



Addressing the Sustainability Gap in the Development Review Process

A guide for empowering environmental committees



Minnesota
GreenStep Cities

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GreenStep Cities Program by
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Overview

Purpose: The purpose of this guide is to empower environmental committees to be more effective at making their cities more sustainable, resilient, and equitable by advocating for an environmental focus throughout the city's development review process.

Several terms are in general usage for citizen groups that advise local governments on environmental matters (e.g., committee, commission, and green team). For simplicity, this report will use *environmental committee* as a generic term for all such groups.

Sections: The guide has 8 main sections:

1. **[Climate Change Future—A Call to Action](#):** makes the case that swift action is needed. Committee members can use the information, including climate change effects in Minnesota, to advocate for urgent change.
2. **[The Third “E” in Sustainability—Equity, and Climate Refugees](#):** addresses equity and environmental justice issues, and climate refugees.
3. **[Environmental Advocacy and the Development Review Process](#):** (*close the gap*) deals with how to translate the more general and aspirational language of a city's comprehensive plan into change on the ground using the city's ordinances, especially the zoning code. It also addresses the intersection of environmental degradation, housing segregation via zoning codes, and systemic racism.
4. **[Minnesota Programs for Local Governments](#):** (*what's going on*) summarizes state and local programs that can help a city establish and meet its sustainability goals.
5. **[Municipal Development Tools](#):** (*the tool box*) is the heart of the guide; a primer on the development tools cities use to ensure developments are consistent with their plans and codes.
6. **[Case Study—Site Plan for a Laundromat](#):** provides a case study evaluation (*where the rubber met the road*) of a site plan to build a self-service laundromat. The case serves as an excellent example of a city that was steadfast in enforcing an important city plan to improve the design even when the city's zoning code would have allowed the project as proposed.
7. **[Case Study—Environmental Review of a Shopping Center Expansion Project](#):** The case study evaluation demonstrates that the project as approved represented significant lost opportunities. The city not only ignored aspects of its own code, it squandered the chance to require a much better project, especially considering the city subsidy in the project. With relatively minor additional front-end costs, this project could have provided far greater, long-term, financial and environmental benefits.
8. **[Resources](#):** The Resources section at the end provides valuable links to a full range of information, including help on how to form and manage a committee for citizens of cities that lack an environmental committee.

SECTION SUMMARY

The guide has 8 main sections. The first two summarize why the guide is needed—the urgent need to address climate change, equity and environmental justice. The next three sections - the heart of the guide - describe the available tools and resources for making developments more sustainable. Two case studies provide specific examples and the last section includes 5 pages of additional resources.

THE ROLE OF THE ENVIRONMENTAL COMMITTEE

Environmental committee members are not expected to become experts in every field that affects the development review process (however, there is an encyclopedia of pertinent information available at their fingertips through the [MN GreenStep](#) program and many other sources). Rather, their role is to raise questions and demand answers as to why a large project doesn't maximize energy efficiency, minimize greenhouse gas emissions, protect the environment and natural resources, curb sprawl, protect living wage jobs, produce affordable housing, manage stormwater on site, etc.


We know what needs to be done; we know that it needs to be done yesterday; we know how to do it and how to pay for it; and we know that doing it will save money over the longer run. The only real barrier is commitment. That's where environmental committees can help. They can advocate for the courage to do the right thing.

Climate Change Future – A Call to Action

Climate change demands immediate, widespread action: Even though, for nearly a half century, the world has known about the existential crisis posed by climate change and the importance of the three “E’s” of sustainability (Environment, Energy, and Equity), few actions have had substantive effects. (For simplicity, when this report refers to *sustainability*, all three major aspects are implied.) After describing the most current list of climate change threats, Roy Stanton, the director of the Environmental Humanities Initiative at Notre Dame University, stated, “[W]e need to face the fact that the world we live in is changing into something else, and that coping with the consequences of global warming demands immediate, widespread, radical action.”^{1, 2}

A recent [article](#) by Michael Noble and Aimee Witteman argues that Minnesota should adopt more ambitious policies to address climate change:

“Gov. Tim Walz’s plan targeting 100 percent clean electricity by 2040 would help tackle climate change’s growing threat and accelerate our COVID-19 economic recovery. ... But new research and the state’s latest greenhouse gas inventory shows that ... we must be even bolder on climate action. A carbon-free electric grid is a critical but insufficient step... As long-time advocates for climate justice, we see Minnesota’s incredible opportunity to be America’s climate policy North Star by demonstrating smart climate policy that delivers lasting payoffs — a strong economy, good-paying jobs, and healthier communities. And new polling shows a majority of Minnesotans support ambitious climate action, specifically a national 100 percent clean electricity standard by 2035.”



“THIS IS ALL WRONG. I SHOULDN'T BE UP HERE. I SHOULD BE BACK IN SCHOOL ON THE OTHER SIDE OF THE OCEAN. YET YOU ALL COME TO US YOUNG PEOPLE FOR HOPE. HOW DARE YOU! YOU HAVE STOLEN MY DREAMS AND MY CHILDHOOD WITH YOUR EMPTY WORDS. AND YET I'M ONE OF THE LUCKY ONES. PEOPLE ARE SUFFERING. PEOPLE ARE DYING. ENTIRE ECOSYSTEMS ARE COLLAPSING. WE ARE IN THE BEGINNING OF A MASS EXTINCTION, AND ALL YOU CAN TALK ABOUT IS MONEY AND FAIRY TALES OF ETERNAL ECONOMIC GROWTH. HOW DARE YOU!”

STATEMENT BY CLIMATE ACTIVIST GRETA THUNBERG, 16, AT THE UNITED NATION'S CLIMATE ACTION SUMMIT IN NEW YORK CITY ON 9/23/19

¹ *I've Said Goodbye to Normal. You Should, Too*, Roy Scranton, *New York Times*, 1/25/21

² See also the United Nations [NDC Synthesis Report](#), 2/26/21

Thirteen years ago, Douglas Farr established the bottom line for new urban developments in his landmark textbook, *Sustainable Urbanism: Urban Design with Nature*: “It is no longer acceptable to build a high-performance building in a greenfield, automobile-dependent context and have it certified as ‘green.’ It is no longer good enough to develop in a responsible location and build an admirable, walkable, mixed-use neighborhood while ignoring the level of resources required to maintain the buildings there. The time for half measures has passed.”³

February of 2021 revealed the stark contrast between the country’s great technological success of landing the Perseverance Rover on Mars, with the help of the staff of NASA’s Johnson Space Center in Houston, while neighbors of the Center and millions of other people throughout Texas lost power, heat, and water because the power generating companies failed to weatherize their systems after the last time a polar vortex caused a cold snap in Texas.⁴ The Texas *supply* systems were not resilient; however, part of the problem was the high energy *demand*. This offers a clear alternative pathway. Minnesota can improve sustainability and resilience by building energy efficient buildings that minimize demand.

Climate change effects on Minnesota: To be effective, environmental committee members need to be aware how an altered climate will challenge their communities. The [NOAA National Centers for Environmental Information State Climate Summaries](#) analyzed Minnesota’s climate history and projected the following changes:



Increase in temperature, especially in winter: The NOAA states that “Since the year 2000, Minnesota has experienced 7 out of its 10 warmest years on record. This warming has been concentrated in the winter while summers have not warmed as much. ... Increases in the number of extremely hot days and decreases in the number of extremely cold days are projected to accompany the overall warming.” A study by the Union of Concerned Scientists states, “if no action is taken to reduce greenhouse gas emissions, the number of days in Minnesota with a heat index above 90 degrees could quadruple by around 2050, and that number could nearly double again by the century’s end.”⁵ According to the Minnesota Pollution Control Agency, “models project that the average temperature in the Twin Cities metro area will rise between 3° and 5° F through mid-century, with more high temperature days (days above 90° F).”⁶



Increase in precipitation and frequency of drought: The NOAA states that “Annual average precipitation is projected to increase, with increases most likely occurring in the winter and spring. ... Despite these increases in precipitation, it is possible that future droughts will be more intense because of higher temperatures, which will increase the rate of loss of soil moisture.”



Increase in extreme weather events: The NOAA states that “Between 2000 and 2012, extreme weather events (including extreme drought, summer heat waves, severe storms, heavy rain and flooding, and tornadoes) caused an estimated \$4.3 billion in damages to property. In general, thunderstorms cause more property damage than any other extreme weather type in Minnesota. ... Since 2000, the number of very heavy rains (6 inches or more in a day) have been 2-3 times more frequent than in the 20th century.”

³ *Sustainable Urbanism: Urban Design with Nature*, Douglas Farr, John Wiley & Sons, Inc., 2008, p. 41.

⁴ *In the shadow of its exceptionalism, America fails to invest in the basics*, Griff Witte, Abigail Hauslohner and Emily Wax-Thibodeaux, *Washington Post*, 3/13/21

⁵ Source: <https://www.ucsusa.org/resources/killer-heat-united-states-0>

⁶ Source: <https://www.pca.state.mn.us/air/effects-climate-change-minnesota>

The [Minnesota Department of Natural Resources](#) further confirms NOAA's dire information: "While Minnesota has gotten warmer and wetter since 1895, the most dramatic changes have come in the past several decades. ...[E]ach of the top-10 combined warmest and wettest years on record occurred between 1998 and 2017. Although climate conditions will vary from year to year, these increases are expected to continue through the 21st century... Heavy rains are now more common in Minnesota and more intense than at any time on record. ... Since 2000, Minnesota has seen a significant uptick in devastating, large-area extreme rainstorms as well. ... Climate projections indicate these big rains will continue increasing into the future... Most of Minnesota's observed warming has been when it's coolest. Since 1970, winter has warmed 13 times faster than summer, and nights have warmed 55% faster than days. ... We don't get as cold as we once did, and even though Minnesota always will see periodic severe cold spells, the long-term decline in cold extremes is all but guaranteed to continue."

The [Resources section](#) contains numerous references to data, such as the Minnesota Environmental Quality Board's report, [Integrating Climate Information into MEPA Program Requirements](#).

State and local governments are responding, and so should your city: Minnesota and many local governments have taken important steps, developed climate action plans, and made policy and regulatory changes in response to climate change – see the [Minnesota Sustainability Searcher](#). Environmental committee members should be aware of what is being done in Minnesota in order to help steer their communities and decision makers towards greater sustainability, resilience, and equity. In particular, over 140 city councils in the state have joined the [MN GreenStep Cities](#) program where you can read sustainability plans and city accomplishments.

The following summarizes some examples (find more in the [Resources section](#)).

- State of Minnesota:** The Next Generation Energy Act of 2007 aims for an 80% reduction of greenhouse gas emissions by the year 2050, across the state. The State is not on track to meet the goals [according to the Minnesota Pollution Control Agency](#) (MPCA) (Figure 1). However, in 2019, Governor Walz signed the [Climate Change Executive Order](#) (19-37) that formed the Climate Change Subcabinet and Governor's Advisory Council, who are together working to adopt a Climate Change Framework.

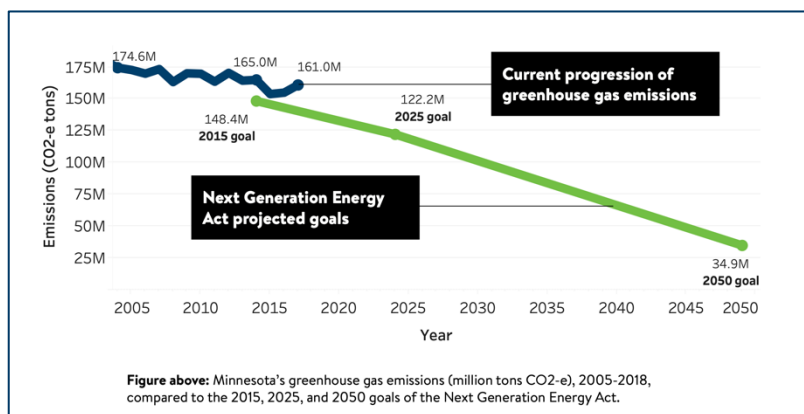


Figure 1: Source: [Greenhouse Gas Emissions Inventory: 2005 to 2018](#), MPCA, 2021

- Climate Action Plan of the Minnesota House Climate Action Caucus:** Meanwhile a number of legislators and leaders are calling for the state's reduction goal to be changed to 100% reduction of greenhouse gas emissions by 2050. The Minnesota House Climate Action Caucus has adopted a [Climate Action Plan](#) with the primary goal of achieving a 45% reduction in greenhouse gas emissions by 2030, which would put Minnesota on the path to be carbon-free by 2050. In addition, the plan aims to help communities adapt to changes that are already occurring and build climate resilience across the state.
- Climate Adaptation Strategies:** An interagency climate adaptation team made up of State of Minnesota agencies published [Adapting to Climate Change in Minnesota 2017 Report](#). Individual state agencies are also initiating climate adaptation strategies, such as the [2020 MPCA Climate Risk Assessment Summary](#)

[Report](#). Furthermore, a number of Minnesota communities have completed vulnerable population assessments and climate adaptation plans, as you can see in the [Minnesota Sustainability Searcher](#).

- **GreenStep Cities and Tribal Nations reports:** Over 140 participating cities and tribal nations include action reports related to climate and energy planning and implementation on the GreenStep Cities website (see “Who’s Doing It” under individual [Best Practices](#) or visit [individual city/tribal pages](#). For additional climate-related best practice actions and action reports, see the [climate action filters](#).)
- **Sustainable Cities Case Study Database:** The Minnesota LoGPEP [Sustainable Cities Case Study Database](#) (2018) includes information regarding sustainability activities and noteworthy strategies implemented by 20 cities to achieve greenhouse gas and energy reductions.
- **Measuring carbon and adopting reduction plans and goals:** The state, as well as many local governments and businesses, have prepared greenhouse gas (GHG)⁷ assessments in order to measure emissions as a first step towards establishing reduction plans and goals. See the Climate and Energy Inventory for local, regional, and tribal examples. Tools like the [Regional Indicators Initiative](#) and the [Metropolitan Council’s Greenhouse Gas Inventory](#) can assist communities with community-wide GHG emission assessments.
- **Pricing carbon:** The economic and environmental costs of carbon emissions are increasingly affecting development decisions at the federal, state, and local levels. For example, [The Washington Post](#) reported (2/26/21) that, “New York state adopted a [value of carbon dioxide guidance](#) ranging between \$79 and \$125 that it will apply to policies and programs going forward. Colorado, Minnesota and Virginia require regulators to factor in the cost of climate damages when evaluating new power generation applications.” The article also reported that the City of Minneapolis has imposed an estimate for the costs of climate change at \$42 per ton of carbon dioxide.
- **Example actions at the local level:**
 - **Burnsville:** The City of Burnsville has prepared and updated both citywide and city operations GHG assessments for more than a decade; it is meticulous in updating energy and cost data for large city facilities through the state’s B3 Program (see the description of the program [below](#)); it has been implementing its [Sustainability Guide Plan](#) since 2009; and it has achieved [Step 5](#) in the GreenStep Cities program. Also, the city’s [Grow Burnsville](#) program addresses food inequality by supporting community gardens, organics recycling, creating a “food forest,” and providing “garden at home” kits.
 - **St. Louis Park:** The City of St. Louis Park has adopted a [Climate Action Plan](#) (2018) and a goal of achieving carbon neutrality by 2040. A new city [ordinance](#) requires commercial, multifamily, and public buildings larger than 25,000 square feet to report their energy and water use annually. According to a study by the American Council for an Energy Efficient Economy, [Small but Mighty: How Three Small Cities are Saving Energy and Embracing Renewables](#), “St. Louis Park is one of more than 30 cities that have adopted building energy benchmarking policies. The city’s [Green Building Policy](#) also sets energy-efficient construction requirements, including building to LEED

⁷ Greenhouse gas (GHG) emissions offer a unique way to compare the effectiveness of various energy and sustainability choices and their related costs. GHG emissions serve as a common denominator for the comparison of kilowatts, natural gas therms, and gallons of vehicular fuels consumed; vehicle and air miles traveled; tons of municipal solid waste processed; gallons of sanitary sewage treated; and gallons of potable water produced. As described by Osborne and Gaebler in their book, *Reinventing Government* (1992), “If you don’t measure results, you can’t tell success from failure. If you cannot see success, you cannot reward it. If you can’t see failure, you can’t correct it.”

- specification, and guides code compliance strategies for municipal, commercial, and multifamily buildings.” The City also has a cost-sharing program for solar installations.
- **Morris Model:** “The [Morris Model](#) is an award winning group made up of partner organizations working together towards a shared vision of advancing a sustainable community in Morris, Minnesota and West-Central Minnesota. Morris is already a model community and strives to become even more of a model through our local, state, and global relationships. The Morris Model focuses its work on energy conservation, clean energy, community resilience, cultural exchange, and celebration with specific goal areas within clean and efficient energy, transportation, waste reduction and recycling, and education.”

ENVIRONMENTAL COMMITTEES CAN HELP PREPARE AND RESPOND TO CLIMATE CHANGE

“[C]oping with the consequences of global warming demands immediate, widespread, radical action” (Roy Stanton). “The time for half measures has passed” (Douglass Farr). Environmental committee members should be aware of what is being done in Minnesota and elsewhere in order to help steer their communities and decision makers towards greater sustainability and resilience.

The Third “E” in Sustainability—Equity, and Climate Refugees

The national picture: For too long, the third “E” in sustainability—equity—has not garnered the attention it warrants. An [article in the New York Times](#) (3/14/21) states that, “Rising inequality and stagnant incomes over much of the past two decades left a growing share of Americans—of all races, in conservative states and liberal ones, in inner cities and small towns—concerned about making ends meet.” In 2018, prior to the COVID-19 pandemic crisis, 11% percent of American households were food insecure according to an [article from Brookings](#) (5/6/20). But during the pandemic, overall rates “effectively doubled.” Food insecurity, like economic and social inequity, affect people of color disproportionately. According to historian, [Heather Cox Richardson](#) (3/6/21), “By the end of 2020, more than 83 million Americans were having trouble meeting bills or buying food, and by January 2021, 30 to 40 million Americans were at risk of eviction because they could not make their rent payments. This crisis hit women and people of color the hardest because they tend to work in face-to-face jobs, which did not translate to remote work, and because the loss of childcare drove women out of the workforce. Thirty-nine percent of low-income households saw job losses early in the pandemic.”

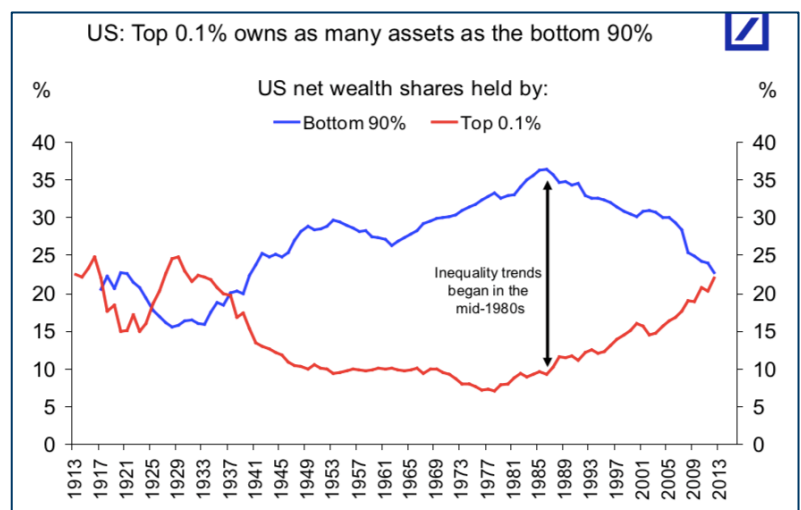


Figure 2 - Source: Paul Krugman from [World Inequality Database](#)

Economic inequity: A recent [article by Richard D. Wolff](#) (1/29/21), professor of economics emeritus at the University of Massachusetts, Amherst, summarizes the country’s growing economic inequity. For the 10% of

Americans who own 80% of stocks, the stock market grew by more than 3 times over the past 10 years. “In contrast, the real median weekly wage rose barely over 10 percent across the same 10-year period. The real federal minimum wage fell as inflation diminished its nominal \$7.25 per hour rate, which has been officially fixed and kept at that rate since 2009. All the other relevant metrics likewise show that economic inequality in the United States kept worsening across the last half-century. ... Much of the temporary U.S. middle class is now gone; the rest is fading fast. Over the last half-century, U.S. capitalism brought inequality to the extremes surrounding us now.”

Nobel Laureate economist, Paul Krugman, illustrates (Figure 2) the current extremes of wealth inequality. Change began in the mid-1980s and, as of 2013, the top 0.1% of households had as much wealth as the bottom 90%—and the trend no doubt has gotten even worse since then.



A BILLION DOLLARS: IF YOU LINED AN IMAGINARY ROAD WITH A BILLION ONE-DOLLAR BILLS, IT WOULD WRAP AROUND THE WORLD ALMOST FOUR TIMES (94,700 MILES LONG). IF YOU DROVE THIS IMAGINARY ROAD AT 55 MPH FOR THE AVERAGE WORK WEEK OF 40 HOURS, IT WOULD TAKE YOU OVER 7 MONTHS.

The state level: Minnesota Governor Tim Walz created the [Climate Change Subcabinet](#) in 2019 to report how the state’s various agencies are addressing climate issues—including by building equity and environmental justice into their work. The intent is for state agencies to “consider equity in our response to climate change in order to respond effectively to community needs and reduce existing disparities.” For example, the Minnesota Pollution Control Agency’s [Environmental Justice Policy](#) states that it “will, within its authority, strive for the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.”

The Twin Cities region: The Metropolitan Council’s [Thrive MSP 2040](#) plan states that, “Equity is crucial in climate change mitigation to address and eliminate the environmental disparities experienced by low-income communities, immigrant communities, and communities of color. The Metropolitan Council is devoted to centering our research towards climate change mitigation around racial and economic equity. Despite these communities producing significantly lower rates of greenhouse gas emissions, they might be disproportionately affected by climate change. Thus, environmental justice must include principles to end environmental racism and foster Indigenous autonomy and immigrant rights.”

Action at the local governmental level: More than 92% of Minnesotans live in cities and towns,⁸ and according to a recent study, cities are the source for nearly three-quarters of the carbon dioxide generated from fossil fuels.⁹ Clearly, action at the local governmental level is the best way to mitigate climate change, enhance sustainability and resiliency, and improve environmental justice. This includes targeting investments of scarce public subsidies for developments (loans and grants, tax increment financing, waived or deferred property taxes, condemnation assistance, etc.), and requiring developers to pay living wages for the construction of publicly subsidized projects. The MPCA provides a [map of Areas of Environmental Justice Concern](#). It shows tribal areas and census tracts with higher concentrations of low-income residents, people of color, and federally recognized

⁸ Source: [Minnesota State Demographic Center](#), downloaded 1/12/21

⁹ [Under-reporting of greenhouse gas emissions in U.S. cities](#), Kevin Robert Gurney et al., *Nature Communications*, 2/2/21

tribal areas. Learn more about equity-related Best Practice Actions under [GreenStep Cities BP 24](#) and throughout all best practices.

Climate refugees: According to the [Climate Refugees](#) website, “Every day vulnerable people are forcibly displaced due to impacts generated by climate change. This isn’t something that *will* happen, this is something happening *now*. ... Climate change can also serve as a 'threat multiplier' by exacerbating existing risks and creating new ones like food and water insecurity and competition over resources, which contribute to conflict and compound displacement.”

Although the issue of millions of climate refugees is primarily a national and global concern and an equity concern, there are repercussions for Minnesota too. While some people may consider climate change a benefit to Minnesota’s cooler climate, areas of the state may experience ongoing and permanent change that encourages climate refugees within our own region. On the other hand, Minnesota’s climate may fare better overall compared to other parts of the US and globe, resulting in additional climate refugees moving here. A [New York Times article](#) (4/15/19) points out that, “As the West burns, the South swelters and the East floods, some Americans are starting to reconsider where they choose to live.” The article cites the recommendation from Jesse Keenan, a lecturer at the Harvard University Graduate School of Design: move to “climate-proof-Duluth” (although, even Duluth has been hit by increased rainfall-induced flooding and damage from large Lake Superior waves). Immigration and refugee pressures at the country’s southern border will only increase with climate change and add more incentives for northward migrations. This will impact local projections for population and employment, and for the demand for housing, public transportation, and social services.

ENVIRONMENTAL COMMITTEES SHOULD CONSIDER EQUITY

The third “E” in sustainability—equity—includes concerns about rising inequality through lowered incomes and wealth; increased bias against black, indigenous, and people of color as well as other social and cultural identifications; and the growing number of climate refugees.

Environmental Advocacy and the Development Review Process

Closing the sustainability advocacy gap: The comprehensive plans of many if not most Minnesota cities address sustainability issues to some degree. While some city elected officials and staff are working hard to address sustainability now, there is so much more that must be done. This is where a city’s environmental committee can help.

As mentioned above, the purpose of this guide is to help and embolden environmental committees so they can make their cities more sustainable and resilient by advocating for an environmental focus throughout their cities’ development review processes. This is where the proverbial “rubber meets the road;” where a city’s zoning code and other ordinances translate the city’s longer-range, more general and aspirational policies and plans into concrete, steel, and (hopefully) sustainable design.

An iterative process should evolve where the members of the committee and city staff collaborate as regards their individual areas of expertise, which then results in recommendations from the committee and the staff

reports on development projects that will be consistent and mutually supportive of one another. Committee recommendations can provide cover for staff and decision makers to boldly implement the city's environmental goals.

It is very important that committees recruit members with the needed expertise. Also, members play a role in educating community residents and businesses in order to foster public support for development decisions that are consistent with environmental plans and policies.

Future trends and development opportunities: Cities constantly expand, contract, and redevelop. Every new project is a crucial opportunity to improve a city's sustainability and resilience as it adapts to the existential threats of climate change and the long-overdue demands for economic and environmental justice.

The following describes some of the consequences from the COVID-19 pandemic and changes in the climate, technology, and the economy:

- **Excess retail space:** The historic overbuilding of retail commercial uses in combination with the constant growth of on-line purchasing and shrinking disposable income for much of the working class and middle class have expanded opportunities for redeveloping and repurposing large numbers of vacated properties in commercial districts. Replacement developments can include businesses known as *third places*, which are locations outside of home (first place) and work (second place) and open to the public where people informally gather on a regular basis. These *place-building* and *community-building* amenities are not auto-oriented, but are crucial for a vibrant neighborhood. Examples include public libraries, bookstores, churches, cafes, clubs, as well as parks. Reduced retail demand may affect auto-oriented centers near highways too. The GreenStep Cities program includes efficiency principles for commercial development and design standards for auto-oriented development corridors and clusters (refer to [BP 9](#), and to [Ten Principles for Rethinking the Mall](#), Urban Land Institute, 2006.) Additionally, large retail spaces or malls could be repurposed as homeless shelters.
- **Remote employment:** The COVID-19 pandemic greatly accelerated the already growing trend of telecommuting. According to the [U.S. Bureau of Labor Statistics](#), more than a third of today's jobs can be done remotely. This trend will affect office space in cities as well as the supportive retail and service businesses, transit, and parking. The past decade of re-urbanization may be slowed or reversed as the increasing number of remote workers and those in the *gig economy* seek more affordable housing in distant suburbs and rural areas. However, [Paul Krugman](#), tempers these predictions, stating that "the best bet is that life and work in, say, 2023 will look a lot like life and work in [pre-pandemic] 2019, but a bit less so. We may commute to the office less than we used to; there may well be a glut of urban office space. But most of us won't be able to stay very far from the madding crowd."
- **Reduced commuting demands:** The increase in remote workers reduces commuting demands. At question is whether the social-distancing requirements of the COVID-19 pandemic will be more

THE TOP-DOWN AND BOTTOM-UP APPROACH

The intent of this guide is not to replace or duplicate the *top-down* roles of the city's planning commission, elected officials, or city staff, but rather to complement them. Environmental committee members will only be able to fulfill their *bottom-up* role with the help and support from the city planners, engineers, finance specialists, attorneys, and other experts involved with the city's development review process.



permanent and thus make mass transit less desirable, especially given the alternative of the rising use of ride-hailing services and alternative modes including *micro-mobility* devices (e.g., shared bikes and battery-assisted bicycles, scooters, and skateboards). In addition, cities could consider narrower or fewer roads altogether. See GreenStep Cities best practice actions for additional guidance on mobility options ([BP 12](#)), Complete Streets ([BP 11](#)), and Demand-side Travel Planning ([BPA 14](#)).

- **Fewer parking spaces needed:** The [Resources section](#) provides links to two webinars by author, Tony Seba, in which he predicts that profound changes in the energy and transportation industries over the next 10 years will free up 80% of the demand for parking in central cities due primarily to telecommuting, remote learning, autonomous vehicles that need essentially no parking spaces, and a major shift from vehicle ownership to transportation access via ride sharing. This will happen, he predicts, due to the market, not regulation, because it is inherently less expensive. The trend is clear even if one questions the speed of the predicted change. All of this will lead to a decreased demand on parking spaces (in lots, parking structures, and along streets) in commercial and downtown areas. See GreenStep Cities best practice actions for additional guidance on mobility options ([BP 12](#)), Complete Streets ([BP11](#)), and parking ([BPA 14.1](#)).
- **Employment changes:** The [New York Times](#) (2/22/21) reported a prediction by the U.S. Bureau of Labor Statistics regarding occupations in 2029. The Bureau predicts more remote work and higher demand for technology services, less in-person entertainment and travel, and more investment in public health.
- **Transition to electrified transportation:** What's left of the transportation sector will quickly convert to electric options; both individually and through public transportation. Developers and planners should consider how our public lots, streets, and private single- and multi-family homes and businesses are supporting the infrastructure needs for this change to occur. All major construction projects should integrate on-site solar generation and storage, with the needed conduit and space for charging electric vehicles serving as part of the energy storage system. See GreenStep Cities best practice actions for additional guidance on efficient city fleets ([BP13](#)) and publicly available charging infrastructure ([BPA 23.5](#)).
- **Mixed-use and mixed-income development:** Rather than continue the century-old pattern of strict segregation of uses, more cities are encouraging vertical and horizontal, mixed-use development to rejuvenate their commercial areas (typically commercial and office on the first floor and medium-density residential above and behind). Mixed-income residential is important to provide housing that is more marketable to the growing senior population and more affordable as the costs of climate change exact disproportionate costs on those with low and modest incomes. See GreenStep Cities best practice actions for additional guidance on resilient city growth ([BP 7](#)) and Mixed Uses ([BP 8](#)).¹⁰

¹⁰ An excellent resource regarding affordable housing is the [Greater Minnesota Housing Fund](#): From the website: "GMHF staff help lead on key housing issues such as ending homelessness, fostering the development of green housing, preparing emerging market households for homeownership, and preserving naturally occurring affordable housing at risk of becoming market-rate. Since 1996 GMHF has developed programs like Building Better Neighborhoods to bring compact development designs to suburban and rural settings, and worked to involve employers in the creation of affordable housing in their communities through the Employer-Assisted Housing program. GMHF works with its partner organizations to develop innovative programs like Minnesota Green Communities to develop and apply energy-efficient standards to all new multifamily developments, and Minnesota Preservation Plus to prevent the loss of Minnesota's affordable rental housing stock."

The intersection of environmental degradation, housing segregation via zoning, and systemic racism:

Some cities are faced with historic inequalities through a practice known as [redlining](#) (or [racial covenants](#)), which led to years of housing segregation and long-lasting neighborhood effects. One example explains why necessary, but also polluting, uses (i.e. heavy industrial) are often co-located within poor and minority neighborhoods. The University of Minnesota [Mapping Prejudice](#) site is useful in visualizing the hidden histories of race and privilege in the built environment.¹¹ See the [Resources section](#) for more on racial and economic segregation via restrictive zoning.

In his analysis for the Century Foundation, [How Minneapolis Ended Single-Family Zoning](#), Richard D. Kahlenberg details how single-family zoning is an insidious form of racial and economic segregation: “Single-family zoning policies have always had a disturbing origin. In 1917, after the U.S. Supreme Court struck down policies that explicitly zoned separate residential areas for blacks and whites, many local governments shifted to a new form of exclusionary zoning: policies that made it illegal to build anything other than single-family homes. These policies delivered many of the same results, by a different means—they kept out most black people, and virtually all low-income people—but the Supreme Court upheld this new practice as legal.”

The article also describes how the City of Minneapolis was able to adopt goals and policies in its comprehensive plan, the [Minneapolis 2040 Plan](#), to increase the supply of housing and its diversity of types and location, and then to amend its zoning code to implement those policies. The [Zoning Code](#) changes allowed two- and three-unit buildings in the residential districts that formerly permitted only single-family or duplex residences.

City code requirements for excessive residential parking and prohibitions against manufactured or pre-fab housing drive up costs and make the production of affordable housing more difficult.

Sustainability goals and the development dilemma: City decision makers experience intense pressures from multiple directions. Cities compete for the tax base, services, businesses, housing, industries, and jobs that new developments promise. Residents, neighborhood groups, and other interests can also exert pressure often from a narrow [NIMBY](#) (not in my back yard) perspective.

Developers’ interests are primarily financial, and often at odds with the city’s sustainability goals. Developers want clear and consistent rules. They want to know that everyone will get the same fair treatment, and they are experts at building economically successful projects no matter whether they are at the low end or the high end of the quality spectrum. Developers need to complete projects

COUNTER-BALANCING GOALS AND CITY CODES

Since the zoning codes in most cities often lag behind the city’s more recently established sustainability goals, it’s an uphill battle to make projects more consistent with those goals.



Source: [u/peternjuhl](https://www.peternjuhl.com/)

¹¹ A well-known case of official racism built into concrete and stone is the assertion in Robert A. Caro’s Pulitzer-winning biography about Robert Moses, *The Power Broker*. Moses was known as the *Master Builder* of New York City and the surrounding areas from 1924-75. According to Caro, Moses ordered his engineers to build the bridges on the parkways that connected New York City to the beaches on Long Island low enough to keep buses from the city away from Jones Beach—buses presumably filled with the poor blacks and Puerto Ricans that Caro claimed Moses despised.

efficiently and earn a relatively quick return on their investment so that they can invest in their next project.

Even though most measures that improve a project's environmental impact also save energy and money over the long run, the project applicant will have to absorb the initial construction costs associated with energy efficiency measures (e.g., additional insulation and ventilation for the building envelop), yet reap none of the long-term benefits (reduced energy costs for the building's users). If a project meets the minimums in the code, developers can refuse to improve it, and city attorneys will often back them up.

An environmental committee can help counterbalance these pressures on city staff, planning commissioners, and elected officials by advocating for project designs that are more in concert with the city's sustainability goals. Committees can also advocate for their city codes to be more in line with the city's environmental goals. A strong code makes the responsibilities of decision-making and enforcement much easier for all concerned. Being able to decisively tell a developer "it's the law" is a powerful enforcement tool. Refer to the description of the legality for a city to place conditions on a project beyond what is required in its ordinances in [Section 5](#).

ENVIRONMENTAL COMMITTEES LEAD BY EXAMPLE

Current trends affect future developments (e.g., excess retail, remote employment, electrified transportation, mixed-use and mixed-income developments, etc.). Environmental committees can help counterbalance status-quo pressures by advocating for project designs that are more in concert with the city's sustainability goals. This is where the proverbial "rubber meets the road;" where a city's zoning code and other ordinances translate the city's longer-range, more general, more aspirational policies and plans into concrete, steel, and (hopefully) sustainable design. Cities must lead by example.

Minnesota Programs for Local Governments

Minnesotans are very fortunate to have state and local governments that are committed to our environment and social equity. There are many extremely valuable programs to help cities improve sustainability, resilience, and equity. Project participation in these programs can also enhance a city's development review process.

The following briefly describes numerous free, public programs, the membership-based ClearPath program, and the fee-based LEED and PHIUS programs. However, there are many more resources including resources that address equity and environmental justice (refer to the [Resources section](#)). To summarize current conditions: We know what needs to be done and how to do it, and, in most cases, we have the resources and finances to accomplish what's necessary. What is lacking most often is commitment. Again, this is where an environmental committee can help move its city forward.

- **GreenStep Cities program:** The [MN GreenStep Cities](#) program is a voluntary, action-oriented program that offers an encyclopedic collection of best practices, links to additional tools and resources, access to free expert advisors, and constantly updated action

DISCLOSING PROGRAM PARTICIPATION

The staff reports for a proposal should disclose whether the project includes participation in any of these programs and also all programs that could be applicable but are not being utilized. Staff should make this information available to environmental committees early in the development review process. Environmental committees can help prioritize actions by advocating for the use of these programs to remedy any sustainability gaps.

reports from peer communities. The goal is to help cities identify and achieve sustainability and quality-of-life goals, and adapt to our rapidly changing climate. The GreenStep Cities program can help a participating city with these actions by progressing through the program's 5 Steps. The environmental committee for a non-participating city can still utilize the tremendous resources in the program. Explore the [180 Best Practice Actions](#) or [filter by a specific topic](#).

- **Sustainable building programs:**

- **Buildings, Benchmarks, and Beyond (B3 Benchmarking):** Local governments that participate in the state's [B3 program](#) load basic building and meter information from their larger public facilities into the program's free online tool. The program output calculates and graphs energy consumption and costs, and carbon emissions; benchmarks the results against similar facilities throughout the state; and summarizes the results in easily digestible monthly and annual reports. See GreenStep Cities [BPA 1.1](#).
- **B3 Sustainable Building 2030 Energy Standards (SB 2030):** The [SB 2030 Energy Standard](#) is a progressive, energy conservation program designed to significantly reduce the energy consumption and carbon emissions from public/private commercial, institutional, and industrial buildings. Implementation results in buildings that achieve an energy and carbon reduction of 70% compared to representative buildings in existence in 2003. See GreenStep Cities [BP 3](#).
- **Leadership in Energy and Environmental Design (LEED):** According to the U.S. Green Building Council's [LEED program](#) website, "LEED is the most widely used green building rating system in the world. ... LEED provides a framework for healthy, highly efficient, and cost-saving green buildings. LEED certification is a globally recognized symbol of sustainability achievement and leadership." See GreenStep Cities [BP 3](#).
- **Human health and wellbeing building standards:** The [WELL Building Standard](#) is a performance-based system for measuring, certifying, and monitoring features of the built environment that impact human health and well-being, through air, water, nourishment, light, fitness, comfort, and mind. [Fitwel](#), created by the U.S. Center for Disease Control and Prevention (CDC), is a related standard designed for commercial interiors and multi-tenant and single-tenant buildings. Fitwel has 12 sections: location, building access, outdoor spaces, entrances and ground floor, stairwells, indoor environment, workspaces, shared spaces, water supply, cafeterias and prepared food retail, vending machines and snack bars, and emergency procedures.
- **Passive House Institute US, Inc. (PHIUS):** According to this fee-based certification program's web site, PHIUS is a non-profit organization "committed to making high-performance passive building the mainstream market standard. ... Buildings that meet the PHIUS+ standard use 40-60 percent less energy for space conditioning than conventional buildings. PHIUS+ buildings provide superior indoor air quality, resilience during power outages, and an extremely quiet, comfortable indoor environment."
- See [additional green building and energy frameworks](#).

- **Sustainable development programs:**

- **LEED Neighborhood Development and LEED Cities and Communities:** The LEED program includes [LEED Neighborhood Development](#), which addresses sustainable design at the neighborhood level, and [LEED for Cities and Communities](#), which helps local leaders create responsible and sustainable plans that contribute to quality of life. The first LEED Neighborhood

Development project to be certified was the Excelsior and Grand project in St. Louis Park.¹² See GreenStep Cities [BPA 7.5](#).

- **EcoDistricts certification:** [EcoDistricts](#) strive toward the aggressive energy, water, and vehicle emissions targets called for by [Architecture 2030](#). The [EcoDistricts Protocol](#) is a process-based framework and certification standard that empowers equitable, resilient, sustainable neighborhoods and districts for all. It places race, equity, and social inclusion issues on an equal footing with physical development project management. See GreenStep Cities [BPA 28.4](#).
- **Local Planning Handbook:** The Metropolitan Council's [Local Planning Handbook](#) provides tools to update city comprehensive plans by including sustainability.
- **Energy efficiency and clean energy programs:**
 - **Guaranteed Energy Savings Program (GESP):** The goal of the Minnesota Department of Commerce's [GESP](#) is to promote awareness and implementation of energy efficient and renewable energy measures in public facilities that result in energy savings while creating jobs, reducing energy consumption, improving facility infrastructure, and reducing carbon emissions. See GreenStep Cities BPAs [1.3](#) and [26.5](#).
 - **Property Assessed Clean Energy (PACE) program:** [PACE](#) is a way to finance energy efficiency and renewable energy projects for the property owners of new or existing commercial, industrial, nonprofit, and multi-housing buildings. See GreenStep Cities [BPA 26.3](#).
 - **Minnesota Local Government Project for Energy Planning (LoGoPEP) program:** [LoGoPEP](#) 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. See GreenStep Cities [BPA 6.5](#).
 - **Xcel Energy - Partners in Energy:** For cities located in Xcel Energy territory, the [Partners in Energy](#) program provides communities with clean energy planning support. See GreenStep Cities [BPA 6.5](#).
- **Greenhouse gas emission measurement:**
 - **Community-wide greenhouse gas emissions assessments:** The [Regional Indicators Initiative](#) provides multi-year, community-wide assessments of the greenhouse gas emissions from energy use and total vehicle miles traveled as well as community-wide water consumption (in parts or complete for 100 cities in the state). The Metropolitan Council's [Twin Cities GHG Inventory](#) provides updated greenhouse gas emissions data for cities in the region (under development at this writing).
 - **City operations greenhouse gas emission assessments:** The [GreenStep Cities Step 4/5](#) metric reporting tool (and supplemental Climate Metric Tracker) provides a simple calculator for assessing city operations emissions from energy consumption, water production, official travel, and solid waste management.
 - **ICLEI Clear Path:** The International Council on Local Environmental Initiatives (ICLEI) has long been the international standard for completing greenhouse gas inventories, forecasts, climate action plans, and monitoring at the community-wide or government-operations scales. The [Clear Path](#) program is available to cities that maintain membership with the organization. However, [ICLEI's greenhouse gas assessment protocols](#) are free.

¹² According to Richard Carter, architect and Senior Vice President at LHB, and President of the Minnesota Chapter the USGBC's LEED Program, cities should require all larger developments to conform at least to the LEED Shell and Core standards. The energy efficiency payback period is less than two years.

- **Greenhouse gas emission reduction methodologies:** The Science Based Target Network’s [Guide for Cities](#) explains various GHG reduction methodologies that are used in cities across the globe.

Municipal Development Tools

Successful advocacy requires familiarity with the tools a city uses to shape its future and regulate development. The League of Minnesota Cities [Zoning Guide for Cities](#) describes these tools and how they are interrelated:

The comprehensive plan embodies a city’s vision for the future, including its aspirations and plans for future development that may not appear for many years to come. Once a city adopts a comprehensive plan, it needs a means of attaining the development goals stated in the plan. Zoning provides a means for implementing a comprehensive plan. In cities subject to the Metropolitan Planning Act, zoning directives must harmonize with and not contradict a city’s comprehensive plan.

It is important to emphasize that zoning merely represents one of the tools available to a city to assist implementing a comprehensive plan. A city also may use its subdivision ordinance, building and housing codes, nuisance ordinance, capital improvement programs and official map in conjunction with its zoning ordinance to achieve its goal of orderly development (p. 4).

COMPATIBILITY

City zoning should “harmonize with and not contradict a city’s comprehensive plan.”

Source: LMC [Zoning Guide for Cities](#), 2020; pg. 4



Larger developments usually require state and/or federal environmental review¹³ and land use permits beyond a basic construction permit for a permitted use. Special permits include conditional use permit (CUP), site plan review, zoning variance, planned unit development (PUD), and others. The city’s development review process is intended to assure that projects comply with applicable state and local laws and codes, and protect the public domain. For example, a city may deny a CUP if the proposed use:

- Is not consistent with the city’s officially adopted comprehensive plan.
- Does not meet the specific standards or conditions established in the zoning ordinance.
- Endangers or is not compatible with the health, safety, and welfare of the public.

Based on the Zoning Guide for Cities (p. 40), the reverse is also true: The city must approve a project if the applicant proves that the application meets all of the conditions and requirements of the city’s ordinances and will not be detrimental to the health, safety, and welfare of the public.

ENVIRONMENTAL COMMITTEES ADVOCATE FOR CHANGE

Minnesotans are very fortunate to have state and local governments that are committed to our environment and environmental equity. There are many extremely valuable programs to help cities improve sustainability, resilience, and equity.

¹³ At this writing, the Minnesota Environmental Quality Board is in the process of changing the state’s environmental review rules to require significantly more information regarding a proposed project’s impact on greenhouse gas emissions and state and local greenhouse gas reduction goals, including resiliency.

Bridging the gap between the more general language in the comprehensive plan and city ordinances:

The language in a city's comprehensive plan tends to be more general and aspirational. Policies and goals are often expressed as the city "should encourage," or "supports," or "should consider."¹⁴ In contrast, the language of a city ordinance is necessarily specific (e.g., defining building setbacks at a specific distance from the property line, or restricting building heights). Thus, there is an area of discretion between an aspirational sustainability goal in the comprehensive plan to "encourage renewable energy," for example, and the city's ability to require a rooftop solar installation consistent with that policy as a condition of approval for a site plan review application for a large office development. Local governments also approve plans and policies in addition to their comprehensive plan (e.g., shorter-term strategic plans, project area plans, sustainability/climate/energy/resilience plans, and policy plans).

Ideally, local governments should incorporate these more-focused plans officially as part of their comprehensive plans. This way, these more specific plans and policies can have a more direct effect on permitting decisions. See GreenStep Cities [BP 6](#).

The language in a city's comprehensive plan and the standards in the city code should be as specific as possible to mitigate climate change and enhance sustainability and resiliency. The state building code language is clear in that local governments cannot surpass the state code. However, if the comprehensive plan calls for the city to support green building design, for example, the zoning code could allow bonuses for things developers desire, such as increased density or height for a project that meets a specified sustainable building standard (refer to the Minneapolis example below). As mentioned [above](#), cities can also adopt sustainable building policies (see [BPA 3.3](#)) or provide financial and other incentives for green building improvements (see [BPA 3.4](#)). Advocacy by the environmental committee can elevate the understanding and discussion regarding sustainability among all stakeholders.

LEAD BY EXAMPLE

It would be hypocritical if a city tied permitting for a project to a sustainability standard that exceeded the state's building codes if it did not hold its own buildings and facilities to that same or a more stringent standard (refer to [BP 3](#)). Cities must lead by example and the environment committee can help the city progress.



Opportunities for improving sustainability:

Siting Structures and Urban Sprawl

A reasonable place to begin a review is the siting of buildings, particularly as they will impact the public realm, e.g., as viewed from the public rights of way. City staff will determine if the project meets the zoning code as regards bulk, scale, height, site coverage, setbacks, architectural details, screening of roof equipment, etc. But environmental committees should raise additional important questions. Considering that urban sprawl is one of the greatest causes of climate change, committees could ask:

- Is the project located on an infill site already served by urban infrastructure (water, sewers, streets, energy and electronics, etc.), or will it contribute to urban sprawl and increased vehicle miles traveled? If

¹⁴ The following are example policies from the sustainability sections of a comprehensive plan:

- Require quality architecture and urban design upon redevelopment.
- Support LEED elements for new buildings.
- Allow for and support cool buildings (passive heating and cooling).
- New and redevelopment incorporates Low Impact Development principles.

the latter case, the city should consider limiting annexations or infrastructure extensions until infill and redevelopment goals are met (see GreenStep Cities [BP 7](#)).

- Does the project represent the highest and best use of the site?
- Is the project located where destinations (jobs, services, schools, entertainment, etc.) are accessible by alternative transportation modes (see GreenStep Cities [BP 12](#))?
- Does the project protect natural areas (habitat, wetlands, and water bodies) and prime agricultural lands (see GreenStep Cities [BP 10](#))?
- Will the building contribute to the visual environment, for example by supporting the street wall on a commercial corridor (refer to the [first case study below](#))?

Building reuse, adaptability, and deconstruction

Whenever feasible, projects should reuse or repurpose existing buildings and facilities. Project design should consider the adaptability of the structures for different uses over time (see GreenStep Cities [BP 5](#)). The 7 principles of [Universal Design](#) call for designs that can be accessed, understood, and used to the greatest extent possible; in the most independent and natural manner possible; and in the widest possible range of situations without the need for adaptation by anyone of any age or size or having any particular physical, sensory, mental health, or intellectual ability or disability.

When a project includes demolition of existing structures, the project should incorporate deconstruction techniques. According to the Minnesota Pollution Control Agency, “Deconstruction can be as simple as stripping out cabinetry or as involved as dismantling a building frame by frame. More than 70 percent of a deconstruction project can be reused or recycled (U.S. EPA). Deconstructing can be an integral part of demolition and can save you money on disposal costs. It also offers opportunities for lower-cost building materials through salvage and reuse stores.” The MPCA site lists [several businesses](#) in the Twin Cities and throughout the state that provide deconstruction services (see GreenStep Cities [BPA 22.8](#)).

Building Design

It would probably be hard to find an architect, a building engineer, or a large developer who does not know how to construct and finance a state-of-the-art building. While it’s not the job of an environmental committee to know all about sustainable design—district and distributed energy, renewable sources (solar, wind, geothermal), green roofs and facades, natural landscapes and xeriscapes, to name a few examples—it should be a committee’s job to be fully aware of the available certification programs for sustainable construction (see [sustainable building programs](#) above) and green business incentives (e.g., [SolSmart](#), business parks, and incubators), and be able to argue for their use to ensure developments maximize energy efficiency and incorporate sustainable design. [Best Practice 3.3](#) encourages cities to adopt a sustainable building policy (i.e., the [SB 2030 energy standard](#)) for private buildings that receive city financial support and/or require city regulatory approval (e.g., conditional use permit, variance, planned unit development). Refer also to GreenStep Cities [efficiency BPs](#).

For example, the City of Minneapolis amended its zoning code in 2020 to allow floor area and height increases, and more relaxed alternatives for planned unit development approvals, provided the development meets the city’s sustainability standards. The following are some of the standards:

- [Climate Resiliency](#) - The project shall achieve at least one (1) of the following standards:
 - a. Any performance standard (LEED, PHIUS, EGC, etc.) that achieves the Minnesota Sustainable Building 2030 (SB 2030) 2010-2014 Energy Standard, a sixty (60) percent energy/carbon reduction from the 2003 Average Building Baseline. The evaluation shall be submitted by a certified architect. Building utility energy and water information shall be submitted annually as part of the Minneapolis Energy Benchmarking program.

- b. Not less than forty (40) percent of electricity usage shall be derived from renewable energy sources through on-site generation and/or renewable energy credits (RECs).
- [Ecological Function](#): The development shall include a green roof and landscaping elements that meet the following standards:
 - a. Installation of an extensive, intensive, semi-intensive, modular or integrated green roof system that covers a minimum of fifty (50) percent of the total roof area proposed for the development.
 - b. Not less than fifty (50) percent of the site not occupied by buildings including all required landscaped yards shall be landscaped per the standards in Chapter 530, Site Plan Review.
 - c. Native species, climate resilient species, and edible plantings shall be prioritized on the landscaping plan, including plantings that support pollinators.

Another example that Edina, St. Paul, St. Louis Park, and Rochester have implemented—a [commercial energy benchmarking](#) ordinance—requires certain-sized commercial building owners to monitor and report building energy use. This commercial energy benchmarking allows comparison of a building’s energy use to similar buildings or building’s past performance and can lead to improved building efficiency and renewable energy installations (see GreenStep Cities [BPA 2.3](#)).

Solar resources

All cities within the 7-county metropolitan region are required to contain “an element for the protection and development of access to direct sunlight for solar energy systems” In their local comprehensive plans. How that plays out at the project site is no simple problem. The rotation and orbit of the Earth determine the best orientation for solar facilities but building design, ownership and maintenance responsibilities, and the potential for shading by other structures and growing trees complicate matters. Fortunately, there are considerable resources available, both in terms of financial and expertise. Also, there are ever expanding opportunities for connections to community solar facilities and green energy purchasing options such as renewable energy credits (RECs). The [Resources section](#) includes links to several helpful sites.

Greenhouse gas emission reductions

There are a number of opportunities to reduce greenhouse gas emissions through the energy, water, transportation, and waste sectors. Ideally, the city will have set a community-wide greenhouse gas emissions reduction goal that could be reviewed in relation to proposed developments through environmental review and the city’s planning process. The environmental committee can support new and re-development projects by suggesting the GHG reduction strategies that are mentioned throughout this guide. See GreenStep Cities [climate mitigation BPAs](#). An excellent way to reduce emissions for a project is to purchase Renewable Energy Credits (REC). RECs can be purchased through an electrical utility, or from outside suppliers such as [Green-e](#); an organization that certifies REC providers.

Electric Vehicles

New construction must accommodate the steadily increasing demand for recharging electric vehicles by requiring and incentivizing the installation of the necessary conduit for future charging infrastructure. Figure 3 provides the current standards for the size and number of charging stations for multi-unit residential and commercial developments. Cities can provide additional incentives or share utility resources for single-family home development.

Cities should consider how electric vehicle charging infrastructure will be made available in public and private parking lots and along public streets through community-wide planning efforts. These stations could be combined with solar photo-voltaic for an added benefit (see GreenStep Cities [BPA 23.5](#)).

	CORE	PROGRESSIVE
ELECTRICAL CAPACITY	208/240V capacity, 40A breaker per port	208/240V capacity, minimum of 40A breaker per port
PANELS	Space to accommodate one 40A breaker, per port, for 20% of spaces	Space to accommodate one 40A breaker at least, per port, for 50% of spaces
PARKING SPACES & EV CAPABILITY (DEEDED)	EV-ready Infrastructure for 20% of total spaces. Subpanels within 100ft of each EV stall	EV-ready Infrastructure for 50% of total spaces. Subpanels within 100ft of each EV stall
PARKING SPACES & EV CAPABILITY (NON-DEEDED)	EV-ready Infrastructure for 20% of total spaces	EV-ready Infrastructure for 50% of total spaces
AUTOMATIC LOAD MANAGEMENT	No difference	No difference
ESTIMATED COST AS A PERCENTAGE OF TOTAL CONSTRUCTION COST (RESIDENTIAL/COMMERCIAL)	0.27 % - 0.35 %	0.67 % - 0.87 %

Figure 3: Source - [Southwest Energy Efficiency Project](#)

Outdoor lighting

Lighting that does not use the most efficient LED technology, or that is not directed where it can provide the most benefit, wastes energy and contributes to light pollution. The International Dark Sky Association's [model lighting ordinance](#) is an excellent guide to evaluate whether a project will waste energy or use fixtures that will cause glare, light trespass, or skyglow. The city's zoning code should limit off-site lighting and require developers of large projects provide a lighting plan and descriptions of exterior fixtures to ensure they are shielded, downward-pointing, and energy-efficient (refer to Figure 4 for a bad example).

Wildlife habitat

The city can adopt ordinances to protect natural systems and habitat from future development. First, the city may want to conduct a natural resources inventory (GreenStep Cities [BPA 10.1](#)) to assess the community's natural assets that can be identified and scored for protection through conservation design policies ([BPA 10.4](#)), conservation easements ([BPA 10.5](#)), and ordinances ([BPA 10.6](#)). In addition, the environmental committee could promote city recognition under the Bird City Minnesota, Bee City USA, or Community Wildlife Habitat programs ([BPA 10.7](#)).

Habitat protection can provide co-benefits to the community such as reducing night-time light pollution as a benefit for birds.

Crime prevention

According to the [International CPTED Association](#), “Crime Prevention Through Environmental Design (CPTED) is a multi-disciplinary approach of crime prevention that uses urban and architectural design and the management of built and natural environments. CPTED strategies aim to reduce victimization, deter offender decisions that precede criminal acts, and build a sense of community among inhabitants so they can gain territorial control of areas, reduce crime, and minimize fear of crime.”

CPTED principles include natural surveillance through “eyes on the street,” natural access control (e.g., thorny bushes beneath first floor windows and no hidden access to upper story windows and balconies), and natural territorial reinforcement through the public/private access stages: Public (e.g., sidewalk), semi-public (e.g., alley, driveway, parking lot, private sidewalk to front door), semi-private (e.g., front porch), and private (e.g., inside). Lighting is also very important. For example, lighting that causes glare by a building entrance can have a blinding effect on a person and make it difficult for them to see a potential danger lurking in nearby shadows (e.g., unshielded wall pack fixtures, refer to Figure 4).

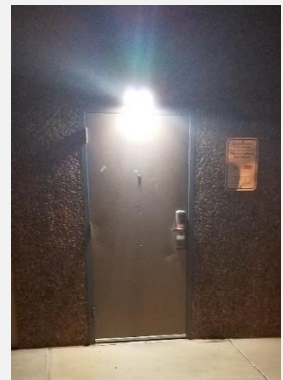


Figure 4: Source – Light Efficient Design

Equitable mobility

Non-vehicular mobility options should be built for all community members. If infrastructure is built for the youngest and the oldest members of the community, everyone benefits. The federal Americans with Disabilities Act can serve as a model for allowing people with disabilities to safely walk, bike, or roll. The Minnesota Department of Health can assist with “[walking audits](#)” that can identify priority areas for necessary improvements. The Minnesota Department of Transportation has a [Safe Routes to School Program](#) with grant money available to cities. (See GreenStep Cities BPAs [12.1](#) and [12.2](#) and the 7 principles of [Universal Design](#).)

Parking- and travel-demand management

Excess parking hampers a pedestrian-friendly community, increases business costs unnecessarily, harms the environment, and reduces a city’s potential tax base because it is not the highest and best use of land. A parking survey or a travel demand management (TDM) plan can help estimate a more reasonable parking demand and reduce the size of paved parking lots.

The environmental committee can advocate for revising the zoning code to reduce or eliminate parking minimums, add new parking maximums, allow for incentives for district parking and fee-based parking, and increase alternatives to vehicles (i.e. transit, bike/walk infrastructure, rideshare, etc.) (See GreenStep Cities [BPA 14.1](#).)

As mentioned [above](#) (Future trends and Development Opportunities), most vehicle ownership will be replaced with ride hailing services, including reliance on autonomous vehicles that need essentially no parking spaces. It is predicted that by 2030, 95% of trips will be via autonomous electric vehicles, and we will need 80% fewer cars with the phase out of gas-powered vehicles and individual ownership.



Figure 5: It is estimated that there are 3.4 parking spaces for every vehicle. There were nearly 4.8 million cars, SUVs, and pick-up trucks registered in Minnesota in 2019. This would equate to 16 million parking spaces or roughly 153 sq miles of land in the state devoted to parking – an area even larger than Rochester, Minneapolis, and St. Cloud combined. Source: [New Approaches to Parking Management](#), 2021

Developers often argue for excessively high parking ratios in order to meet the peak hours on the 2 or 3 peak shopping days a year and to satisfy customer demand for excess stalls right in front of their destinations, when in reality, the peak spots are rarely filled. As cities reduce the need for impervious surface parking lots, density can increase, greenspaces can expand, and water quality can be improved by the reduction of winter chloride use.

Parking lot design and tree islands

Trees in conventional tree islands (or “tree coffins” as they are often called) rarely last beyond 5 years and rarely grow of sufficient size to serve their primary purposes of providing shade and aesthetic relief from the view of vehicles. However, alternative methods exist. Structural soil (e.g. [Cornell University’s structural soil](#) and [Silva Cells](#)) allow trees to be planted anywhere, because they allow tree roots to grow under areas with pervious paving without disrupting the pavement as they grow. The [Resources section](#) includes an excellent guide for state-of-the-art designs for green parking lots. Figure 5 illustrates the use of naturalized drainage in a bioretention area, pervious paving, wheel stops instead of impervious curbing, and structural soils to foster tree health (see GreenStep Cities [BPA 16.2](#)).

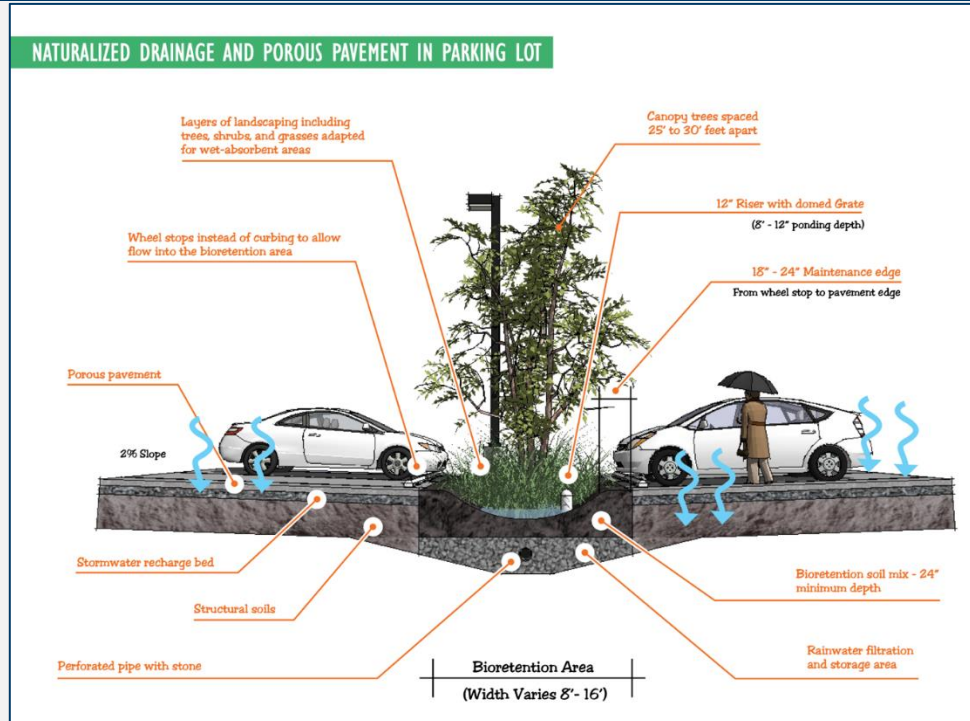


Figure 6: Source - [Sustainable Green Parking Lots Guidebook](#), 2016 - Montgomery County Planning Commission, Montgomery County, Pennsylvania

Landscape plans

Zoning codes typically require all areas not occupied by structures and pavement to be landscaped. A project’s landscape plan often specifies the minimum number of trees and shrubs and the location and character of required screening. A landscape plan offers an opportunity to recommend more sustainable designs that incorporate a diversity of native plantings that are pollinator-friendly and minimize the need for pesticides, that address the goal of 100% on-site stormwater management, and will be resilient to a changing climate and increase in plant pests and diseases (see GreenStep Cities BPAs [16.2](#), [17.3](#), and [17.5](#)).

The GreenStep Cities program includes a report, [Model Landscape Ordinance for a Municipal Zoning Code](#). In addition to model ordinance language, the report includes a landscape policy guide that details several important aspects that are deserving of attention from a city’s environmental committee.

Protecting on and off-site trees

“Mother Nature ignores property lines. The city’s developmental controls (zoning, subdivision, and stormwater ordinances) must account for both on and off-site impacts. For example, construction activities like heavy equipment movements, materials storage, excavations, and changes to drainage can damage on and off-site trees and destroy living

soils.” The [Model Landscape Ordinance for a Municipal Zoning Code](#) guide describes a process for a city to adopt to determine on- and off-site impacts and protect mature, healthy trees, living soils, and vegetation.

Tree orientation, shadows, and wind

The shadow a building casts can affect temperatures on public streets and solar access for adjacent properties. Skyscrapers can also create street-level winds unless they are fractured by barriers on the first floor.

Climate-responsive urban design suggests grouping tree plantings and orienting them in response to the sun and wind. Minnesota summers can be brutally hot, with temperatures exceeding 100 degrees and, as [mentioned above](#), climate change will only make them hotter for longer and more frequent periods. Review of development proposals should examine the beneficial effects of summer shading by structures and especially trees. This is particularly important to reduce urban heat island effects at the citywide and project scale to help cool down parking lots, buildings, and outdoor areas for people.

Figure 6 illustrates the effects of tree-shading during the hottest months of the summer. It is useful for evaluating the shade value of trees on a project’s landscape plan. For example, a landscaped tree island oriented east-west in a parking lot will have very little shade value during the peak period of use for shopping, services, and dining (3-6 pm). In contrast, tree plantings oriented north-south will cast shadows longer than twice their height over vehicles to their east. Since the predominant wind directions are from the south in summer, a north-south orientation of tree islands will not block southern breezes.

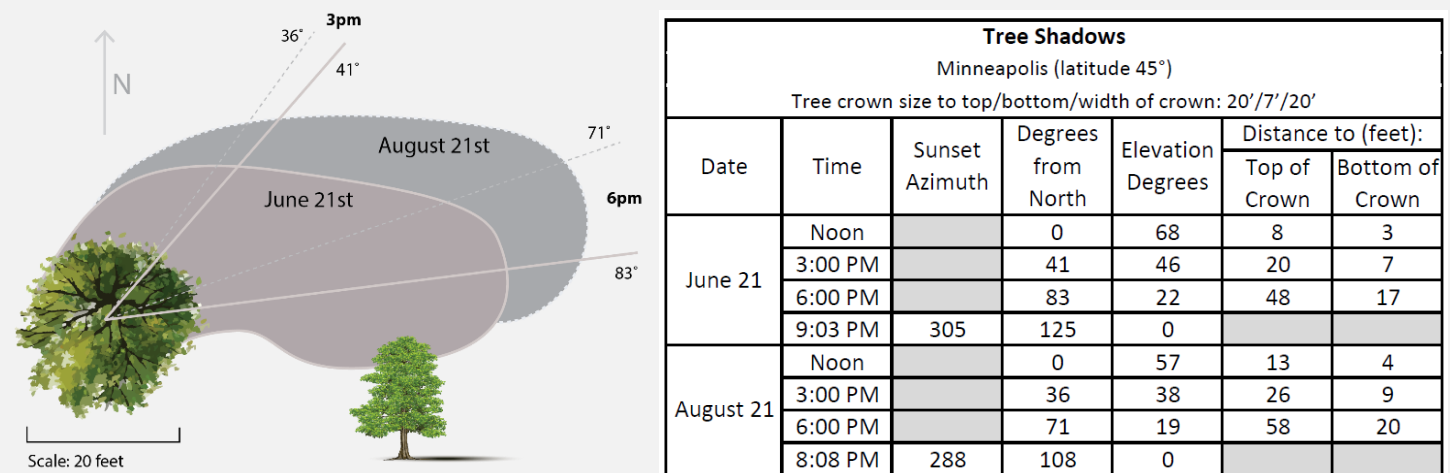


Figure 7: The table and graphic illustrate the areas of shadow that an imaginary tree in Minneapolis (45 degrees latitude) would cast during peak period of use for shopping, services, and dining (3-6 pm) on June 21 (Summer Solstice) and on August 21.¹⁵ Since the sun is at its peak on June 21 (68 degrees elevation), the diagram shows the area that the tree will cast its shadow over during the 3-hour period. The tree is assumed to have a crown that is 20 feet high at the top, 7 feet high at the bottom, and have a width of 20 feet. The table shows that at 3 pm on June 21, the crown will shade an area to the east of the tree that resembles the dimensions of the crown because the sun angle is nearly 45 degrees. By 6 pm, the diagram illustrates how the shadow will stretch further to the east and create an oval of shade that is more than double its actual tree dimensions (the top of the crown shadow will be 48 feet from the base of the trunk instead of its actual 20-foot height of the tree).

Two months later on August 21 when the noontime sun is 11 degrees lower than on the solstice (57 instead of 68 degrees), the area covered by the tree’s shadow will stretch even further and slightly more to the northeast because the sun will be lower in the sky. It will set closer to due west, and the day will be shorter by one hour. A more northern latitude within Minnesota will lengthen the shadows slightly and move them slightly to the north. The opposite is true for southern Minnesota.

¹⁵ Tree shadow calculations:

- Azimuths: <https://www.timeanddate.com/sun/usa/minneapolis?month=6&year=2021>
- Elevations at noon: <https://keisan.casio.com/exec/system/1224682277%20>
- Shadow lengths: <https://rechneronline.de/sehwinkel/shadow-casting.php>

Stormwater management

“Until the turn of the century, design and engineering professionals focused on moving every drop of water that fell or melted as quickly and efficiently to the Mississippi River as soon as possible. We now know the huge environmental damage that practice has caused, e.g. periodic flooding along much of the river’s trip to the Gulf of Mexico and the creation of a ‘dead zone’ there the size of New Jersey every year in the Mississippi River delta. Over the last decade, civil engineers, architects, and city planners now face the opposite challenge, trying to treat 100% of the stormwater on site,” [Model Landscape Ordinance for a Municipal Zoning Code](#).

The typical development will still include both irrigation of landscaped areas with city water, and steer stormwater directly into the city’s stormwater sewer system (if available). The environmental committee can work closely with city staff, the watershed management organization, and Soil & Water Conservation District experts to guide the project toward the goal of 100% on-site treatment. Green infrastructure can include raingardens, bioswales, constructed wetlands, green roofs, and permeable pavements.

[Minimal Impact Design Standards](#) (MIDS) can provide the city with additional guidance: “[MIDS] represents the next generation of stormwater management, developed by the MN Pollution Control Agency along with its scientific, municipal and business partners. MIDS contains three main elements: (1) higher clean water [performance goals](#) for new development and redevelopment, focused on infiltrating rainwater; (2) a [Community Assistance Package](#) including sample ordinances that will allow for increased flexibility and a state-approved streamlined approach to regulatory programs ... for developers and communities; and (3) the [MIDS Calculator](#) that will standardize the use of a range of innovative structural and nonstructural stormwater techniques. (See GreenStep Cities [BPA 17.1](#) and the [Minnesota Stormwater Manual](#).)

Economic impact studies

Big box developments have long sparked great controversy. The study, [A Guide to Retail Impact Studies](#), prepared by Civil Economics, has the following to say about them: “States and municipalities have long evaluated the impact that large retail development projects may have on such things as traffic and the environment. Some are now adopting policies that require that the economic and fiscal impact of these developments be considered as well. These policies typically have two key components: They require that an independent study of the economic and fiscal impact of the retail development be conducted by a qualified analyst selected by the municipality and paid for by a fee assessed to the developer. They establish a standard that the project must meet in order to be approved. The policy may say, for example, that the planning board (or city council or other permitting authority) may approve the development only if it concludes, based on the data provided by the study and other evidence submitted, that the project will not have an undue adverse impact on the community or that the benefits of the development will outweigh the costs. A growing number of cities and towns are incorporating these types of policies into their zoning codes.”

While some cities nationwide have placed bans or size caps on large format retail developments, Ferndale, WA established, by ordinance, a three-pronged approach to retail development, including big-box stores, that includes a scorecard called [EAGLE](#) (Energy efficiency, Advanced technologies, Greater good, Low impact, Economic development). The purpose of the program is to “enable the applicant to identify measures that will generate unique, viable development while responding to criteria identified by the citizens of Ferndale. EAGLE Compliance does not in any way represent project approval with regard to specific development permits, reviews, or other regulations required by the Ferndale Municipal Code, or other applicable local, State, or Federal codes.” (See GreenStep Cities [BP7](#), [BPA 9.4](#), [BP 25](#), and the [Strong Towns](#) program.)

Very often, cities will grant city subsidies to large developments, usually through its economic development authority. Environmental committees can be involved in the process of establishing city policies that determine whether a city subsidy is appropriate and how much to subsidize for particular projects. City subsidies should be consistent with its sustainability goals and policies. The [Institute for Local Self Reliance](#) is a valuable resource to determine what kind of developments are best for local economic development.

Emergency Management

Given the expected increase in the intensity and frequency of extreme weather events, especially ice and wind storms that can knock out power systems, larger multifamily, commercial developments, and public facilities should be equipped with back-up generators or solar systems with battery backups. One approach is to have rooftop solar with back-up batteries in each unit or business. Additional opportunities include identification of and improvements to critical infrastructure (key vehicle routes, hospitals, community centers, etc.) to ensure protection during emergency situations and developing heating/cooling centers that provide necessary provisions (potable water, etc.) to individuals and families in need (see GreenStep Cities [BPA 29.1](#)).

Broadband access

The COVID-19 pandemic proved how equitable access to broadband internet was critical for remote work and school. Cities should work with regional providers to ensure access is available across the community and that free Wi-Fi “hotspots” are available for anyone without it at home.

Timing and representation: Environmental committees should ensure that city staff involve them at the very beginning of the development review process for large projects, ideally during the visioning stage. Similarly, the city should make it very clear to developers regarding the important role of the committee. Developers need to know well in advance that they might be held to a higher standard than the minimal regulations in the city’s zoning and stormwater management ordinances, as well as to the aspirational but imprecise policies in the comprehensive plan, for example. Hopefully, the committee’s knowledge and implementation of this guide will lead to its use among all of the city staff and decision makers and, thus, influence the development review process from the very beginning—the concept stage—of a larger project.

Ideally, the planning commission should reserve a seat for a committee member, even if it’s a non-voting position.

ENVIRONMENTAL COMMITTEES HAVE DISCRETION

The language in a city’s comprehensive plan tends to be more general and aspirational, while the language of a city ordinance is necessarily specific. The discretionary area between the two is where an environmental committee can have the greatest effect during the development review process for projects.

Case Study #1 - Site Plan for a Laundromat

The following is an example evaluation of a site plan to build a self-service laundromat (Project) on the site of a restaurant that went out of business in 2020 during the COVID-19 pandemic (Figure 8). All of the names for the project and the streets have been changed. The site is located in a first-ring Twin Cities suburb on *Main Street*, which functions as the commercial core for the city. The Project serves as an excellent example of a city planning commission that was steadfast in enforcing an important city plan to improve the design even when the city’s

zoning code would have allowed the project as proposed.¹⁶ Later, the city council gave final approval to the project as approved by the planning commission.

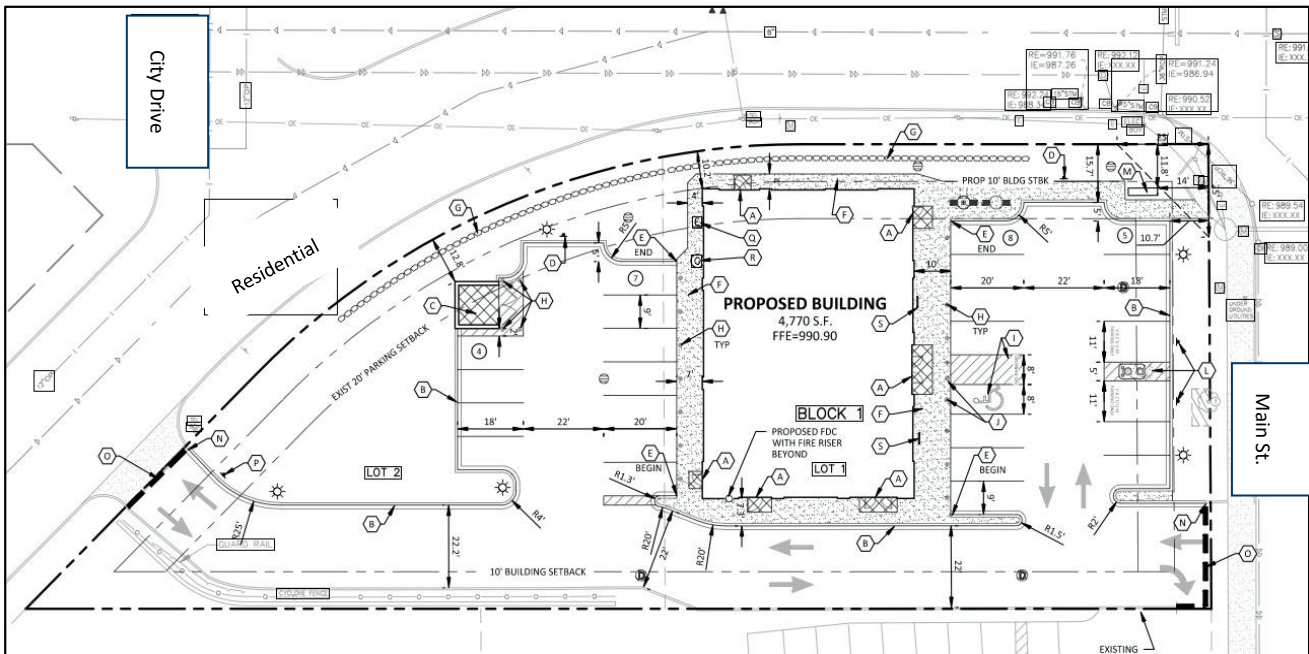


Figure 8: A 2020 site plan for a self-service laundromat (Project) in an undisclosed city.

- **Building setback:** The first issue that almost jumps out from the blur of lines and notes on the site plan (Figure 8) is that parking separates the new building from Main St. (Main St. borders on the right side of the plan and Residential Ave. is on the north side). One might argue that this commercial core is little different from so many built after World War II to accommodate drivers. Furthermore, most customers will drive to the laundromat rather than haul their loads of laundry on foot or via a bicycle. Drivers want to see that plenty of parking is available close to the front door of the building as they approach it from Main Street.

These are some of the same arguments the developer made when several planning commissioners questioned the building placement. They are also some of the arguments that help to maintain the predominant auto-oriented designs in suburbs, and foster what some argue is the most damaging environmental issue of all—urban sprawl. Studies have shown that density is directly related to energy efficiency, and therefore, related to greenhouse gas emissions. In other words, as population density increases, per-capita energy consumption and greenhouse gas emissions decrease. Since the later 1980s, the concepts ingrained in the [New Urbanism](#) movement have fostered a return to traditional, pre-auto, urban development patterns, but in ways that *accommodate* the car instead of having it *dominate* the design.

Fortunately, the city has a redevelopment plan for Main St., called the *Main Street Plan*, which is based on New Urbanism principles. It includes very specific policies and design guidelines to reinforce the streetscape, enhance the pedestrian environment, increase density and mixed use, and improve the city's sustainability. It calls for taking every opportunity to bring buildings closer to the street and

¹⁶ It should be noted that written and oral comments from a resident were the source for all of the concerns mentioned herein that were raised by the planning commissioners.

prevent the exact situation this project proposed—the continuation of the city’s primary commercial corridor being dominated by parking lots. Unfortunately, the site is just one site north of a big-box development and is still zoned for a shopping center, which allows large setbacks for buildings. Honing to the city’s specific plan for the corridor, the commissioners voted to approve the site plan project with the condition that the building be moved close to Main Street.

- **Pedestrian access:** Taking an environmental perspective, developments should accommodate patrons who rely on alternative transportation modes (walking, biking, transit, ride sharing/taxi). Developers will be fully cognizant of the needs of drivers. Even in cases like the example project where most laundromat customers will probably drive to the site, the building must be built to accommodate future possible uses if the laundromat closes.

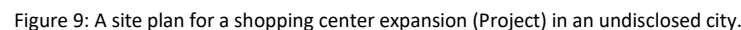
In this example, the only sidewalk access is on the northeast corner at the intersection of Main St. and Residential Ave. Pedestrians coming from the south would walk in the driveway and through the parking lot to the front door located in the middle of the east side of the building. There are no sidewalks on Residential Ave. so pedestrians from the west would also have to come via the street and the western driveway to the rear parking lots.

As such, this design is minimally functional for pedestrians. However, several planning commissioners pointed out that the city’s sidewalk and Safe-Routes-to-School plans call for connecting gaps in the city’s public sidewalk system, and Residential Ave. is slated for a sidewalk in the future. They considered requiring the applicant to deposit the appropriate private share of the total cost for a sidewalk on the site’s north side into an escrow account to be used when the sidewalk project for the street becomes feasible.

- **Minnesota Sustainable Building Standards:** During the public hearing on the project, a planning commissioner asked whether the project would comply with the [Minnesota 2030 Sustainable Building Standards](#) (for more information regarding sustainable building standards, refer to the [Resources section](#)). Unfortunately, the city’s new comprehensive plan only “encourages” new developments “to consider sustainable green building design,” and the zoning code is silent on the matter. The project architect said no but then described a list of measures taken to improve energy efficiency, stormwater management, and water conservation.¹⁷
- **Developer’s response:** The developer’s response to the Planning Commission’s decision for conditional approval on moving the building was to withdraw the project. This is a common threat, but rarely executed. One business day before the City Council’s public hearing, the developer submitted new plans that revised the floor plan and moved the building to the recommended setback from Main St. called for in the *Main Street Plan*. They also committed to adding a sidewalk along Residential Ave. for the length of their property as a part of the project even though the commission had not made it a condition of approval.

¹⁷ Measures included meeting the Minnesota Energy Code, extra insulation in the building envelop and roof, high-efficiency equipment for HVAC and the washing machines and dryers, high-efficient water consumption, and low-e windows with awnings.

This is an after-the-fact analysis of the environmentally-related issues regarding a real project that was approved by an undisclosed city (City). All of the names for the project, the stores, the streets, and the city's plans have been changed (the site plan in Figure 8 includes red *issue* circles that correspond to the evaluation).



It's important to note that the developer requested a substantial city subsidy via tax increment financing and the city approved the request. The Shopping Center Expansion Project (Project) involved the following improvements and expansions to an existing shopping center (Shopping Center):

- ## Addressing the Sustainability Gap in the Development Review Process

- Addition of 5 stand-alone buildings to be built on the City’s primary commercial street, Main St., and a cross street, Minor Rd.:
 - Combination gas station/car wash/convenience store on the north end of the site on Main St.
 - Two buildings on Main St.
 - Two buildings on Minor Rd.
- Façade upgrades to all existing buildings.
- Re-grading of the shopping center’s parking lot, re-engineering the stormwater management system, new LED exterior lighting, and new curb cuts.

The following is a summary of the analysis. The full analysis is in the boxes below:

- The façade improvements, LED lighting, and new commercial uses on Main St. will improve the appearance and the financial viability of the existing shopping center.
- The approved Project will fall far short of its potential:
 - The City’s Zoning Code and Local Surface Water Management Plan (LSWMP), and Comprehensive Plan lack the state-of-the-art requirements needed to move the City in a sustainable direction.
 - The project includes far more parking than needed (at least 180 stalls) and does not meet even the City’s very minimal landscaping and screening measures. Thus, land will be paved and empty instead of including landscaping and screening and accomplishing the goal of 100% on-site stormwater management.
 - Building siting decisions and parking lots on Main St. squandered the opportunity to make the Project and Main St. a more pedestrian-friendly place.
- The project as approved represents significant lost opportunities. The city not only ignored aspects of its own code, it lost the chance to require a much better project, especially considering the city subsidized the project. With relatively minor additional front-end costs, this Project could have provided far greater, long-term, financial and environmental benefits.

Issue	Summary
Auto Orientation	All five new buildings have drive-through aisles that wrap around them, thus defining them as auto-oriented uses. While the Zoning Code allows auto-oriented uses on the site, numerous fast-food uses with drive-through lanes are already on Main St., plus 24 auto-service businesses (service stations, car repair businesses, car washes, retail car parts, tire sales, etc.). Although a Planning Department staff report recommended the City deny 2 of the 5 drive-through lanes, the City Council instead accepted the developer’s arguments for their need.
Pedestrian Access	The City is requiring the Project add a 5-foot sidewalk on the west side (none is there now). This is undersized, since the minimum width in a commercial district to comfortably accommodate two people passing each other is 6 feet. The primary pedestrian concern is the width of the curb cuts (see discussion below).
Transit Access	City Bus provides regular service on the three streets that surround the site: Main St., Minor Rd., and Residential Ave. There are bus shelters in the public right-of-way adjacent the site on all three of these streets. The County Service Center, located west across Residential Ave. from the site, generates a considerable demand for bus service. The developer’s letter refers to the Main St. shelter, and states that they will “maintain, emphasize, and assure that at all times it is a pleasant place to wait and be dropped off.” This is admirable. The proposed landscaping that surrounds the relocated site for the Main St. shelter bears out that commitment. Unfortunately, the same is not true for the other two shelters that abut the site.

Bicycle Access	The Project includes bike racks, but no on-site striping or other pavement distinctions to create bike-friendly access. The City has no bicycle requirements. Although none of the adjacent streets include bicycle accommodations currently, the Main Street Improvement project (refer to discussion below) is planned to create bike-friendly access along Minor Rd. and Residential Ave., which will increase the demand for improved bike access on the Project site.
Vehicle Access	<p>Curb radii and curb cut widths: The Project includes very large curb radii at all 4 entrances on Main St. and Minor Rd. This encourages high-speed turns that are dangerous for pedestrians and bicyclists. The Project even retains the existing curb cut on the south side of the site onto Minor Rd. that is 90 ft. wide, an extremely excessive and unnecessary width. To make pedestrian travel adjacent the site even more un-friendly, the Project adds a second curb cut further east on Minor Rd. and a third one on Main St., all nearly 90 feet wide. Two of the new curb cuts at least have <i>pork chop</i> islands that provide a pedestrian safety zone to make the crossing somewhat less unfriendly. These widths greatly exceed the City's maximum curb cut width of 26 feet. Probably truck and fire truck access is only required via the curb cuts on Residential Ave. so none of the other 4 need to meet truck-turning criteria.¹⁸</p> <ul style="list-style-type: none"> • Primary entrance: The Project's primary access on Main St. is problematic in several ways: <ul style="list-style-type: none"> • Access: The following lists the four ways drivers will enter and leave the Project: <ul style="list-style-type: none"> ○ Southbound entrance from Main St.: Drivers will use a new right-turn lane. ○ Northbound entrance from Main St.: Drivers will use the existing center turn lane on Main St. (aptly called the "suicide lane") to make a left turn into the Project using the same entrance lane as southbound drivers. ○ Southbound exit onto Main St.: There will be a dedicated right-turn lane. ○ Northbound exit onto Main St.: There will be a dedicated left-turn lane that drivers can use to access the center lane on Main St. and then merge into traffic. • Dangerous pedestrian crossing: The separate right-in entrance lane and large curb radius invite higher-speed turns into the Project from southbound traffic. The right-in lane also moves the sidewalk to the west so that it is out of alignment with the sidewalk to the south and lengthens the driveway crossing to nearly 90 feet with no mid-point safety zone. Drivers entering from the south will have to cross two opposing lanes of through traffic and the right-in lane before reaching the crosswalk. Congestion during peak periods may encourage quick left turns to slip in between oncoming vehicles. In addition, the access includes left turns for northbound drivers leaving the Project. The current design is an invitation for an accident.
Building Placement	Street wall: The Project places two buildings on the generally, non-commercial cross street, Minor Rd., instead of siting them on Main St. to present a more uniform street wall. The Project includes a 53-stall parking lot facing Main St. that is over 500 ft. from the shopping center's main store fronts and separated by a drive-through lane from the proposed auto-oriented use to the south, which has more than adequate parking directly adjacent to the west. As a result, buildings cover a mere 26% of the Main Street frontage. Over 540 feet of the available frontage not needed for setbacks and access are devoted to parking lots and drive-through lanes. This violates the important underlying Shopping District zoning

¹⁸ The Fire Department will require a wider curb radius for the entrance it will designate to serve the Project site.

	<p>regulation, which states, “At least 40% of the street frontage of any lot must be occupied by building façades meeting the setback requirements. Other portions of the building may be set back farther than the setback requirements.”¹⁹</p> <p>Building setbacks and drive-through lanes: The City is leading the effort to redesign Main Street to be safer and friendlier for all users—drivers, pedestrians, transit users, and bicycle riders. This Main Street Improvement Project has the potential to transform this section of Main Street into a more pedestrian-friendly place. However, the drive-through lanes for the 5 new buildings prevent them from being closer to the street where they could contribute more to the pedestrian-friendly environment and enhance safety (through more “eyes on the street,” for example). The fact that the developer intends to accommodate outdoor seating for the 2 new restaurants on Main St. is testament to the future pedestrian-friendly environment that is possible, especially with the implementation of the Main Street Improvement Project.</p> <p>Drive-through service saturation: Project plans indicated there may be as many as 15 tenants in 4 of the new buildings and that the 2 buildings on Main St. will have street-facing outdoor seating. However, drive-through lanes serve all of these buildings. It doesn’t seem reasonable that there is a market for so much additional drive-through service in a commercial district already saturated with these uses. Although City staff recommended denial of 2 of the drive-through lanes, the City Council did not follow its staff’s recommendation.</p>
Parking Over-Supply	<p>The City has a high minimum parking requirement for shopping centers. Nonetheless, Project parking significantly exceeds this minimum by approximately 24%, or 180 stalls. In terms of the parking ratio (stalls per 1,000 sq. ft. of gross leasable area, GLA), the Project’s ratio is 5.4 stalls while the City’s minimum required stalls would equal less than 4 stalls per 1,000 sq. ft. GLA. As mentioned above, developers often argue for excessively high parking ratios in order to meet the peak hours on the 2 or 3 peak shopping days and to satisfy customer demand for excess stalls right in front of their destinations.</p> <p>However, there are numerous ways to manage these peak demand periods without overbuilding supply. One of the simplest methods is for tenants to incentivize their employees, which constitute a significant percentage of parking demand, to use public transit, walk, or bike to work. Alternatively, tenants can educate their employees to refrain from parking in the main parking areas. Furthermore, shoppers already expect conditions to be different on these few peak shopping days. The 180 excess stalls consume more than an acre of the site and are an impediment to proper on-site stormwater management.</p> <p>The City should have required that the developer prepare a parking demand analysis that documents normal parking demand, peak-period demand, and measures to mitigate that peak demand. The City should have set the parking maximum at least to not exceed 4 stalls per 1,000 sq. ft. of gross leasable area.</p>
Stormwater Management	<p>Proposed stormwater treatment: The northern half of the area in the main parking lots will drain to a small stormwater pond located behind the existing buildings on the northwest corner of the site. Overflow from this pond flows to the Mississippi River. Stormwater from the southern half of the parking lots drains directly to a pond in an adjacent city and then to the River. Stormwater ponds are intended to settle out nutrients and pollutants. For the Project, the primary issue is infiltration, especially for the southern acreage. As stated below, the current best practice is to accomplish 100% on-site treatment, which involves</p>

¹⁹ The length of the site along Main St. is 995’ and the combined frontage of the three new buildings is 254’ = 26% of the lot frontage.

	<p>both maximizing pollutant and nutrient removal and infiltration.²⁰ The preferential management method is in-place infiltration through the use of pervious paving, structural soils, bioswales, and rain gardens.</p> <p>Gaps in required best practices: The Zoning Code responds to the best practice of managing 100% of stormwater on site by requiring only that certain stormwater management practices “be investigated,” including minimizing impervious surfaces, directing runoff to vegetated areas, and the use of sedimentation basins and wet detention facilities. The code has no requirements regarding these best practices and the Project includes none of them.</p> <p>Local Surface Water Management Plan: The City’s Local Surface Water Management Plan (LSWMP) incorporates the needed provisions to bring the City into statutory compliance with state regulations. Its primary goal is also to “provide the City with a framework for effective stormwater management—primarily to guide redevelopment activities.” Additionally, the plan provides clear guidance on how the City intends to manage surface water in terms of both quantity and quality. It includes the following selected policies applicable to the Project (emphasis added):</p> <ul style="list-style-type: none"> • Urban development shall be encouraged in such a manner that it preserves the City’s significant environmental resources and <u>maximizes their positive impact upon such urban development.</u> • Water quality should be protected by <u>adoption and adherence to:</u> b. MPCA “Best Management Practices” as outlined in Protecting Water Quality in Urban Areas or the Minnesota Stormwater Manual. • The City will continue to monitor new development proposals and <u>require whatever means are necessary and feasible to adequately accommodate stormwater runoff.</u> • The City will begin reviewing developments in the context of nondegradation and will apply such Best Management Practices (BMPs) as necessary to maintain <u>or reduce current phosphorous, total suspended solids loads and water volume loads.</u> • The use of watershed BMPs will be required to <u>help minimize pollutants in stormwater runoff.</u> • Water Quality System Concepts: <u>The only effective way to maintain high quality waterbodies is to prevent sediment, nutrients, and other materials from entering the storm drainage system.</u> Complete interception of stormwater for treatment at the point of discharge is not currently feasible, though the City <u>encourages the implementation of techniques such as rainwater gardens, infiltration areas, and filtration swales etc. that capture a portion of runoff at the point of generation.</u> Application of these small-scale techniques should be on a site specific basis. <p>Other applicable documents: Other documents are applicable to the Project:</p> <ul style="list-style-type: none"> • MPCA report: The LSWMP and the Zoning Code refer to the MPCA’s report, <u>“Protecting Water Quality in Urban Areas: Best Management Practices for Dealing with Storm Water Runoff from Urban, Suburban and Developing Areas of Minnesota,”</u> March 1, 2000. The report includes policy guides—not mandates. The MPCA report states the following (numbering in the original):
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²⁰ To summarize the point, we use water purified to drinking water standards to irrigate plants and trees in parking lots (that will likely die in 5-10 years), most of which will only be seen where there are excess stalls. Then we send the stormwater that will carry the asphalt leachates and vehicle drippings into ponds with relatively limited infiltration capabilities, which then direct overflow water to the Mississippi River where it contributes to periodic flooding. Why should downstream communities pay damages for floodwaters that upstream communities should have managed on-site?

	<p>6. The required parking ratio governing a particular land use or activity should be enforced as both a maximum and a minimum in order to curb excess parking space construction. . . .</p> <p>7. Parking codes should be revised to lower parking requirements where mass transit is available or enforceable shared parking arrangements are made.</p> <p>8. Reduce the overall imperviousness associated with parking lots by providing compact car spaces, minimizing stall dimensions, incorporating efficient parking lanes and using pervious materials in spillover parking areas. . . .</p> <p>10. Wherever possible, provide stormwater treatment for parking lot runoff using bioretention areas, filter strips, or other practices that can be integrated into required landscaping areas and traffic islands.</p> <ul style="list-style-type: none"> • Comprehensive Plan: The City’s Comprehensive Plan states that, “Temporary storage areas, retention basins, or natural swales scattered throughout developed areas should be encouraged so as to reduce peak flows, erosion damage and construction costs.” This and the other stormwater management policies in the plan, the Zoning Code, and the Municipal Water Resources Management Plan are vitally important. Redevelopment of the shopping center should have included an on-site, stormwater management pond that pre-treats 100% of the site’s stormwater.
Landscaping and Screening	<p>Landscaping within the parking lots: The Zoning Code requires a single, five-by-twenty, curbed island for every 20 stalls, with a 2.5” caliper tree in each. The code would require at least 3 additional islands and a minimum of 55 trees. The Project provides less than half that number of trees, 24, within the parking lots. Other cities have requirements that provide more shading and more landscaping to soften the adverse aesthetic and environmental impacts of parking lots. Adequately sized and placed islands, designed as rain gardens with structural soils, could eliminate the need for stormwater ponds and allow long-lived, large canopy trees for 50+ years. Since the entire parking lot is to be regraded, the incremental costs for using structural soils in the tree island areas would not constitute a significant expense relative to overall net project costs and the economic and environmental value of the improvements.</p> <p>Orientation: Climate-responsive urban design suggests grouping tree plantings and orienting them in response to the sun and wind. During the summer months when shade and cooling breezes are most important, the sun will cast lengthening shadows to the east during the late afternoon when parking demand will be the highest (peak retail time is after 5:30 pm).²¹ Since the predominant wind directions are from the south in July and August, a north-south orientation of the suggested tree islands/rain gardens offers the best shade for cars on the eastern sides yet not block southern breezes. The Project incorporates this north-south orientation; however, the islands need to be wider (8+ feet) and drive lanes on either side should be constructed of pervious paving to maximize their infiltration effectiveness.</p> <p>Landscaping in buffer areas: The Project falls far short of the City’s landscaping requirements, even though these requirements are quite minimal compared to other</p>

²¹ *Sustainable Urbanism*, op. cit., p. 142.

	<p>cities.²² The City's code requires 1 tree for every 20 feet of lineal property line. Along Main St., the code would require a minimum of 50 trees while the Project includes only 8, a mere 16% of the requirement.</p> <p>Screening: Many cities require the screening of parking lots and drive-through lanes from the public right-of-way; however, the City's code only requires screening when commercial and industrial uses abut residential uses. As such, it has no requirements applicable to the site and the Project includes no screening. The City should have required screening consisting of decorative metal fencing, a wall, or thick foliage that achieves an opacity of at least 40% and is 3 feet high within 3 growing seasons.</p>
Lighting and Crime Prevention Through Environmental Design	<p>The proposed LED lighting in the parking lots will result in significantly reduced electricity consumption. The City's code is very specific and very strict: "Lighting levels must not exceed zero foot-candles at the abutting property line. No direct glare may extend onto the public street, public open space or neighboring properties." Only fixtures approved by the International Dark Sky Association would be able to meet the City's very strict code requirements.</p> <p>City staff should have ensured the fixtures—including those for on-site building, sidewalk, and area lighting—addressed the principles of the International CPTED Association.</p>
Other Environmental Matters	<p>Green building design: There are no City regulations that require or incentivize developments to be more energy efficient than the State building codes would require, or to meet other green building design standards. The letter from the applicant refers to the definition of sustainability and includes a commitment to a goal of sustainability "most notably through our commitment to the use of LED lighting throughout the entire parking lot, a major commitment to energy efficiency." The use of LED lighting in the parking lot does represent a commitment to energy efficiency; however, Project documentation described no other efforts to maximize energy efficiency or use other green building techniques. While energy efficient parking lot lighting is important, sustainability encompasses so much more. For example, modern construction techniques can result in 70% improvements over the State energy code. Here again, the City's code could include both higher minimum energy efficiency standards and incentives for developers receiving public subsidies or seeking discretionary regulatory approvals.</p> <p>Albedo: The plans did not define roofing materials. Hopefully, the developer takes into account the urban heat island effect and makes the roofs reflective or considers green roof designs.</p> <p>Construction waste: The City has no policies that require developers to maximize waste reduction and recycling during demolition and construction.</p>

²² For example, the Minneapolis zoning code would require 69% more trees and more than twice as much landscaped area at a minimum than the City's code. Other landscaping provisions in the Minneapolis code would increase those differences significantly.

Resources

Climate Change in Minnesota	
Minnesota Climate Trends	<ul style="list-style-type: none"> • Minnesota Climate Trends • Minnesota State Climatology Office • Planning for Climate & Health Impacts, 2018 MDH regional profiles • Climate Change in Minnesota: 23 signs, MPR 2015
Minnesota Climate Explorer	<p>https://arcgis.dnr.state.mn.us/ewr/climateexplorer/main/historical – Use this map tool to identify historic and projected (future) Minnesota climate trends in the general location of the project. First select the major watershed or county where the project is located, then, under “Data Options” select relevant climate variables and time frames using 1895 as the data start year, and the most recent year as the data end year. Be sure to click the box in “Additional Options” for “Show trend for these years” and pick whatever Start and End dates are desired for the trend line within the 1895 to current year timeframe. Look at annual data, and also look at individual months relevant to the project (for example, construction schedules, operational issues, waste disposal needs, etc.).</p>
State of Minnesota Climate Change Website	<p>https://climate.state.mn.us/</p>
Understanding Potential Impacts	<ul style="list-style-type: none"> • Flood Factor – Identify flood potential by entering the project location (street address, street name, or city), then click on Flood Risk Explorer (left menu bar) and select flooding likelihood of 0.2% and 1% for current risk (2020). View “View “The First National Flood Risk Assessment” report, especially page 78-80 for Minnesota-specific information on flood risk potential. • Localized flood map screening tool – Twin Cities metro tool to determine what areas and assets may be subject to potential localized flood risk during short-term, extreme rain events. • I-Tree Tools – Calculate the benefits of individual trees, urban canopy, or forests through numerous tools and guidance. • Best native yard trees for a changing climate – Identify the right native tree species for your region. • Heat vulnerability in Minnesota assessment tool – Visualize datasets that can contribute to a community’s heat vulnerability. • Extreme heat map tool – Twin Cities metro tool to determine which areas within their community are most susceptible to extreme heat.
Greenhouse gas emissions assessments	<ul style="list-style-type: none"> • Regional Indicators Initiative – Partial or complete community-wide GHG assessments for 100 Minnesota cities including energy, transportation, waste, and water going back to 2013. • Twin Cities GHG Inventory – Data starting in 2018 for all regional cities and counties for transportation, energy, solid waste, wastewater, agriculture, land use, and environmental justice. • Statewide GHG emissions data – Review emissions and goals by sectors: transportation, electricity generation, agriculture/forestry/land use, industrial, residential, commercial, and waste. • City operations GHG assessments calculators and guidance are available through GreenStep Cities Step 4/5.

Climate Vulnerability Assessments	<ul style="list-style-type: none"> • Twin Cities Region – Climate Vulnerability Assessment: Regional Risks and Opportunities includes tools, resources and mitigation actions for regional climate hazards including the Story Map, Extreme Heat, and Localized Flooding. • Vulnerable Population and Climate Adaptation Framework reports for 22 cities and 1 tribal nation.
Inventory of local/regional climate/energy goals and plans	<ul style="list-style-type: none"> • Minnesota Sustainability Searcher - Search for local, regional, and statewide sustainability goals, plans, and efforts such as climate action plans, renewable energy goals, green teams, and more.
State Reports	<ul style="list-style-type: none"> • Environment and Energy Report Card, 2019 EQB • Minnesota and Climate Change: Our Tomorrow Starts Today, 2014 EQB • Integrating Climate Information into MEPA Program Requirements, Draft 2020 EQB

Equity and Environmental Justice

Affordable and inclusionary housing	<ul style="list-style-type: none"> • Greater Minnesota Housing Fund • Minnesota Multifamily Affordable Housing Energy Network • Minnesota Housing • Metropolitan Council and Solar-for-Vouchers • Centre for Universal Design
Redlining and racial covenants information	<ul style="list-style-type: none"> • Just Deeds Project – The Just Deeds Project addresses the historical racism inherent in racially restrictive deeds for housing that banned property owners from selling, renting, or allowing their home to be used by people of certain races. Although they were outlawed by 1968 and are no longer enforceable, minorities still experience the harm caused by them. The project helps homeowners and cities face this history and its adverse effects on communities of color, and provides free legal and title services to eliminate the documents. • Environmental Advocacy and the Development Review Process – The intersection of environmental degradation, housing segregation via zoning, and systemic racism. • Mapping Prejudice – University of Minnesota tool for visualizing the hidden histories of race and privilege in the built environment. • Mapping Inequality – Includes information for Minneapolis, St. Paul, Duluth, and Rochester.
Racial Equity	<ul style="list-style-type: none"> • Government Alliance on Race and Equity – GARE is a national network of government working to achieve racial equity and advance opportunities for all. The Alliance is a joint project of the Race Forward and the Othering and Belonging Institute. • See GreenStep Cities Equity page for more information.
Environmental Justice	<ul style="list-style-type: none"> • Areas of Environmental Justice Concerns Map – This map, provided by the Minnesota Pollution Control Agency, provides information on tribal areas and census tracts with higher concentrations of low income residents and people of color where additional consideration or effort is warranted to ensure meaningful community engagement and to evaluate the potential for disproportionate adverse impacts. • EPA Environmental Justice Screen – The EJ Screen mapping tool is based on nationally consistent data and an approach that combines environmental and demographic indicators in maps and reports

Sustainability Resources	
Sustainable Design	<ul style="list-style-type: none"> GreenStep Cities Best Practice 3: New Green Buildings GreenStep Cities Best Practice 5: Buildings Redevelopment Minnesota Sustainable Building Standards (SB 2030) Green building and energy frameworks <ul style="list-style-type: none"> Leadership in Energy and Environmental Design (LEED) Well Building Standard Fitwel Crime Prevention Through Environmental Design (CPTED)
Energy Efficiency	<ul style="list-style-type: none"> GreenStep Cities Best Practice 1: Efficient Existing Public Buildings GreenStep Cities Best Practice 2: Efficient Existing Private Buildings GreenStep Cities Best Practice 4: Efficient Outdoor Lighting and Signals B3 Benchmarking Guaranteed Energy Savings Program (GESP) MinnPACE Financing Home Energy Guide and Home Energy Guides & Tips Outdoor Lighting Decision Tree Tool Model lighting laws and policy, International Dark-Sky Association
Renewable Energy	<ul style="list-style-type: none"> GreenStep Cities Best Practice 26: Renewable Energy Clean Energy Project Builder – Find solar companies and community solar gardens MinnPACE Financing Sol-Smart program – Become a solar-friendly community Solar Suitability App by UofM provides a free, statewide map projecting solar capacity. Model RFP for Third-party solar Community Solar Gardens Why Minnesota’s Community Solar Program is the Best, ILSR Minnesota Solar Fact Sheet, SEIA
Planning	<ul style="list-style-type: none"> GreenStep Cities Best Practice 6: Comprehensive, Climate and Energy Plans Handbook for Minnesota Cities – Chapter 13: Comprehensive Planning, Land Use, and City Owned Land, 2020 LMC Zoning Guide for Cities, 2020 LMC Minnesota Design Team Minnesota’s Local Government Project for Energy Planning (LoGoPEP) program “Planning for Climate Change Adaptation” Washington chapter of the American Planning Association “How to Set Renewable Electricity Goals that Align with Community Priorities,” Great Plains Institute. Institute for Local Self Reliance
Landscaping and Stormwater Management	<ul style="list-style-type: none"> GreenStep Cities Best Practice 16: Community Forests and Soils GreenStep Cities Best Practice 17: Stormwater Management GreenStep Cities Best Practice 18: Parks and Trails Model Landscape Ordinance for a Municipal Zoning Code Minnesota Stormwater Manual Sustainable Green Parking Lots Guide, Montgomery County, PA
Urban Forestry and Green Space	<ul style="list-style-type: none"> GreenStep Cities Best Practice 16: Community Forests and Soils GreenStep Cities Best Practice 18: Parks and Trails Urban Forestry Toolkit, Vibrant Cities Lab Heat Island Cooling Strategies, EPA

	<ul style="list-style-type: none"> • Keeping Our Cool: Extreme Heat in the Twin Cities Region, Met Council • Adapting to Urban Heat: A Toolkit for Local Governments, Georgetown Climate Center • Reducing Urban Heat Islands: Compendium of Strategies – Trees and Vegetation, EPA
Waste	<ul style="list-style-type: none"> • GreenStep Cities Best Practice 15: Sustainable Purchasing • GreenStep Cities Best Practice 22: Sustainable Consumption and Waste • Building deconstruction
Transportation	<ul style="list-style-type: none"> • GreenStep Cities Best Practice 11: Living & Complete Streets • GreenStep Cities Best Practice 12: Mobility Options • GreenStep Cities Best Practice 13: Efficient City Fleets • GreenStep Cities Best Practice 14: Demand-Side Travel Planning • Rethinking the Future: Clean Disruption and the Collapse of the Oil, Coal, and ICEV (internal combustion engine vehicle) Industries, webinar Tony Seba • Clean Disruption: Energy and Transportation, webinar Tony Seba

Green Teams and Environmental Committee Resources

GreenStep Cities Best Practice Action 24.1	<p>Use a committee to lead, coordinate, and report to and engage community members on implementation of sustainability best practices.</p> <ul style="list-style-type: none"> • BPA 24.1 • Guidance on creating and maintaining a successful committees • PowerPoint on commission formation • Organizing Guide • GreenTeam Workplan for 2020 covers tips for creating and maintaining successful green teams and much more: case studies, testimonials, and step-by-step guidance (see BPA 24.1 for updates)
GreenStep Cities Best Practice 24	<p>Benchmarks and Community Engagement – Adopt outcome measures for GreenStep and other city sustainability efforts, and engage community members in ongoing education, dialogue, and campaigns.</p> <p>Find additional guidance and resources related to environmental committees and community engagement under this best practice.</p>

Marshalling Resources

Community resources	<ul style="list-style-type: none"> • Other city staff, e.g., public works for traffic and stormwater management • City's economic development agency (often another configuration of the city council) • City's planning commission • City's human rights commission • Local community neighborhood and advocacy groups • Local foundations • Local business organizations
State, Regional, and County Organizations	<ul style="list-style-type: none"> • Metropolitan Council or regional development organizations: Minnesota Association of Development Organizations • Watershed Districts: Minnesota Association of Watershed Districts • Soil and Water Conservation Districts: Minnesota Association of Soil and Water Conservation Districts

GreenStep Cities program	<ul style="list-style-type: none"> • Best Practice Advisors • Minnesota Clean Energy Resource Teams (CERTs) regional coordinators • Staff can help connect you to interns and provide additional guidance for commissions and green teams. • Intern manual
AmeriCorps programs	<ul style="list-style-type: none"> • Minnesota GreenCorps • ForestryCorps • ConservationCorps • Lead for Minnesota • Vista • See all Serve Minnesota opportunities
University resources	<ul style="list-style-type: none"> • UofM Resilient Communities Project • St. Thomas Sustainable Communities Partnership • UofM Extension and Regional Sustainable Development Partnerships • Climate Smart Municipalities • UofM Minnesota Design Center
Other	<ul style="list-style-type: none"> • League of Minnesota Cities • Directory of environmental organizations in Minnesota • Minnesota Chapters of the: <ul style="list-style-type: none"> • American Planning Association (APA) • American Architectural Association (AIA) • American Society of Civil Engineers (ASCE)