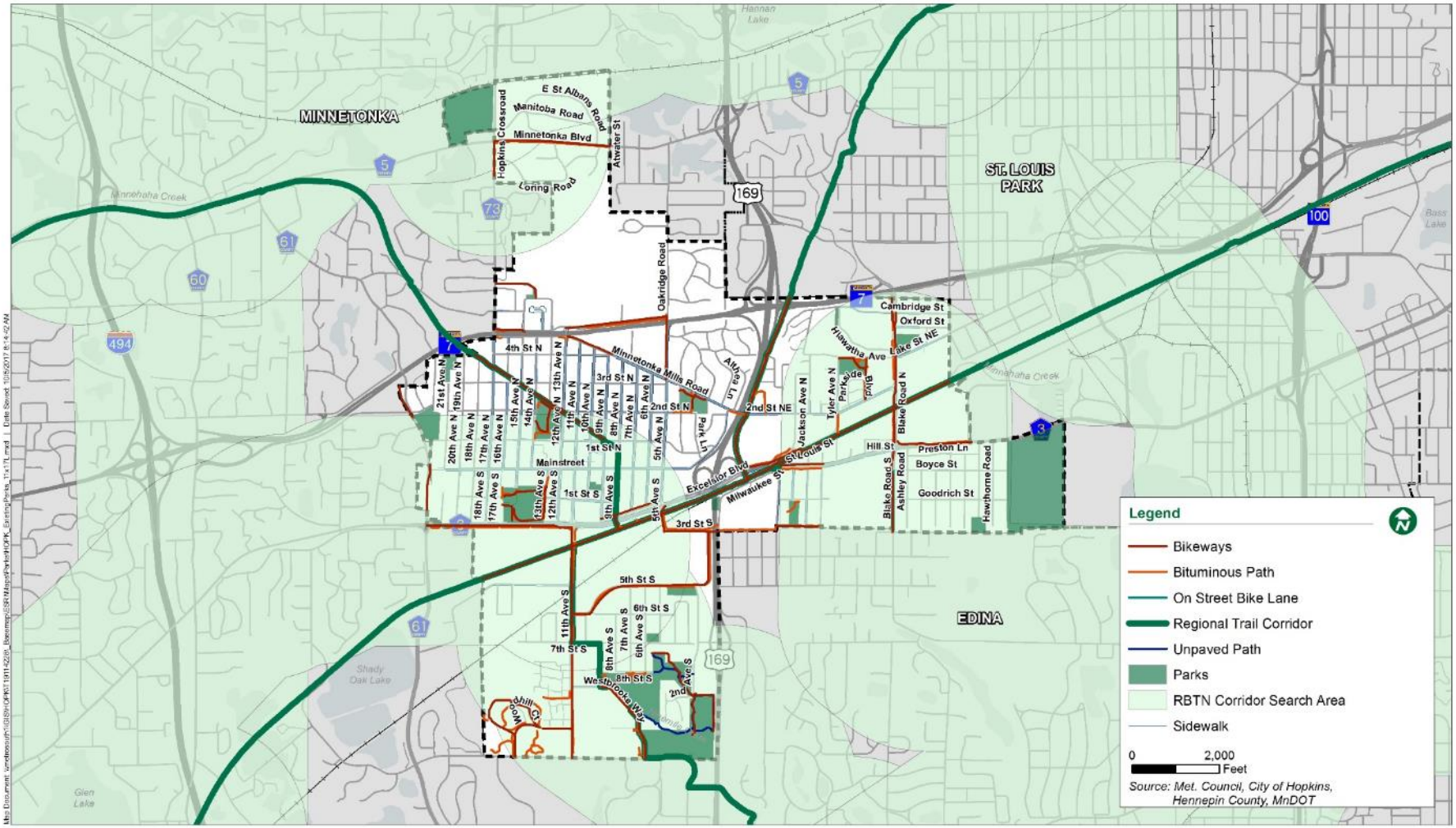
Existing Conditions

Parks and Open Space

When thinking of natural resources in the city, one of the first things that comes to mind is the land preserved as part of the city's public open spaces – particularly parks and natural areas. The following map and table show the location and characteristics of public parks and open space in Hopkins.

While all areas contribute something to the natural environment, four are identified specifically as nature areas by the City:

- **Hiawatha Oaks Preserve** – a two acre wooded parcel serving as passive open space between developments in central Hopkins
- **Minnehaha Creek Preserve** – a creekside natural area near the northwest corner of Hopkins along Minnehaha Creek
- **Shady Oak Nature Area** – a 3.8 acre site mostly covered by a large drainage pond and associated wetland vegetation, near Shady Oak Road.
- **Steiner Park Preserve** – a 33 acre passive open space, located on both banks along a portion of Nine Mile Creek in south Hopkins


MINNETONKA
ST. LOUIS PARK
EDINA
Hennan Lake
Minnehaha Creek
Bass Lake
Shady Oak Lake
Glen Lake
E St Albans Road
Manitoba Road
Minnetonka Blvd
Hopkins Crossroad
Atwater St
Loring Road
Oakridge Road
Minnetonka Mills Road
Alpha Ln
Park Ln
Jackson Ave N
Tyler Ave N
Parkside Blvd
Blake Road N
Cambridge St
Oxford St
Lake St NE
Hiawatha Ave
2nd St NE
2nd St N
4th St N
1st St N
Mainstreet
1st St S
3rd St S
5th St S
6th St S
7th St S
8th St S
St Louis St
Excelsior Blvd
Milwaukee St
Hill St
Preston Ln
Boyce St
Goodrich St
Blake Road S
Ashley Road
Hawthorne Road
Westbrook Way
Hill Ct
Legend
Bikeways
Bituminous Path
On Street Bike Lane
Regional Trail Corridor
Unpaved Path
Parks
RBTN Corridor Search Area
Sidewalk
0
2,000
Feet
Source: Met. Council, City of Hopkins, Hennepin County, MnDOT

Park Name	Size (Acres)	Park Type	Play Areas	Ball Fields	Open Field	Picnic Area	Outdoor Open Space	Picnic Shelter	Basketball Courts	Tennis Courts	Soccer Fields	Outdoor Hockey Rink	Sledding Hill	Restrooms	Volleyball	Football Field	Indoor Ice Arena	Canoe Launch	Golf Course	Archery Range	Community Garden	Track & Field	Skateboard Park	Swimming Beach	Horseshoes
Alice Smith Elementary	9.82	School - Park	*	*	*																				
Blake School	47.94	School - Park		*	*					*	*						*					*			
Buffer Park	2.39	Neighborhood Park		*	*								*												
Burnes Park	6.32	Neighborhood Park	*	*	*	*	*	*	*	*				*											*
Central Park	12.32	Community Park	*	*		*	*	*		*	*	*			*		*								
Cottageville Park	1.27	Neighborhood Park	*		*				*																
Downtown Park	0.46	Neighborhood Park				*																			
Eisenhower Elementary Community Center	24.97	School - Park	*	*	*					*	*					*									
Elmo Park	0.94	Neighborhood Park	*						*																
Harley Hopkins Park	2.89	Neighborhood Park		*	*		*					*													
Hiawatha Oaks	1.83	Natural Resource Area																							
Hilltop Park	2.61	Neighborhood Park	*	*	*	*	*						*												
Interlachen Park	2.16	Neighborhood Park	*	*			*		*			*													
Maetzold Field	10.1	Community Park	*	*				*			*			*		*									
Minnehaha Creek Preserve	35.14	Special Use Facility																*							
Oak Ridge Golf Course	153.02	Special Use Facility																	*						
Oakes Park	4.91	Neighborhood Park	*	*		*	*	*		*		*	*	*											
Park Valley Playground	1.14	Neighborhood Park	*		*			*	*																
Shady Oak Nature Area	6.03	Special Use Facility																							
Shady Oak Beach	5.44	Community Park	*			*									*			*						*	
Skateboard Park	0.66	Special Use Facility																					*		
Stein Park Preserve	33.34	Natural Resource Area																							
Valley Park	32.93	Community Park	*	*	*	*	*	*	*		*	*	*	*	*					*	*				
TOTAL	398.63		13	12	10	7	7	6	6	5	5	5	4	4	3	2	2	2	1	1	1	1	1	1	1

DNR Conservation Corridors

The Minnesota Department of Natural Resources (DNR) has identified a series of Metro Conservation Corridors in the Twin Cities region. The intent of this designation is protection and restoration of key natural lands in the metro area. This will involve initiatives to restore a habitat network in the Twin Cities Metropolitan Area to protect and improve the health of native vegetation, fish and wildlife species.

The identified Conservation Corridors include the Minnehaha Creek Corridor running through the northeast corner of Hopkins, and the area around Shady Oak Lake and nearby lakes and wetlands southwest of the city.

The City of Hopkins is required to include this information in the comprehensive plan. In addition, the City can designate any additional local priority areas that seem appropriate. However, the intent of the regional designation is to help prioritize projects at a regional level.

Regionally Significant Ecological Area

The Minnesota DNR also has identified one area in the vicinity of Hopkins as a Regionally Significant Ecological Area. These areas include places where intact native plant communities and/or native animal habitat are still found in the region and continue to provide important ecological functions such as:

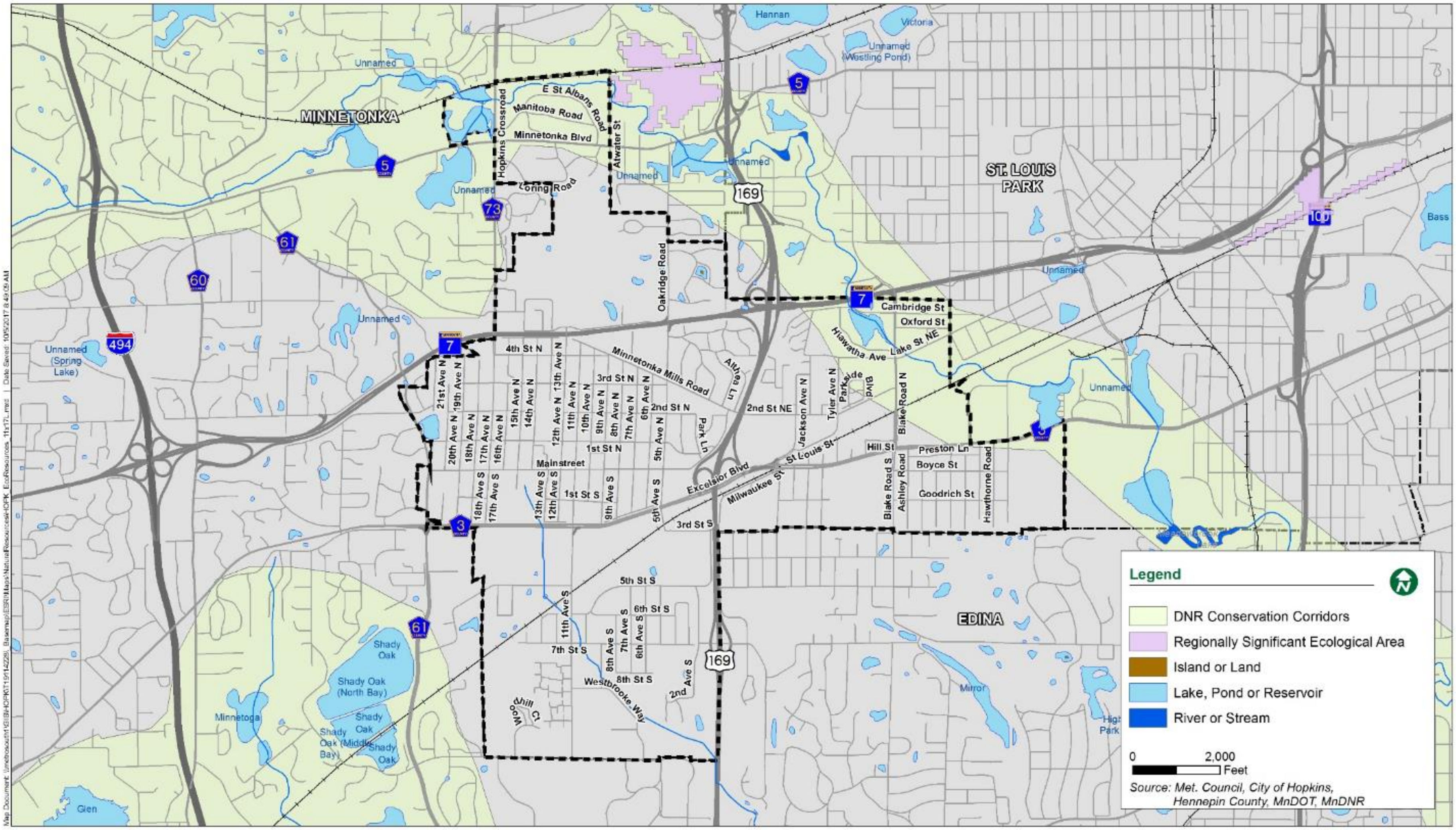
- Habitat for game and non-game, including threatened, endangered, and special concern animals.
- Biological diversity.
- Connectivity in the landscape.
- Groundwater recharge and improved water quality.
- High to outstanding examples of native plant and/or animal Communities or animal aggregations (as mapped by the Minnesota County Biological Survey).

The area near Hopkins is the Minnehaha Marsh, located just northeast of Hopkins along Minnehaha Creek.

As with the Conservation Corridors, the City is free to make additional designations of areas it finds significant, though they may not be considered regional priorities.

Ecologically Significant Resources

October 2017



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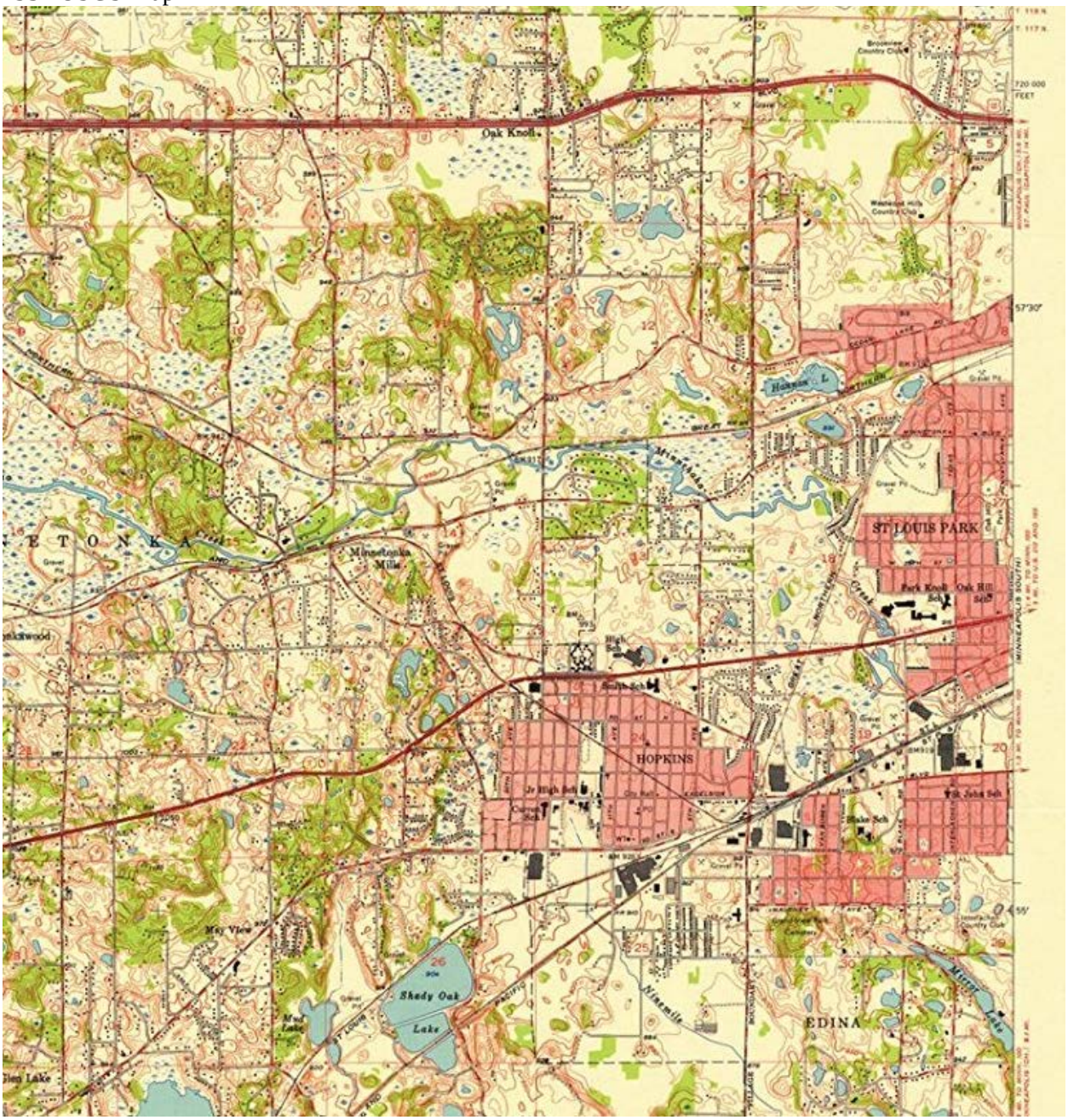
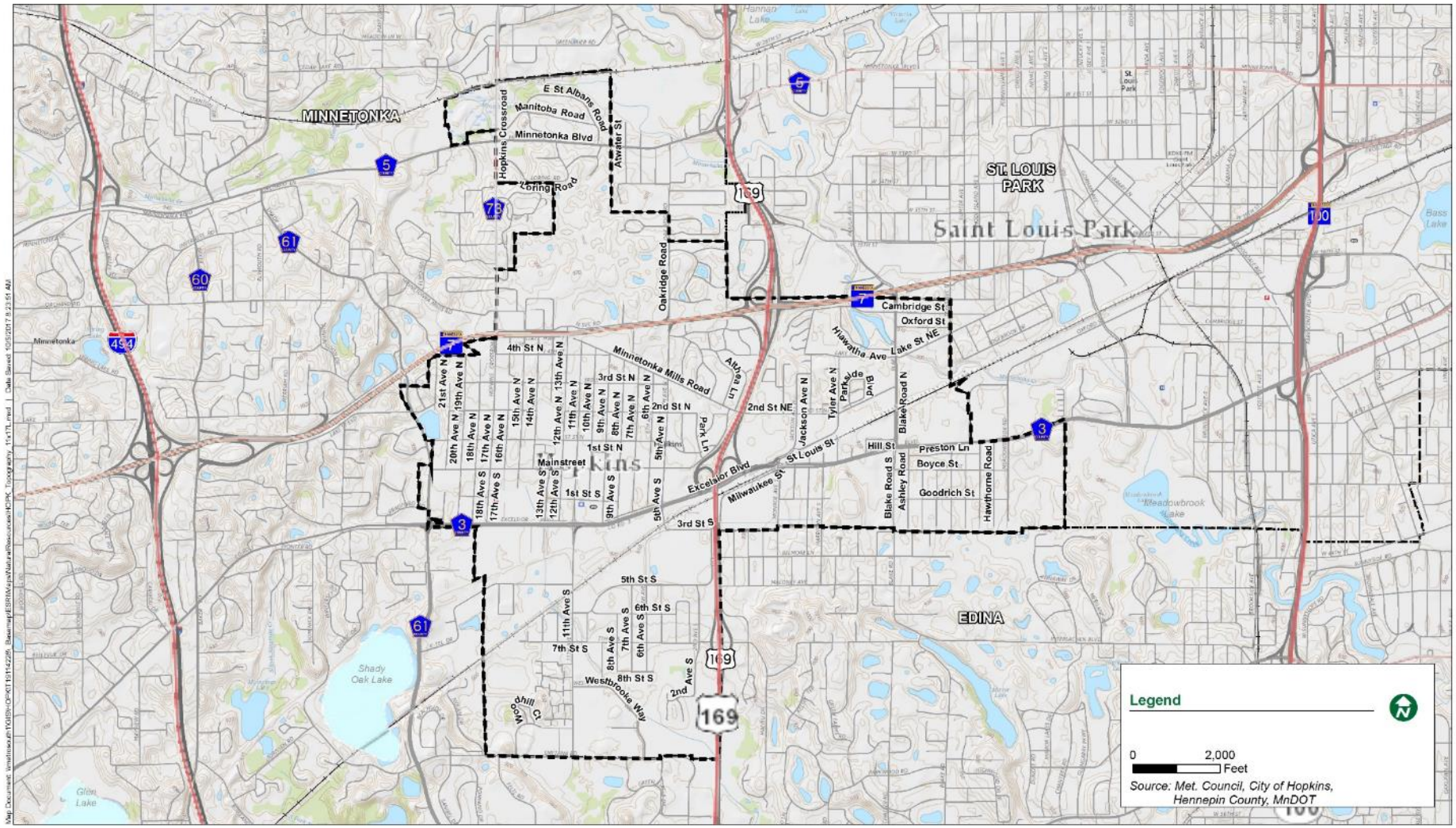
Topography

As in other places, the main railroad line running through this area of the region appears to follow a flatter space through hillier land – likely constructed to minimize steep grades.

The Downtown Hopkins area stands out as well as somewhat flatter than the surrounding area. This may be one of the reasons this location developed sooner than much of the nearby area.

1954 USGS Map




MINNETONKA
ST. LOUIS PARK
Saint Louis Park
EDINA
Hopkins
Minnetonka
E St Albans Road
Manitoba Road
Minnetonka Blvd
Hopkins Crossroad
Amwell St
Loring Road
Oakridge Road
Cambridge St
Oxford St
Lake St NE
Hiawatha Ave
Minnetonka Mills Road
4th St N
3rd St N
2nd St N
2nd St NE
1st St N
1st St S
Mainstreet
Excelsior Blvd
Milwaukee St
St Louis St
Hill St
Preston Ln
Boyce St
Goodrich St
Blake Road N
Blake Road S
Ashley Road
Hawthorne Road
Jackson Ave N
Tyler Ave N
Parkside Park
Park Ln
3rd St S
5th St S
6th St S
7th St S
8th St S
Westbrooke Way
Woodhill Ct
Shady Oak Lake
Meadowbrook Lake
Glen Lake
Bass Lake
Legend
0
2,000
Feet
Source: Met. Council, City of Hopkins, Hennepin County, MnDOT

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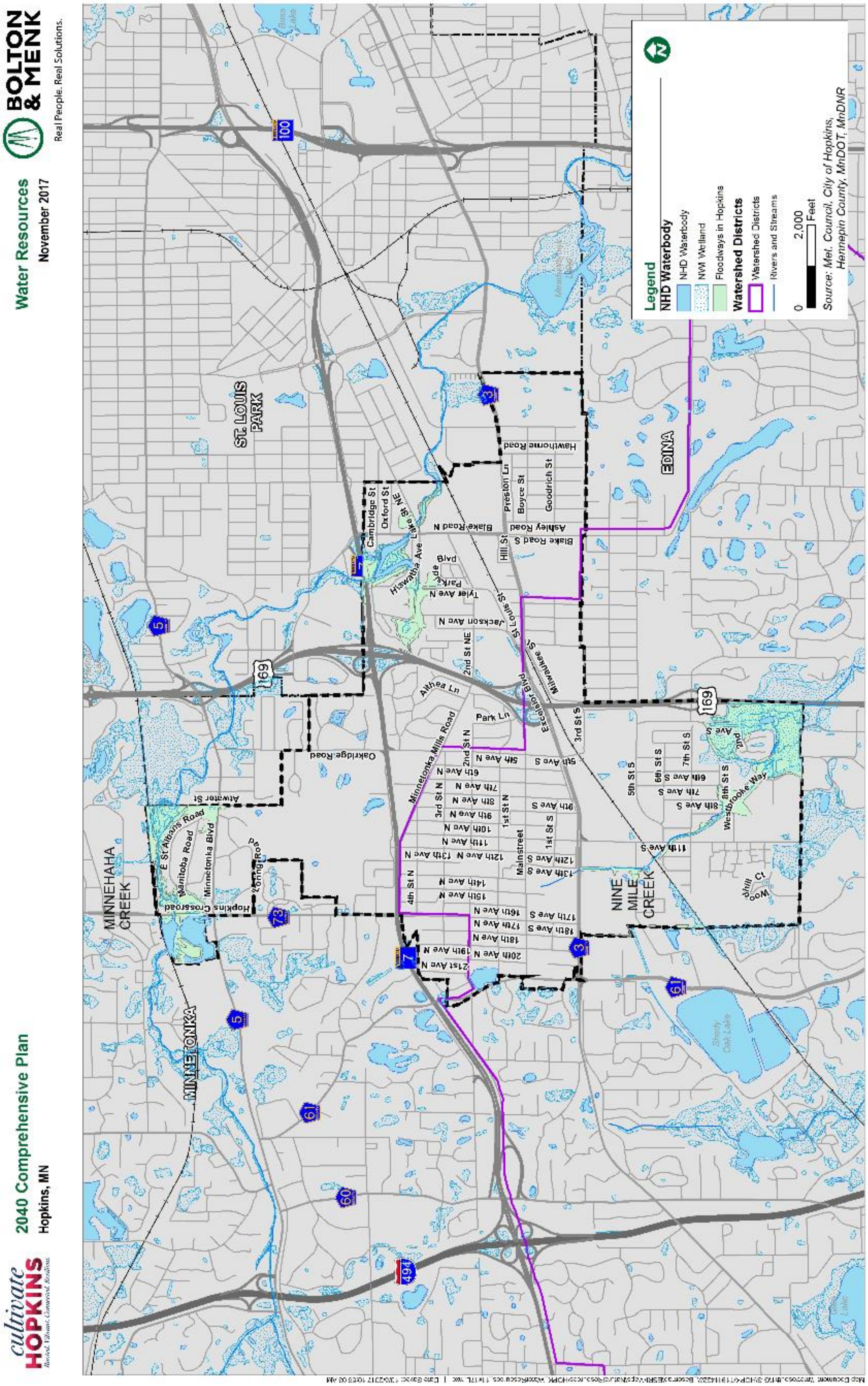
Water Resources

Hopkins contains segments of two creeks: Minnehaha Creek and Nine Mile Creek. There are some small ponds and wetland areas in the vicinity of both creeks.

The drainage patterns around the two creeks reflects the boundary of the two watersheds of the same name, which roughly split the City of Hopkins in half.

Existing conditions related to water resources will be explored in more depth as part of the required surface water management plan element of the comprehensive plan.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2040 Comprehensive Plan
Hopkins, MN
Water Resources
November 2017
BOLTON & MENK
Real People. Real Solutions.
Legend
NHD Waterbody
NHD Waterbody
NWI Wetland
Floodways in Hopkins
Watershed Districts
Watershed Districts
Rivers and Streams
0
2,000
Feet
Source: Met. Council, City of Hopkins, Hennepin County, MnDOT, MnDNR
ST. LOUIS PARK
EDINA
MINNETONKA
MINNEHAHA CREEK
NINE MILE CREEK
Hawthorne Road
Preston Ln
Boyce St
Goodrich St
Blake Road N
Ashley Road
Blake Road S
Cambridge St
Oxford St
Lake St NE
Hiawatha Ave
Tyler Ave N
Jackson Ave N
St Louis St
Milwaukee St
Excelsior Blvd
2nd St NE
Althea Ln
Park Ln
Oakridge Road
Minnetonka Mills Road
Atwater St
E St Albans Road
Manitoba Road
Minnetonka Blvd
Hopkins Crossroad
Mainstreet
Westbrooke Way
3rd St S
5th St S
7th St S
8th St S
Shady Oak Lake
100
169
494
7
3
5
61
60
73

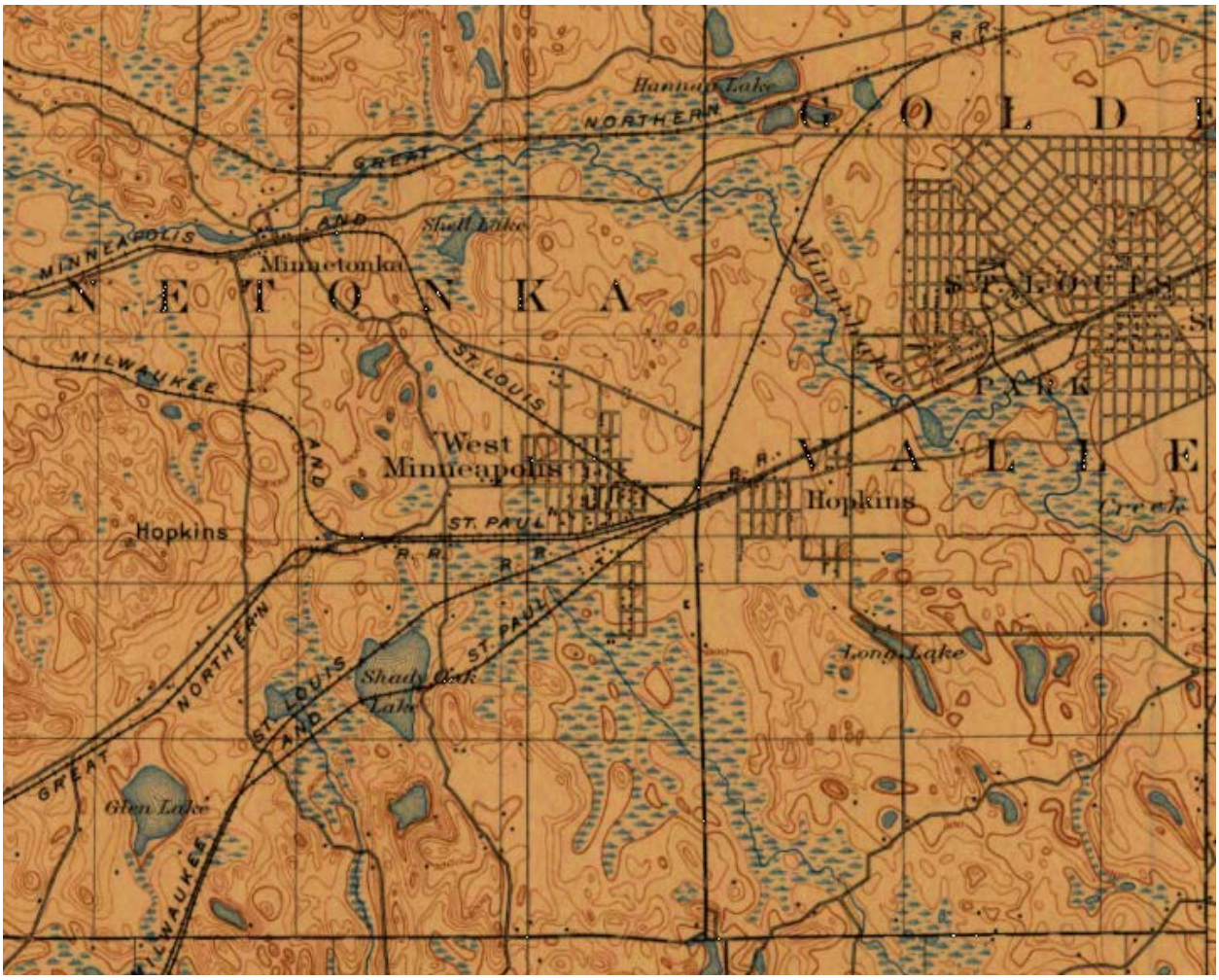
Historic Wetlands

The oldest available US Geological Survey (USGS) map for Hopkins dates from 1895. As shown below, the community was originally two smaller settlements around railroad stations – Hopkins and West Minneapolis – that eventually merged into one.

Of particular note is the change to the Nine Mile Creek area, south of West Minneapolis. It was originally the northern end of a broad band of wetlands on either side of the creek, stretching down through what is now Edina to Bloomington, where it joined the Minnesota River. Much of that wetland area (including a large percentage of what was in Hopkins) has since been filled and the stream has been channelized and put into pipes.

This was also true to a lesser extent for Minnehaha Creek, though the impacts of that are largely outside the Hopkins city limits.

While it is not necessarily the goal to restore the location of all historic wetlands, it is useful to know where they were, as this often is reflected in ongoing issues with soils and drainage.



Contamination

As is common for a developed urban area with a substantial amount of older commercial and industrial uses, Hopkins has some issues with environmental contamination. While there are already regulations and practices in place to address them, there are opportunities to prioritize and advance improvements through additional policy guidance.

Water

The Minnesota Pollution Control Agency (MPCA) maintains a statewide list of impaired waters that do not meet established water quality standards. At present, around 40% of Minnesota's lakes and streams are impaired for conventional pollutants – with a higher percentage in urbanized areas. Each impaired water body is subject to a Total Maximum Daily Load (TMDL) to address these impairments. A TMDL is a regulatory term found in the U.S. Clean Water Act, describing a plan for restoring impaired waters that identifies the maximum amount of a pollutant that a body of water can receive while still meeting water quality standards. Watershed districts are typically involved in the oversight of these TMDLs, and the associated improvements implemented to meet their goals.

The entire length of Minnehaha Creek (only around 6% of which is in Hopkins) appears on the state impaired waters list due to elevated levels of fecal coliform bacteria and chloride, as well as its impaired biotic community and low levels of dissolved oxygen. It is subject to a TMDL to address these impairments, which is being managed through the Minnehaha Creek Watershed District.

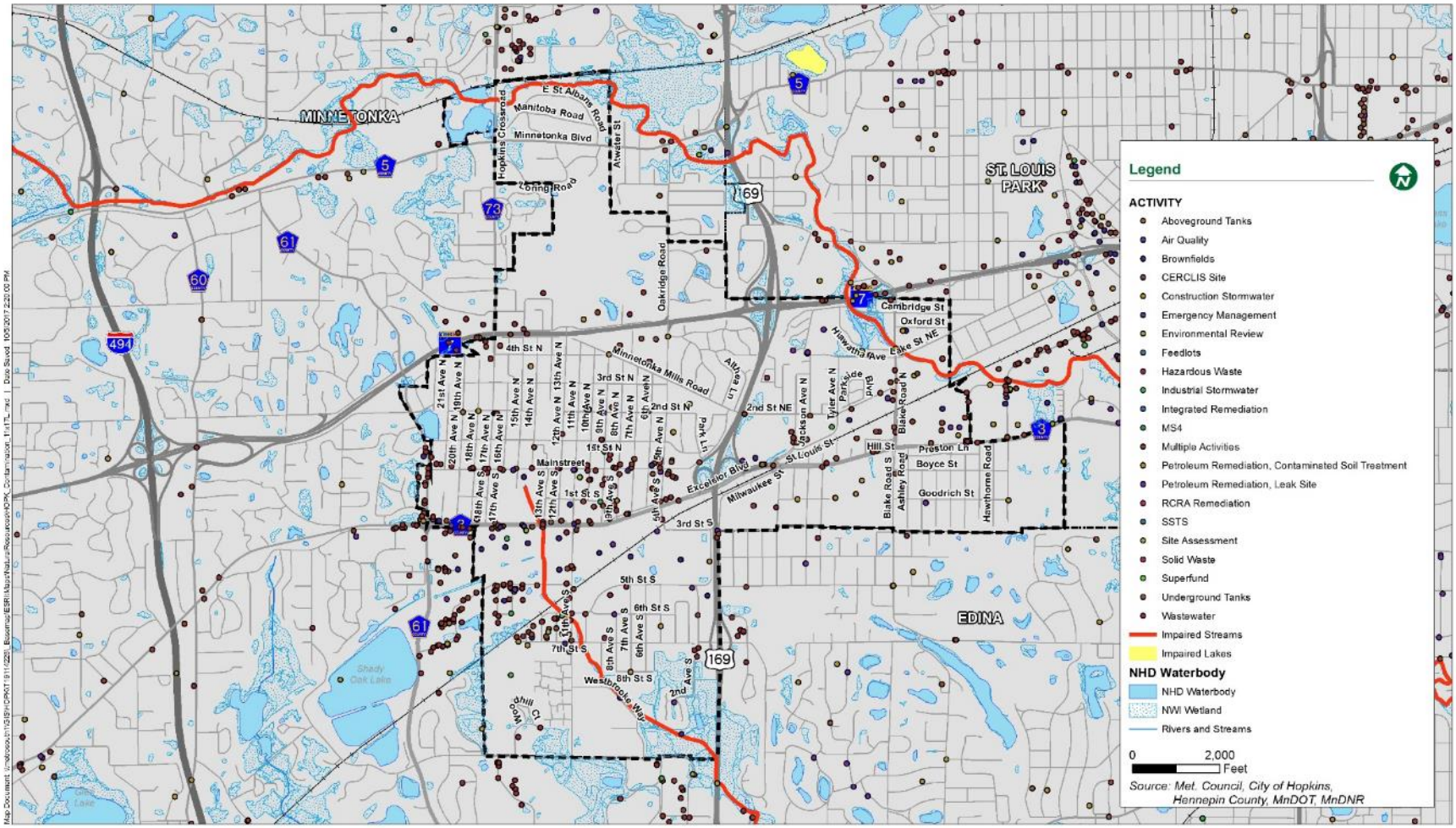
Nine Mile Creek is also on the impaired waters list because of chloride levels, as well as impaired biota due to low fish Index of Biotic Integrity (IBI) scores. It is subject to a TMDL to address these impairments, which is being managed through the Nine Mile Creek Watershed District.

Land

The Minnesota Pollution Control Agency also tracks sites on land that are potentially contaminated, and/or subject to environmental permits or registrations. Not all of these are currently active (some may already have been addressed), and absence of a flag does not necessarily guarantee a site is clean – since a full assessment has not been done of all properties. The MPCA identifies 447 sites in Hopkins with some risk of environmental contamination and/or environmental permit. The identified sites are summarized below and shown on the accompanying map.

Type	Number
Aboveground Tanks	11
Air Quality	5
Brownfields	31
Construction Stormwater	51
Hazardous Waste	157
Industrial Stormwater	10
Multiple Activities	117
Petroleum Remediation Leak Site	30
Site Assessment	4
Underground Tanks	29
Wastewater	2

The City will need to make a determination if additional action is to be taken on environment cleanup and pollution prevention, over and above existing regulatory requirements which are already largely in place.


MINNETONKA
ST. LOUIS PARK
EDINA
Legend
ACTIVITY
Aboveground Tanks
Air Quality
Brownfields
CERCLIS Site
Construction Stormwater
Emergency Management
Environmental Review
Feedlots
Hazardous Waste
Industrial Stormwater
Integrated Remediation
MS4
Multiple Activities
Petroleum Remediation, Contaminated Soil Treatment
Petroleum Remediation, Leak Site
RCRA Remediation
SSTS
Site Assessment
Solid Waste
Superfund
Underground Tanks
Wastewater
Impaired Streams
Impaired Lakes
NHD Waterbody
NHD Waterbody
NWI Wetland
Rivers and Streams
0
2,000
Feet
Source: Met. Council, City of Hopkins, Hennepin County, MnDOT, MnDNR

Land Cover

The following map shows a different way of classifying land: the Minnesota Land Cover Classification System (MLCCS). It classifies urban and built-up areas in terms of land cover rather than land use. It identifies the presence of built-up elements, vegetation patterns, and an area's imperviousness to water infiltration.

A substantial amount of the central part of Hopkins shows up as close to 100% impervious (dark gray/black on the accompanying map). This reflects the urban development patterns, particularly industrial sites with little or no landscaping. The resolution on this is not fine enough to capture small spots of pervious land, so many of the residential areas show up as largely impervious as well.

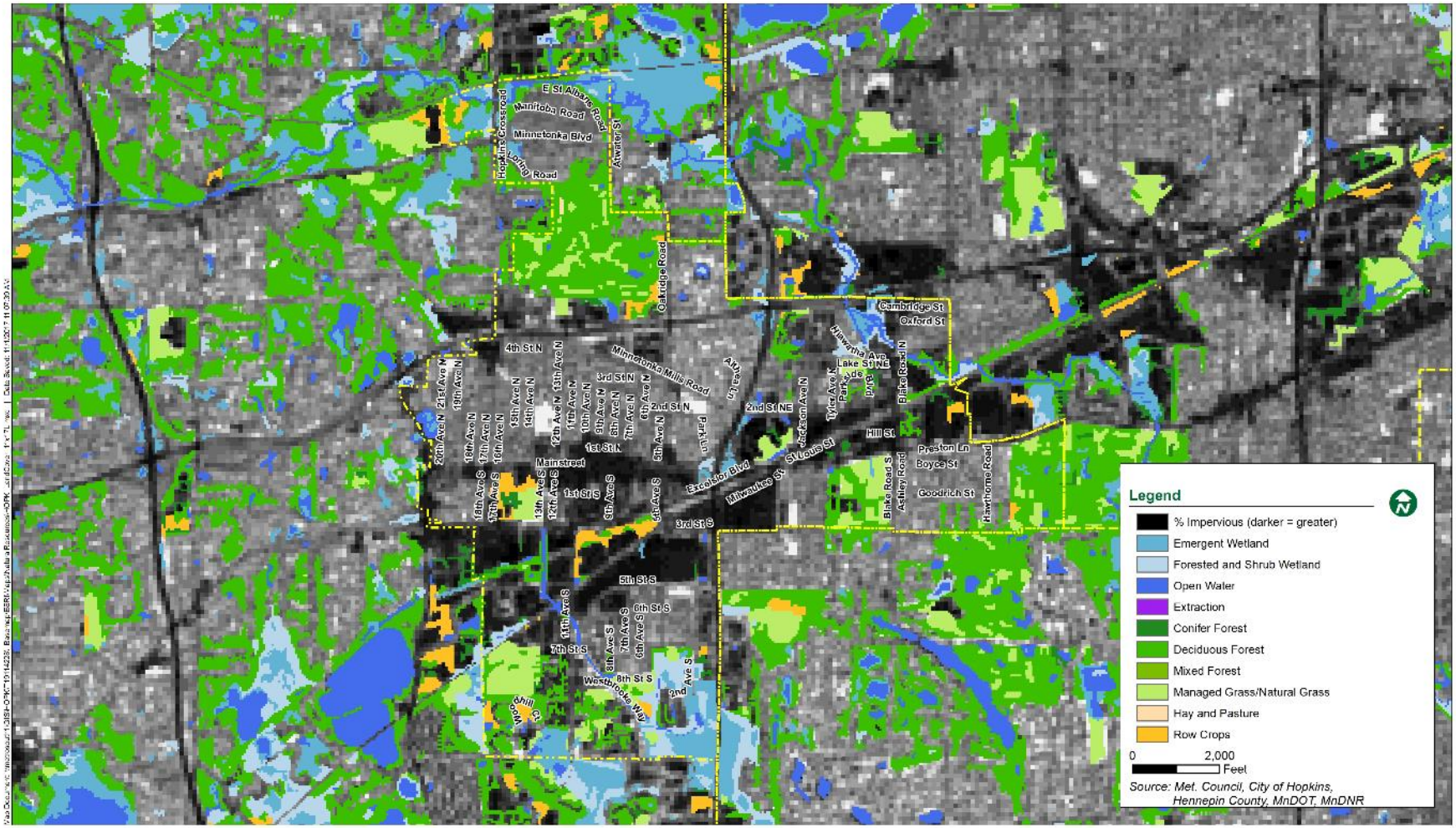
This is not unexpected in a developed urban area. But it does reflect places where there will be issues with stormwater infiltration – as well as other livability, habitat, and ecological effects of being in an area without much green space or vegetation. There may be opportunities to address this through policy, both in terms of development of private sites and acquisition/maintenance of public spaces.

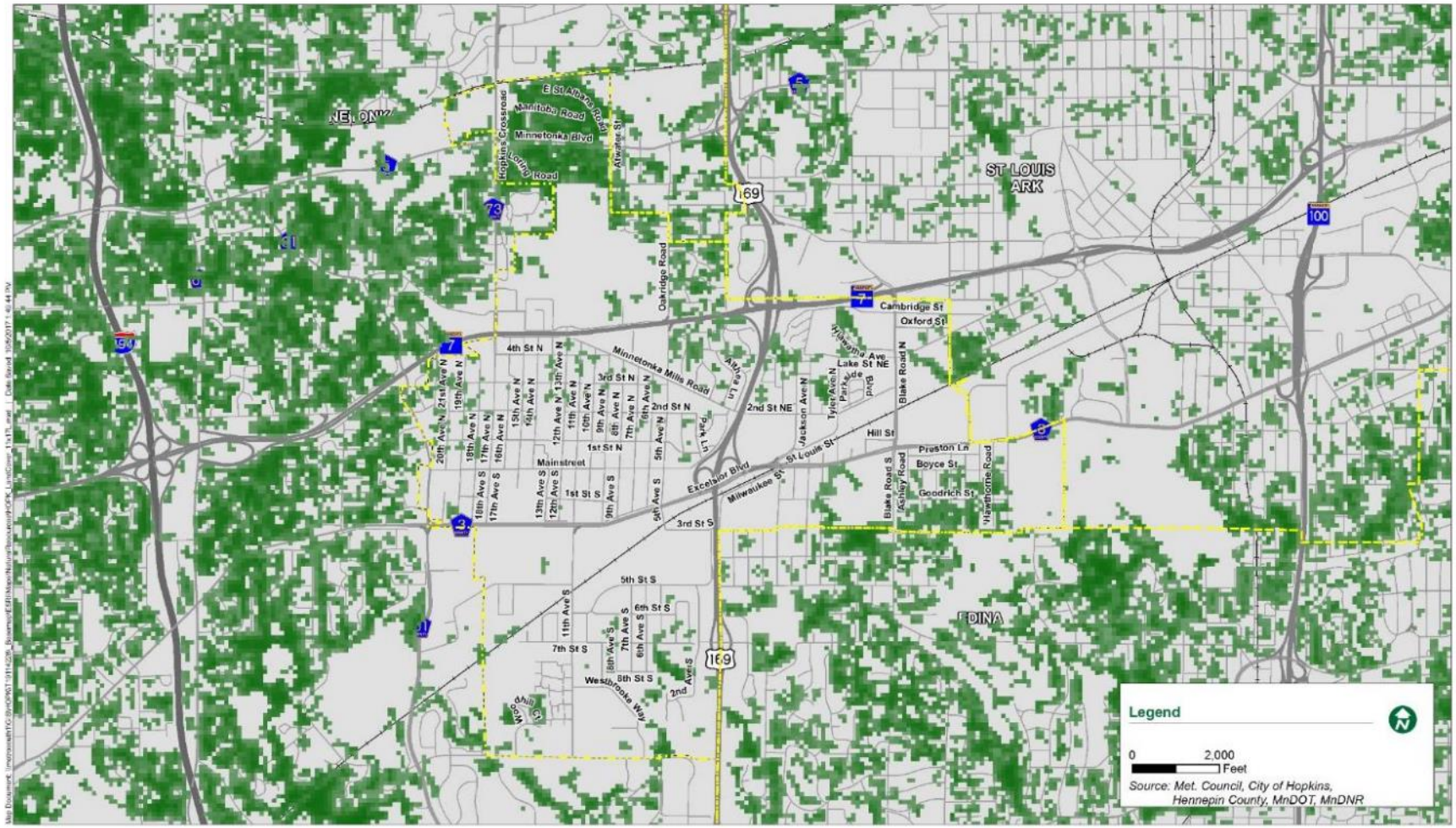
Tree Canopy

A similar map shows the urban tree canopy in Hopkins. It is worth noting that the resolution on this map is not fine-grained enough to reflect all the trees in the city, particularly in boulevard areas. However it does show a significant difference between neighborhoods, especially in contrast to neighboring communities such as Minnetonka and Edina.

There are many environmental benefits to maintaining an urban tree canopy, including improving air quality, serving as a natural air conditioner, facilitating water filtration and retention, and providing wildlife habitat. Studies have also shown that the presence of tree canopies adds value to neighborhoods, encourages active recreation, and even reduces stress.

While a more detailed accounting would be needed to look at the presence of trees citywide, there is basis for prioritizing the development and maintenance of a tree canopy, particularly in areas where it is currently lacking.


Legend
% Impervious (darker = greater)
Emergent Wetland
Forested and Shrub Wetland
Open Water
Extraction
Conifer Forest
Deciduous Forest
Mixed Forest
Managed Grass/Natural Grass
Hay and Pasture
Row Crops
0
2,000
Feet
Source: Met. Council, City of Hopkins, Hennepin County, MnDOT, MnDNR
Minnetonka Blvd
Minnetonka Mills Road
Oakridge Road
Mainstreet
Excelsior Blvd
Milwaukee St
St Louis St
Hill St
Lake St NE
Cambridge St
Oxford St
Preston Ln
Boyce St
Goodrich St
Hawthorne Road
Blake Road S
Ashley Road
Blake Road N
Hiawatha Ave
Tyler Ave N
Jackson Ave N
Park Ln
Manitoba Road
E St Albans Road
Atwater St
Hopkins Crossroad
Westbrook Way
Wood Hill Ct


ST LOUIS PARK
EDINA
Minnetonka Blvd
Manitoba Road
Hopkins Crossroad
Oakridge Road
Minnetonka Mills Road
Cambridge St
Oxford St
Lake St NE
Hill St
Preston Ln
Boyce St
Goodrich St
Hawthorne Road
Blake Road N
Blake Road S
Ashley Road
Jackson Ave N
Tyler Ave N
Parkside Blvd
Mainstreet
St Louis St
Milwaukee St
Excelsior Blvd
4th St N
3rd St N
2nd St N
1st St N
2nd St NE
1st St S
2nd St S
3rd St S
5th St S
6th St S
7th St S
8th St S
Westbrooke Way
Legend
0
2,000
Feet
Source: Met. Council, City of Hopkins, Hennepin County, MnDOT, MnDNR