Climate Action Plan

Brooklyn Park, Minnesota

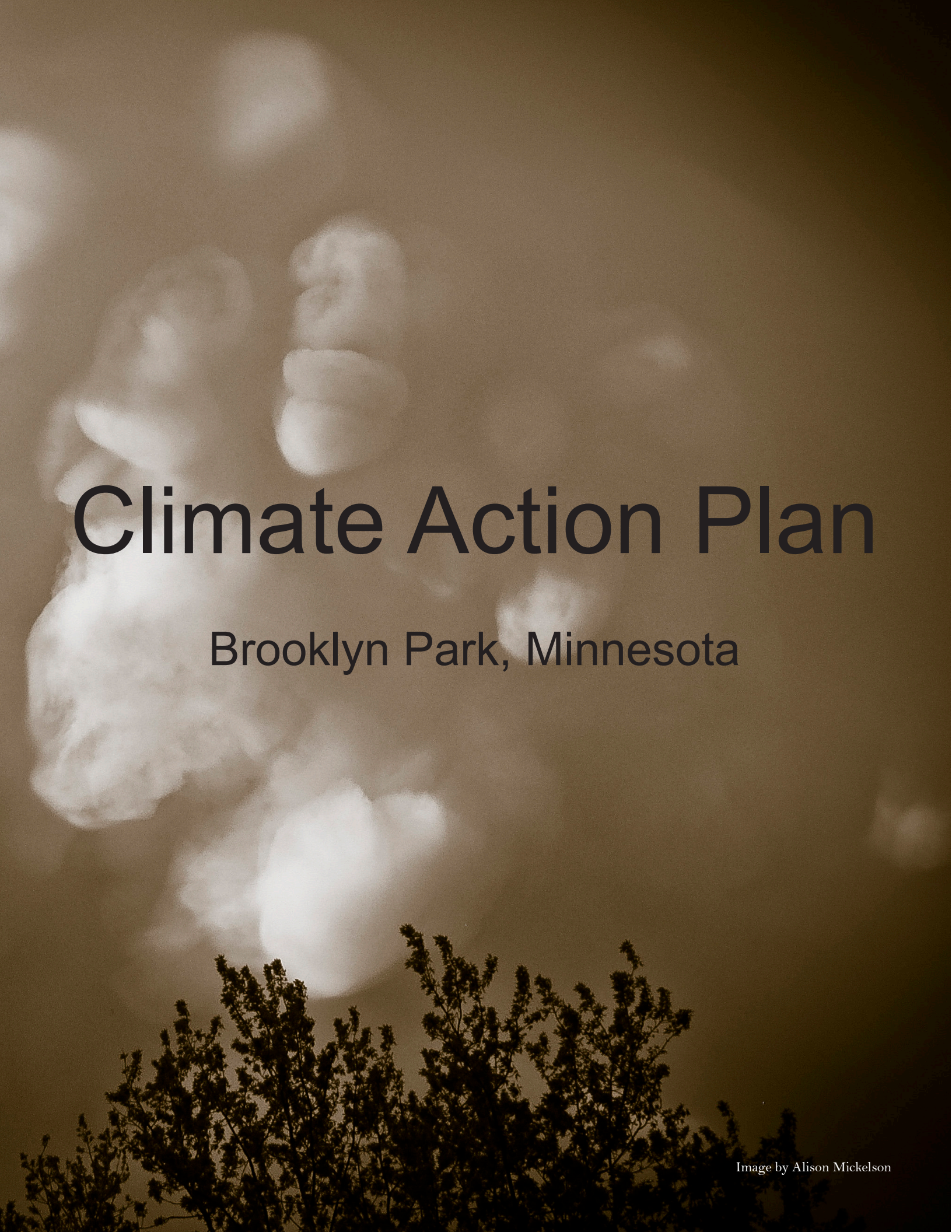


Image by Alison Mickelson

July 2018

Dear Reader,

This CAP makes no pretense of having developed a full list of objectives or a comprehensive set of goals and policies. Instead this plan is based on a dominant goal - addressing climate change and hazards through the concentration on equity - the justification for them, and ideas to get started.

The document is more messy and less complete than I desire for my finished work. However, I have stayed true to my life's personal, academic, and professional priorities throughout this effort and a proud of the work and learning this represents. Though I created this document as a class requirement, I share this because I aspired for my effort to have the potential to be useful, insightful, and inspiring for Brooklyn Park. I truly believe Brooklyn Park (and many other communities) are capable of the challenge of equity centered climate action plans.

May the future bring great things to Brooklyn Park and all its residents. I hope to move to the area in a couple years, and look forward to visiting. Please contact me if there are further questions.

Best Wishes,

Penn Pennel
Masters of Urban Planning Gradate Student
University of Kansas

Contents

Introduction

Brooklyn Park, a large 27 square mile suburban city about 10 miles north of Minneapolis, is changing rapidly. It shares these oncoming climatic changes and environmental disturbances with many of the other 45 cities in Hennepin County. It shares its shift in ethnic and racial demographics with many suburbs across the nation. Which is why City Lab wrote an article titled, "Why Brooklyn Park, MN is the New Face of the Suburbs"[1] and why embracing that shift is represented in the recent collaboratively produced visionary goals to guide the near term future of the city.[2]

The time is ripe for the city to create a Climate Action Plan (CAP) that embraces equity and community centered action as fundamental to planning for climate change. This plan will detail considerations, strategies, and actions that address climate impacts while dealing head on with our nation's long-tailed legacy of inequality and disparity; resulting in a stronger more resilient Brooklyn Park.

Brooklyn Park Community 2025 Goals

1. A united and welcoming community, strengthened by our diversity.
2. Beautiful spaces and quality infrastructure make Brooklyn Park a unique destination.
3. A balanced economic enviornment that empowers businesses and people to thrive.
4. People of all ages have what they need to feel healthy and safe.
5. Partnerships that increase racial and economic equity empower resident and neighborhoods to prosper.
6. Effectuve and engaging government recognized as a leader.

Fig.1-Image of Brooklyn Park Youth Mural Envisioning Community Future, Image from Youtube.

History

This area was originally inhabited by the Dakota Native Americans in the south, and the Ojibway Native Americans in the north. A treaty was signed between the federal government and the Dakota Natives in 1851, and in 1852 the area once known as the Missouri Territory was opened to immigrant settlers. The Brooklyn Township was officialized in 1854 settled by people who named it after their former home of Brooklyn, Michigan. Brooklyn Park soon found its present day boundaries in the northwest section of Hennepin County on the west bank of the Mississippi River. Settler growth was slow, as the area's population was largely used for potato farming, until the 1940's.[3]

Housing developments, coupled with the rise in Post World War II suburban affluence, and white flight from urbanized areas produced quick growth spurts - from 1,694 in 1950 to more than 20,000 by the 1970s. Many of these trends have continued through decades and brought the population up to almost 70,000 residents by the 2000 census.[4] A noted increase in ethnic diversification came with immigrant communities and refugees from Africa when they began settling here in the 1970s. This has continued as "Brooklyn Park is now a majority-minority suburb of 78,000 people, with significant communities of Africans (from Kenya, Somalia, Liberia, and other countries), African Americans, Hmong, Vietnamese, and Latinos."[5] As the population grows to an estimated 80,000 in recent years, racial demographics have seen a rapid shift.

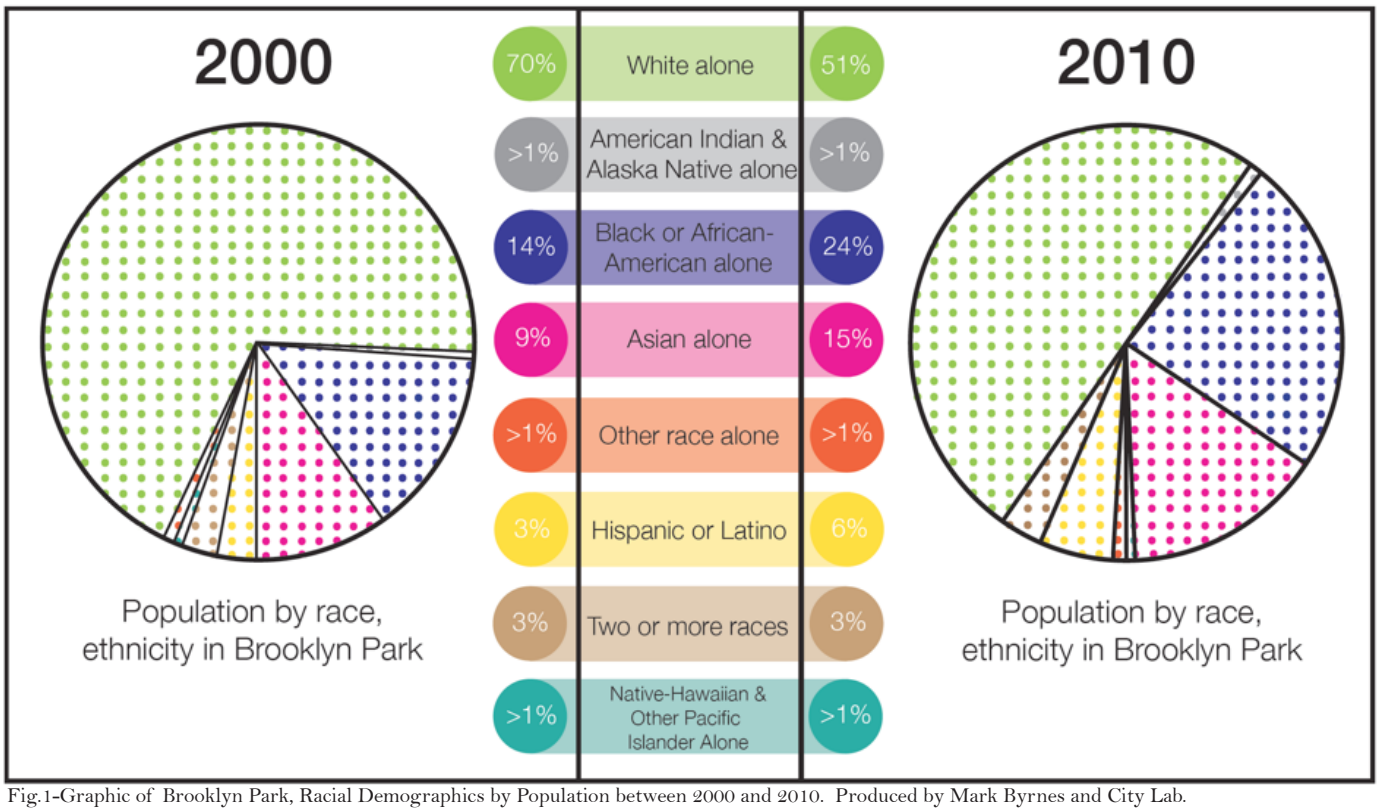


Fig.1-Graphic of Brooklyn Park, Racial Demographics by Population between 2000 and 2010. Produced by Mark Byrnes and City Lab.

Other Considerations

Though the changing demographics and the opportunity for equity efforts are the key theme of this CAP, there are many other crucial factors to recognize and consider. This includes existing land use trends, dominated by single family detached housing, and imminent issues tied to aging housing stock and infrastructure.[6] Other considerations found in the Economic and Land Use chapters of the 2040 Comprehensive Plan include remaining areas for development, expected population growth, and the stretch goal of 50,000 jobs available in the city by 2050. Many of these factors and plans will be consulted in the production of this CAP.

Additionally, involving the community of Brooklyn Park is fundamental to this plan. Diverse participation will provide co-production of knowledge, innovative programs, development, implementation, and insightful evaluation. Community provided data, vulnerability assessments, and recommended participation methods will be used to inform this plan.

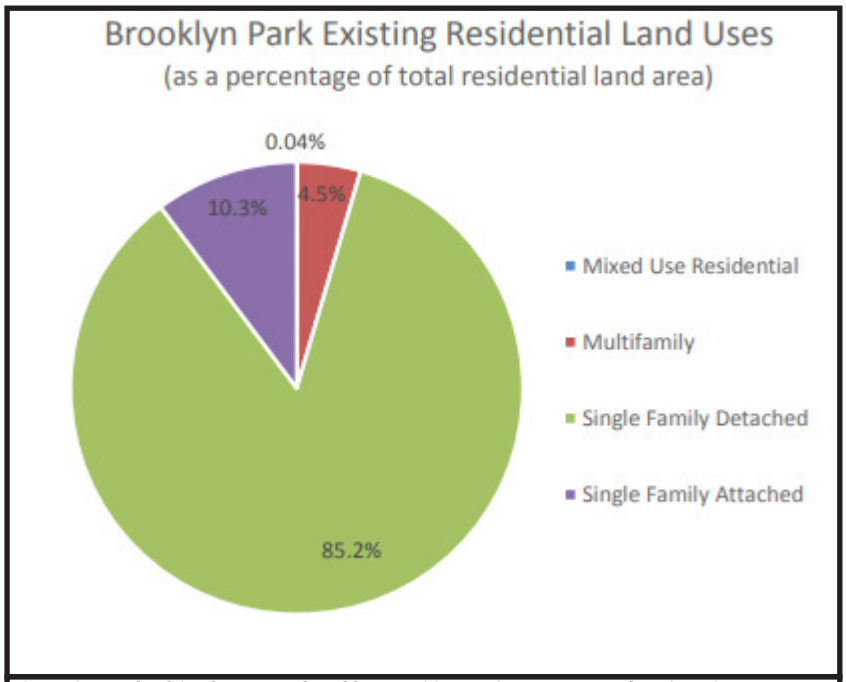
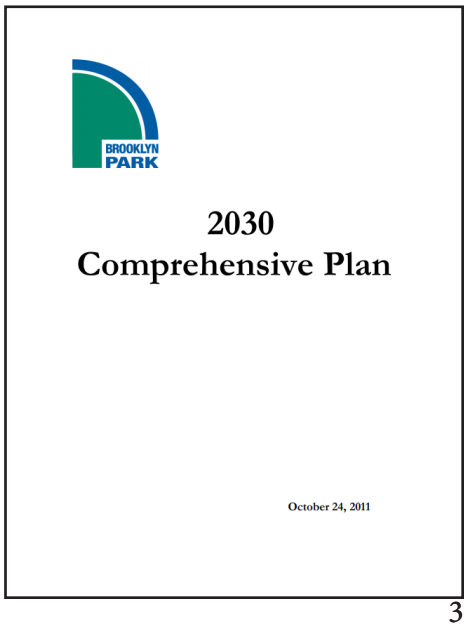


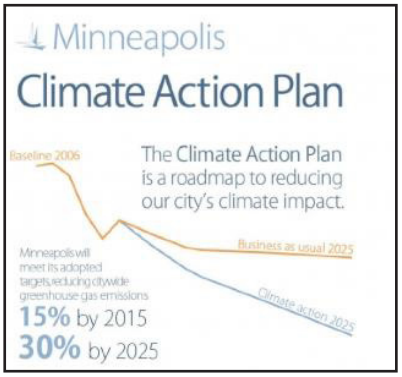
Fig.1-Pie graph of land uses, produced by Brooklyn Park 2040 Comprehensive Plan.

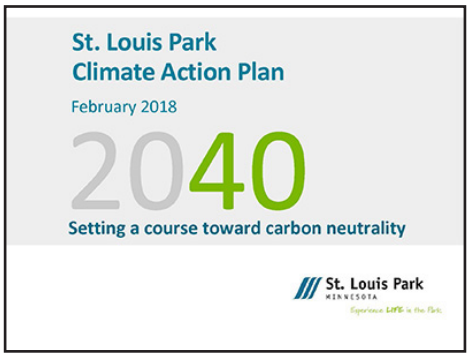
Existing Plans and Efforts

The **City** has two comprehensive plans that include chapters on Resilience (2040 Plan) and Environmental Protection (2030 Plan).[7] The Resilience chapter includes information on alternative energy systems with helpful details on solar layout potential for the city. It also details the City's history and growth in the recycling of materials. The Environmental Protection chapter of the 2030 plan details that green building efforts and sustainable land use developments are already prioritized as demonstrated by the incorporation into other relevant chapters of the plan. Historic Preservation, Critical Natural Resource Areas, and a Mississippi River Stewardship Plan are also touched upon in this chapter. These

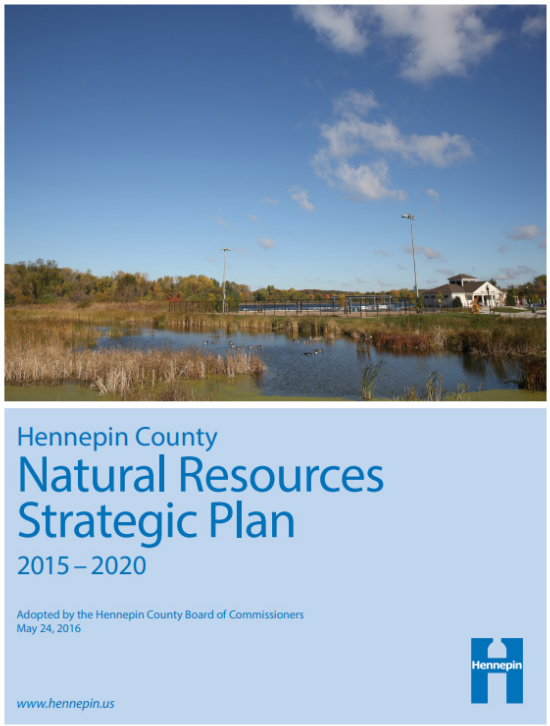


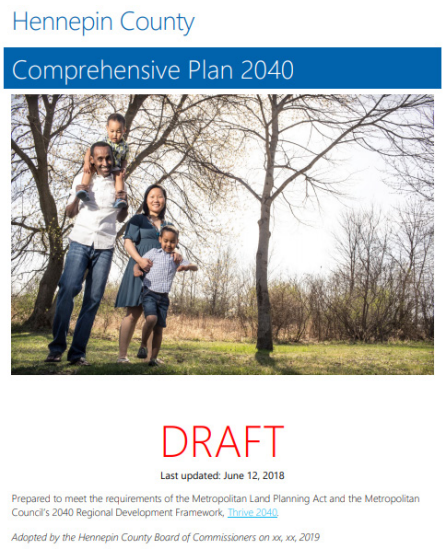
existing plans and specific chapters are excellent and critical elements of a comprehensive outlook, and shows the city is already making strides towards a sustainable lifestyle. A CAP can use and build upon the work already under way to push this city forward in its efforts both for climate change adaptation and mitigation.



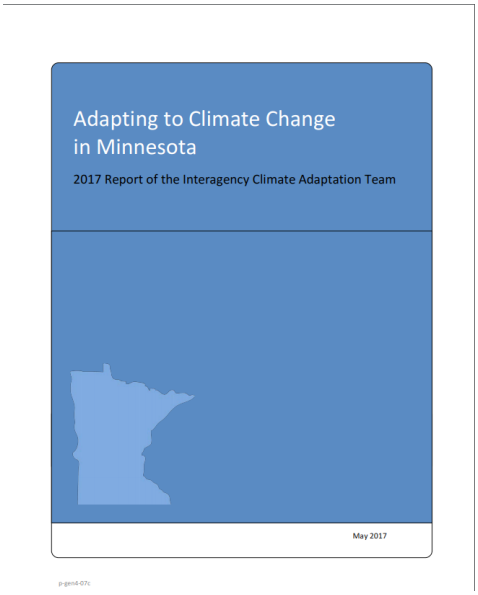


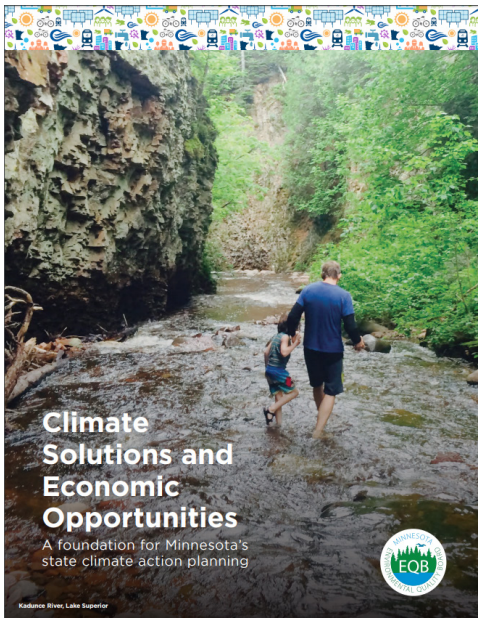
The **County of Hennepin** has many other cities with CAPs and Sustainable Action Plans (SAPs) that can help guide the development of this plan and coordinate efforts across spatial boundaries. The county government has been part of the Cool Counties Initiative[8], a greenhouse gas reduction plan, since 2007. This has specified goals for the county and its report and efforts will be taken into account and coordinated with Brooklyn Park's strategies.





The **State of Minnesota** has several informative plans, including Adapting to Climate Change in Minnesota 2017, Climate Solutions and Economic Opportunities, and the Minnesota State Hazard Mitigation Plan 2014. The latter includes a chapter on climate change; acknowledging that hazard plans are going to be increasingly relevant and must be adapted to deal with predicted natural disasters due to climate change.





Two **regional** organizations, Metropolitan Council and GLISA, have several publications that will be utilized in this CAP. Of particular relevance for the equity theme of this CAP, the Metropolitan Council has conducted a Climate Vulnerability Assessment and Choice, Place, and Opportunity. GLISA is one of eleven NOAA-funded regional centers, building capacity to manage risks from climate change and variability in the Great Lakes region. Key referencial publication from them include a climate change executive summary fact sheet, and a project called Ready & Resilient: Climate Preparedness in Saint Paul, Minnesota.

The Importance of Planning for Climate Change

Many organizations within Minnesota and Hennepin County are in agreement: climate change impacts are already here, and they can be expected to be increasingly disruptive throughout this century. Data demonstrates that Minnesota's climate warming has already started. **Current impacts** include: the average temperature has increased 2.0 degrees Fahrenheit, ice coverage on the Great Lakes has gone down 71%, and the frost free season has increased on average 9 days. Other observed impacts include an 11% increase in total precipitation and a 37% increase in heavy storm precipitation.[9]

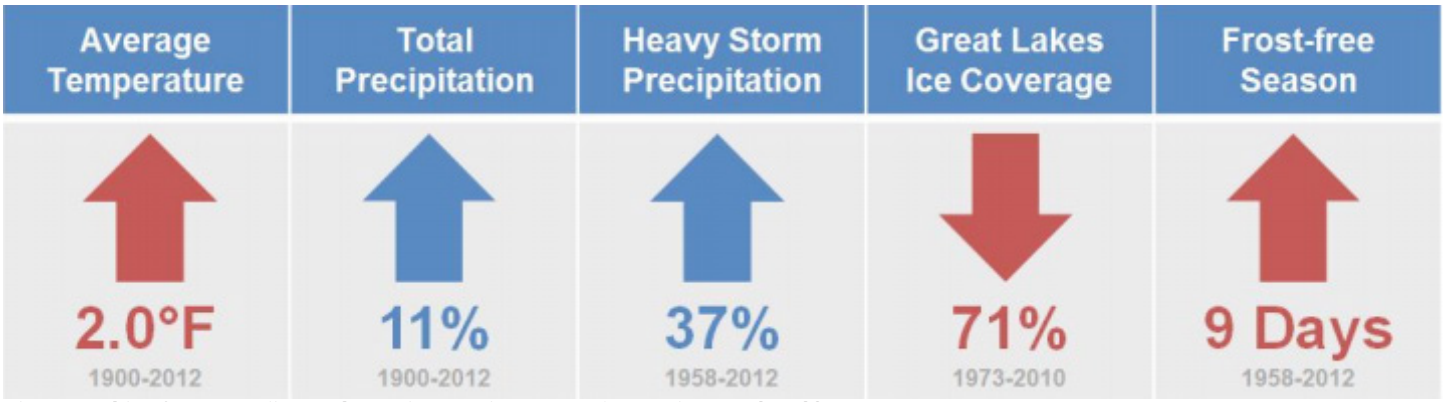


Fig.1-Graphic of current climate change impacts in Great Lakes Region, produced by GLISA.

Expected Impacts are various and far ranging across sectors. For Minnesota, a particularly interesting agriculturally related impact is that by 2050 rising temperature and increased concentrations of CO2 will likely increase **agricultural** productivity. Though despite the expected increase in precipitation, the region is expected to become drier overall as the rising temperatures will elevate evaporation rates. By 2100, negative impacts like increasing extreme rainfall events, flooding, extreme heat, pests, and summer drought risks may negate any agriculturally positive benefits. **Wildlife and forests** will face increased pressure to adapt forcing many to adapt by changing their distribution and patterns. Meaning, cold weather plants and animals will have to move north and it's unsure if the rate of warming will outpace many ecosystems ability to adapt or migrate. This includes important many cold water species of fish that are important to local recreation and economy. **Human health** risks

will increase with greater possibilities of heat related illnesses and death, decreased air quality causing respiratory issues, increased risks of watershed contaminations, and diseases from pests. **Transportation and industry** could see increased in heat or flood related infrastructure damage, decreased water levels and availability, and increased energy demands. **Tourism and Recreation** will likely be negatively impacted by shorter winters with less snow cover and increased lake contamination.

Projected Climate Changes in Minnesota

Hazard	Projections through century	Confidence in projected changes
Extreme cold	Continued loss of cold extremes and dramatic warming of coldest conditions	**Highest**
Extreme rainfall	Continued increase in frequency and magnitude; unprecedented flash-floods	
Heat waves	More hot days with increases in severity, coverage, and duration of heat waves	**High**
Drought	More days between precipitation events, leading to increased drought severity, coverage, and duration	**Moderately High**
Heavy snowfall	Large events less frequent as winter warms, but occasional very large snowfalls	**Moderately low**
Severe thunderstorms & tornadoes	More "super events" possible, even if frequency decreases	

Confidence Scale

Snapshot of projected and expected trends among common weather hazards in Minnesota, and confidence that those hazards will change (further) through the year 2099 in response to climate change. Graphic based on information from 2014 National Climate Assessment, and data analyzed by the Minnesota DNR State Climatology Office.

Fig.1-Graphic of trends expected to continue and worsen throughout this century.[10]

Climate change - dealing with its current and expected impacts, as well as working quick enough to avoid some of the worst case climate change scenarios - will be the defining local, regional, and global issue of this century.

While these changes are not any single person's or city's fault, a large consensus of scientists have determined that global climate changes are primarily due to the human activities of burning fossil fuels.[11] This is a global issue as much as it is a local issue. No region in the world will be free from the impacts of climate change, therefore all regions must make efforts to reduce emissions. Reducing emissions will mean more than simply changing to renewable energy within industries. Land use patterns also play a large role in emissions. Suburbs in the U.S. have some of the highest emissions per capita, this also means suburbs are where emission reduction strategies are big opportunities for ingenuity and impact.

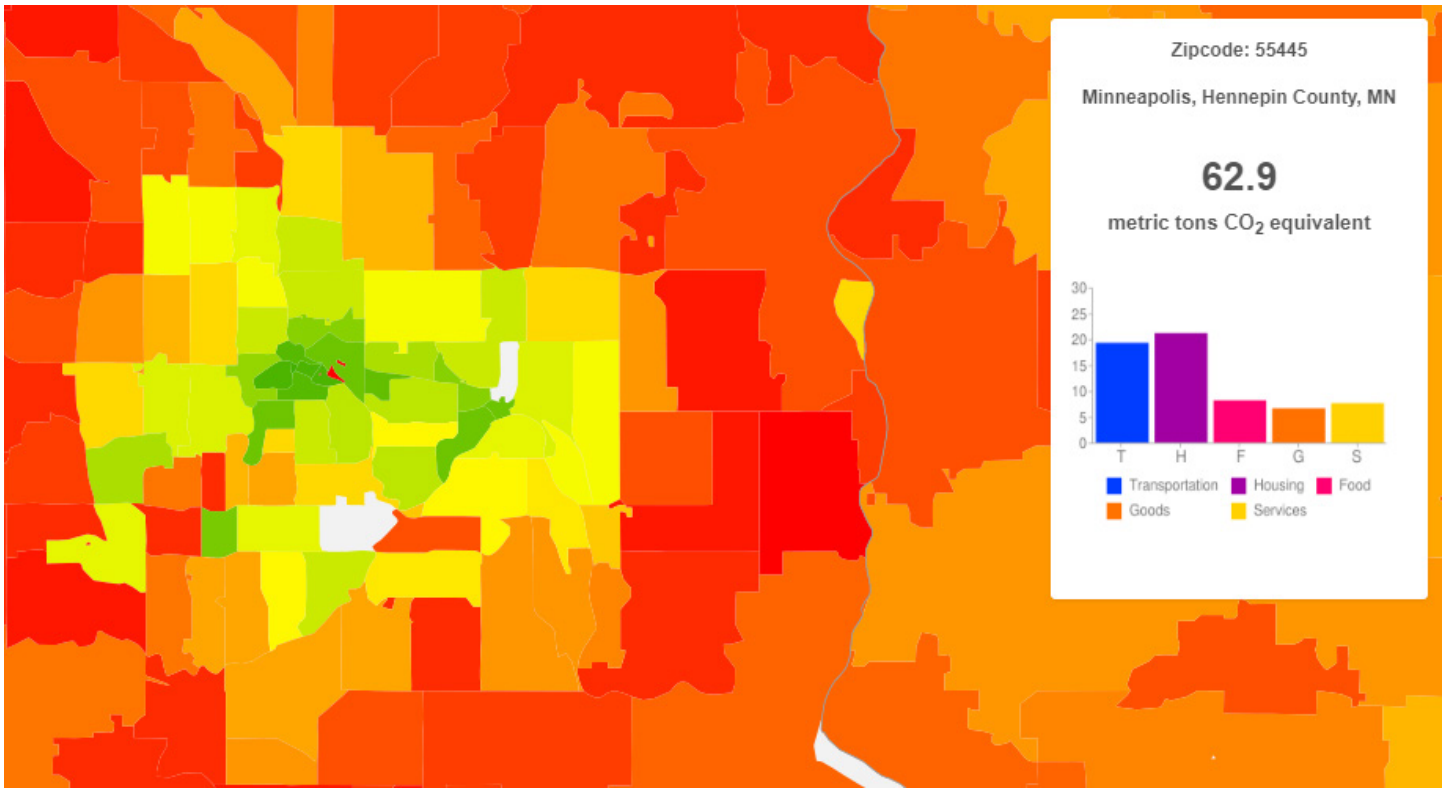


Fig.1-Graphic of CO2 emissions by zip code; Brooklyn Park contains zipcodes 55445 and a few others, found in the upper left of this image. Produced by UC Berkeley

Why Climate and Equity?

Who will be the most affected by the impacts referenced above? Vulnerability to the impacts of climate change do not affect all populations equally; people of color and people facing socioeconomic inequalities are more likely to experience negative climate impacts. Examples of these impacts include extreme heat with less access to air conditioning or cooling tree canopy, and increased exposure to extreme weather events and risks associating with flooding. Climate planning efforts and discussion often do not consult with or represent those most vulnerable. Instead climate adaptation discussions often represent a narrow range of residents and stakeholders, such as people with higher education, environmental NGOs, and city officials.[12]

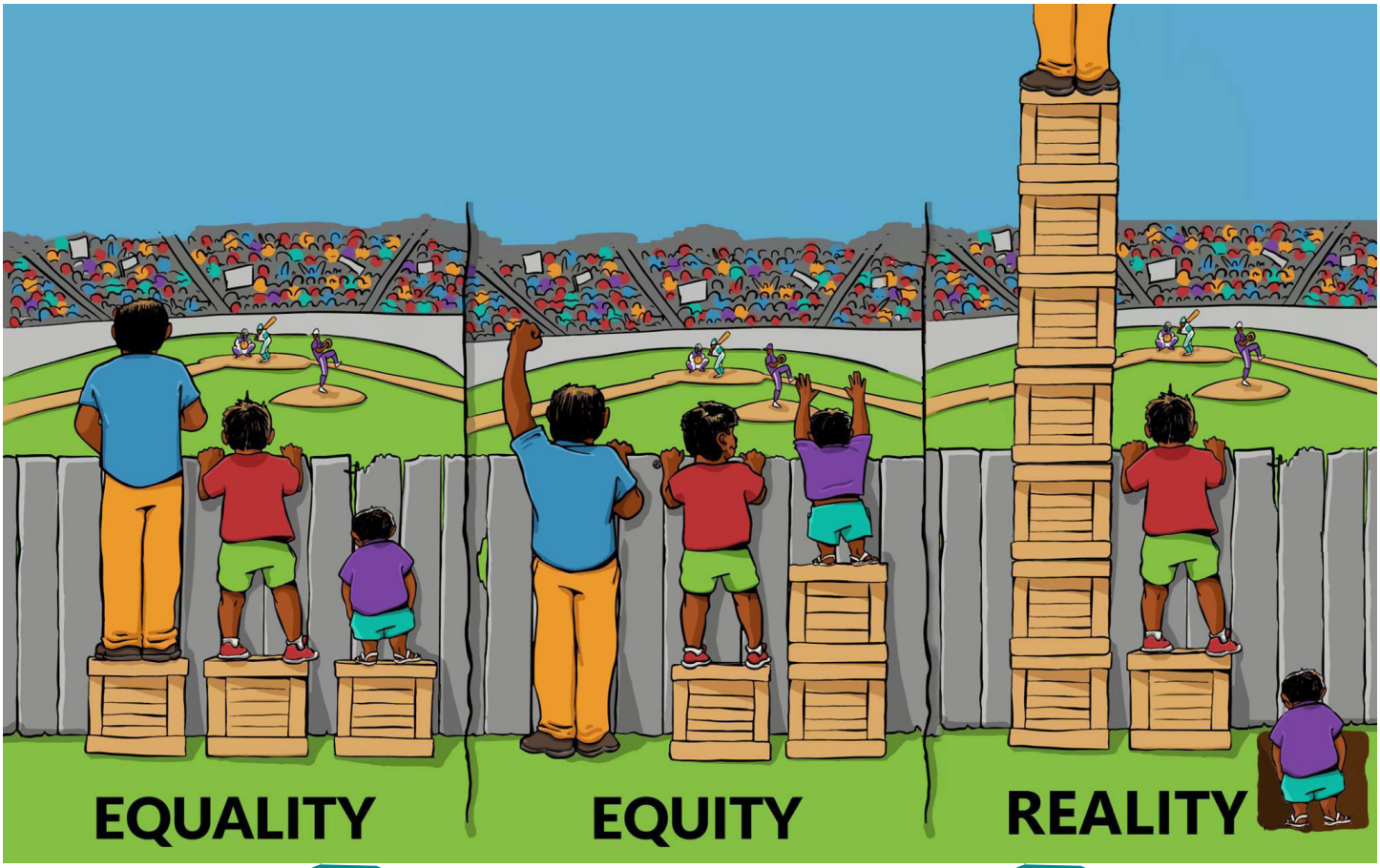
Cultural shifts due to expected climate impacts can be expected to continue and increase, these shifts can easily and ideally be tied with putting the most vulnerable first. Boston's 2011 CAP report "A Climate of Progress" made equity a central priority stating that "concern for the most vulnerable --- those most likely to be affected by climate change and those with the fewest resources for taking action ---- is one of the basic starting points."[13] As recognized in the Equity Assessment of the Twin Cities, "Choice, Place, and Opportunity" conducted by the Metropolitan Council continuing to ignore these disparities, vulnerabilities, and challenges will jeopardize the future vitality of the region.

As cities are working towards living more sustainably, we can also be learning how to leverage or partner that momentum with other culturally pressing issues. "Local investments to mitigate and adapt to climate change, if targeted correctly, have the potential to serve as tools of social and racial justice by tackling longstanding disparities and inequities within cities, from "food deserts" to health disparities (e.g., asthma rates) to unemployment and poverty rates."[14]

This is the core of why these efforts can and should be paired together, climate change efforts and social justice are well suited partners. Especially in Brooklyn Park, where the city already has demonstrated capacity to facilitate dialogue and push for policies that focus on equity as well as the knowledge that their diversity is powerful. The state of Minnesota demonstrates strong capacity for embracing the cultural shift towards addressing climate change and living a more sustainably. Brooklyn Park demonstrates strong efforts in embracing cultural shifts that pursue equity and embrace diversity. It is a good location to bring these movements together.

Key Elements to Equity Efforts

Understanding and defining the meaning of equity is a cruical starting point. It is knowing that personal and social factors (such as race, gender, religion, ethnicity, size, ability, sexual orientation, class, etc.) can function as barriers to equal opportunities in meeting needs; such as viable housing, jobs, transportation, and recreation. Working towards social equity is recognizing this and working to amend, decrease barriers, and create better access to opportunities for all varieties of residents. For a region to fulfill its potential all of its residents must be able to fulfill their potential.



Equality

– regarding or affecting all objects in the same way

Equity

– justice according to natural law or right; specifically: freedom from bias or favoritism

Fig.1-Image and definitioins depicting the difference between equality and equity, produced by Partnership for Southern Equity.[15]

Another key element is prioritizing diverse community involvement and knowledge. This can be understood through the use of social vulnerability assessments. Vulnerability assessments are used in disaster planning and research, to identify, quantify, and prioritize areas according to vulnerability. In this field social vulnerabilities are defined and rated in an index according to demographic factors such as poverty, sex, and race. The data is then mapped to give insight to past or predicted inequitable impacts.

This social vulnerability research has contributed much to the awareness and understanding of inequity as it relates to climate change and disasters. However, it is extremely rare for those indexes to be developed with the incorporation of local knowledge, or evaluated for accuracy by communities being assessed. This results in a narrow scope of understanding about how people are vulnerable. This kind of highly generalized data is useful for demographic analysis of disasters, but without incorporation of community knowledge it cannot produce locally appropriate strategies and policies that will reduce those vulnerabilities.[16] In fact many conventional adaptation strategies in CAPs, intended to reduce general vulnerability, end up increasing vulnerability or inequality for those already at risk.[17] Therefore, there is an understanding that a community centered approach is fundamental to meaningful effort and change. This CAP will put significant emphasis on growing and incorporating local knowledge in many of the goals, strategies, and actions.

"CAPs are front and center in the urban equity dilemma. ...creating a climate action agenda that simultaneously addresses environmental destruction while dismantling the raced, gendered, and classed axes of exclusion and disadvantage in American cities is the only environmentally and socially just option."[18]

Suggested Partnerships

Partnering with local leaders and organizations provide invaluable ability to access hard to reach populations. In considering partnerships, both local and regional organizations will benifit the pursuit of these strategies. Organizations in the area, but are not specific to Brooklyn Park could provide particular benefit despite not being directly affected by Brooklyn Park policies. For example, keeping and growing equitable affordable housing in the face of transit oriented development and population growth is incredibly complicated and difficult. It would provide beneficial insight to policy creation and CAP efforts to be partnered with regional advocacy groups; such as the Suburban Hennepin Housing Coalition, NAACP, Neighborhoods Organizing for Change (NOC), NOAH Impact Fund, etc. It might not be immediately clear how CAPs align with goals of various advocacy groups. However, with equity as the prominent theme, shared knowledge and discovery of common ground will enhance Brooklyn Park and further the goals of various organizations.

Relevant potiental partnerships incude but are not limited to:
African Career Education & Resource, Inc. (ACER), Black Lives Matter, Neighborhoods Organizing for Change, Community Action Partnership of Hennepin County, Metropolitan Interfaith Council on Affordable Housing (MICAH), CAPI USA, CLUES, Minnesota NOW, The Family Partnership, SURJ, The Youth Opportunity Center, and many more.

Climate Mitigation

What is mitigation? In the field of climate change, mitigation means the efforts to reduce greenhouse gas emissions. The ultimate purpose is the long term goal to reduce or limit human impact on climate change. For the purposes of CAPs mitigation is often called emission reduction strategies and refers to the actions, programs, and policies that a community undertakes to reach established reduction targets. These strategies are necessarily iterative, adapted to local conditions, and should attempt to balance reduction potential, upfront and ongoing costs, as well as social and political feasibility.

As mentioned in the equity section, the success of these strategies depends on governmental action, as well as the commitment and collaboration of the community. It is helpful to adapt language and emphasis of plans to fit various communities. For example, with equity as this plans emphasis, language to speak to residents may be adapted to highlight co-benefits and empowerment. In conversations about reduction strategies, some people may not care about reducing their carbon footprint. Changing the conversation to their ability to reduce electric bills or grow food in their yard to feed their family may be a better approach.

Green House Gas Inventory

Emission Reduction Strategies in CAPs usually start with a Greenhouse Gas Emissions Inventory. Though there is no specific inventory done for Brooklyn Park, efforts are already being made and acknowledged in the comprehensive plans to reduce emissions; such as moving energy towards renewable sources. This plan will utilize a 2014 statewide GHG inventory to estimate carbon emissions for the community. Though it is not Brooklyn Park specific, the estimates will help focus areas for reduction strategies suggested in this plan. A formal inventory would be helpful to establish a baseline for future projections and tracking progress, identify trends, and quantify benefits. However, the creation of a CAP and pursuing its actions is beneficial in many ways even without a formal inventory.

When pursuing an inventory - ICLEI, a global network of Local Governments for Sustainability, has a set of free and highly recommended downloadable protocols available to local governments to complete GHG emissions inventories. ClearPath, also created by ICLEI, is their web application for energy and emissions management. It can be used to conduct the inventory as well as store data, track progress, estimate cost benefits and many more functions.

Local policy audits should be done around the same time as the inventory. This will help identify policies that already support the functions of a CAP as well as to help identify what policies may be in conflict with reduction and equity efforts.

Recommeded Programs

There are two online programs Brooklyn Park may consider joining to broaden the scope knowledge of city climate change and sustainability efforts. Both are free and voluntary; providing access to online communities, best practices, tools, and frameworks for effort and evaluation.

Minnesota GreenStep Cities

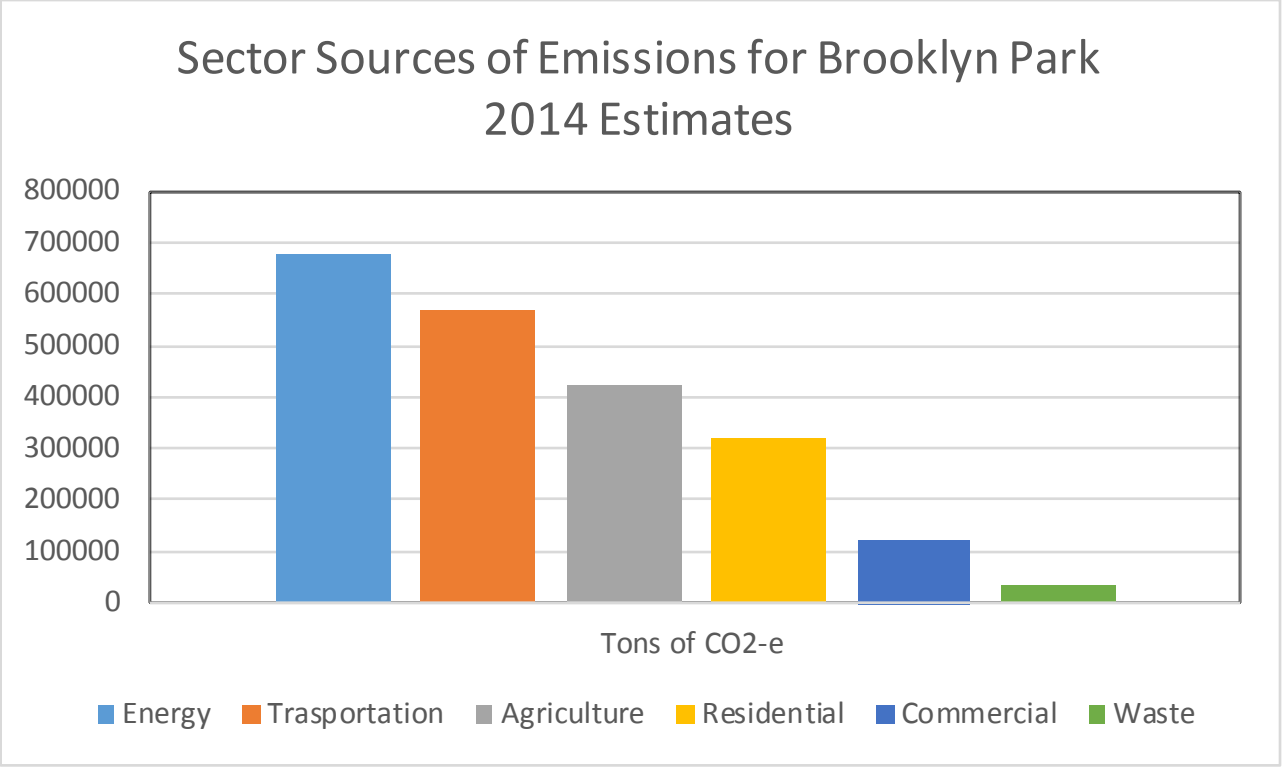
This is a assistance and recognition program to help cities achieve their sustainability and quality-of-life goals. This free program is based upon 29 best practices. Each best practice can be implemented by completing one or more actions at a 1, 2 or 3-star level, from a list of four to eight actions. These actions are tailored to all Minnesota cities, focus on cost savings and energy use reduction, and encourage civic innovation.[19]

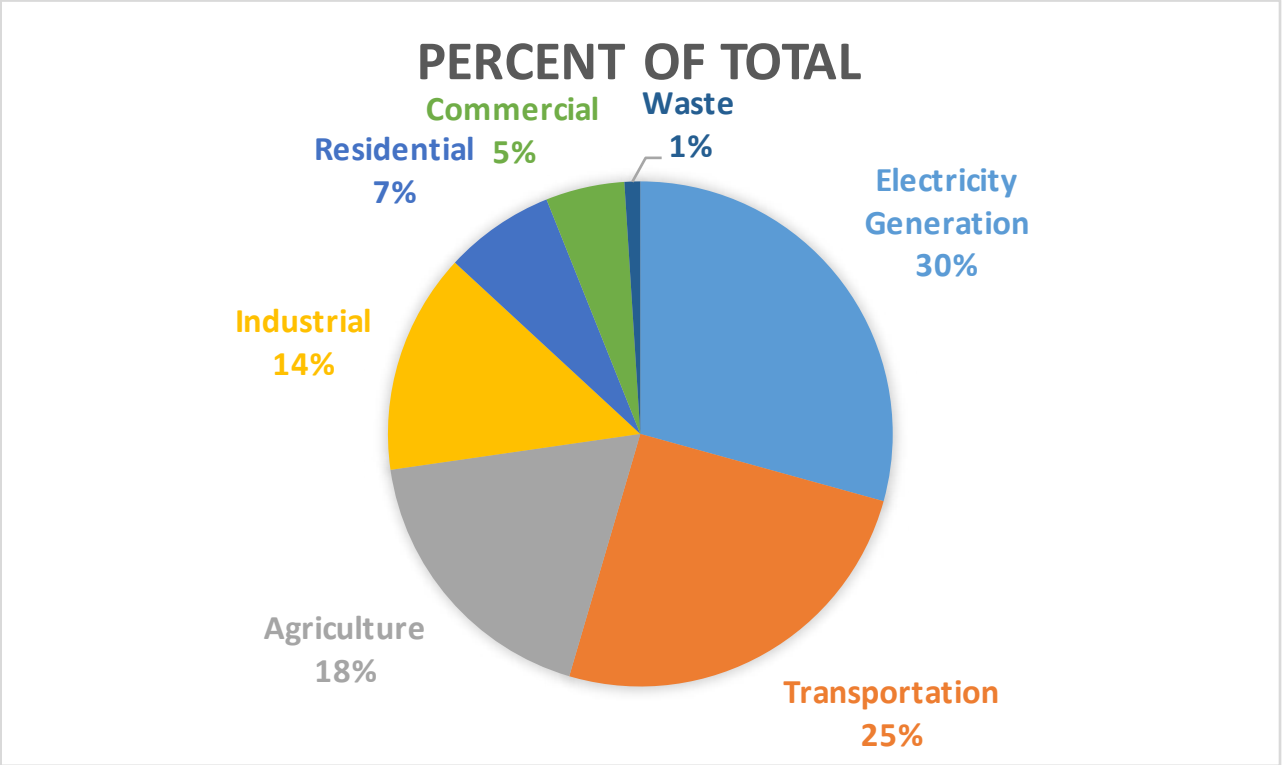
STAR Communities

This program provides a robust set of programs and services to meet diverse community needs. STAR can be used as a standalone framework for local sustainability, and it is also a management tool and certification program.[20]

Brooklyn Park GHG Estimate

Emission values are calculated using the emission values for the entire state of Minnesota, as found in 2014 Biennial Greenhouse Gas Emissions Reduction Report.[21] The percentages remain the same, but this provides a useful reference to guide focus areas of reduction strategies.





This shows us that the focus of reduction strategies for Brooklyn Park will be in the sectors of energy generation, transportation, and residential. Agriculture is also estimated to be a large emission sector, but is excluded due to the urban context of Brooklyn Park. However, since the city is suburban, there is potentially a large emission impact from high amounts of non-native grass lawns. In large quantities, the maintenance of turf grass lawns becomes a considerable source of carbon emissions and can be addressed through reduction strategies. The following graph, that depicts state changes in emissions, further demonstrates the need to focus reduction strategies on the increasing carbon demands of industrial, residential, and commercial sectors.

This plan will address reductions for energy generation, transportation, and housing. A less direct approach will also be included through developing community capacity and carbon sequestration.

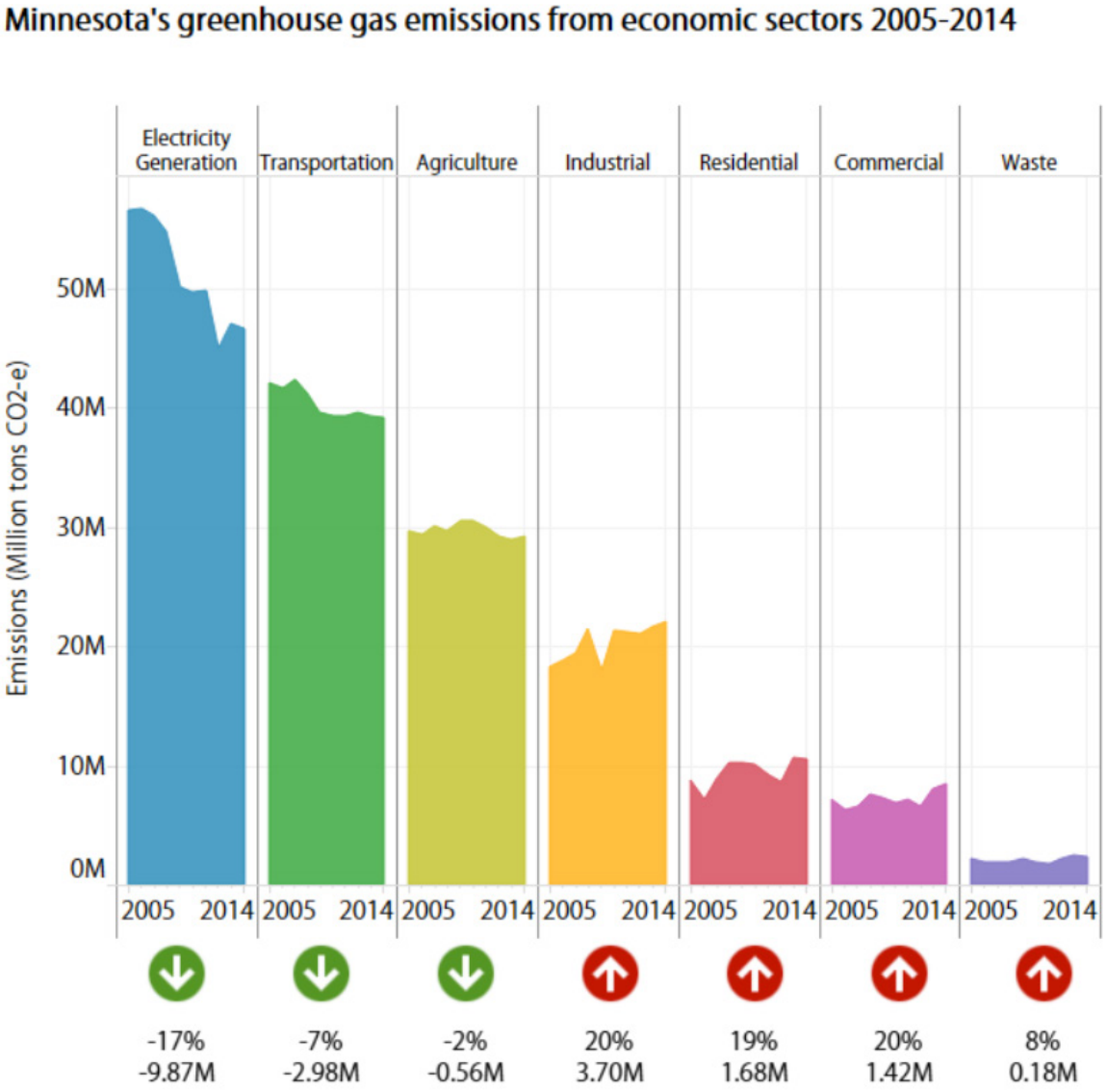


Fig.1-Graph depicting changes in Minnesota GHG emissions, produced by Minnesota Pollution Contol Agency.[22]

Overall Measures to Consider

Facilitate Inclusive Civic Engagement

Elevate and maintain robust social policies

Vegetation for Carbon Sequestration and Co-benefits

Reduce Transportation Emissions

Energy Use Reduction

Increasing Alternative Energy Generation

Measure 1: Facilitate Inclusive Civic Engagement

Plans that seek to address the equity cannot do so without diverse voices included in the decision making process. This is addressed by building community capacities for leadership, awarness, and economic success. For reference, many of these objectives and actions were adapted or influenced by the STAR Communities Equity and Empowerment Goal and Evaluation Framework as well as publications referenced in the Why Equity chapter.

Objective 1.1 - Create an online and accessible presence.

Action - Create a task force to determine the best ways to generate how to be more available to the public and for partnerships.

Action - Create website, email, and/or social media platform to centralize how people can reach out.

Action - Publicize regular and ongoing opportunities for upper level municipal staff and elected officials to meet with public and hear concerns.

Objective 1.2 - Form partnerships.

Action - Involve municipal staff interested in pursing, or already involved in activism or community organizations. In this way staff can provide powerful nodes of connection into the community.

Action - Reach out to known stakeholders, maintain and broaden connections.

Action - Specifically prioritize outreach to organizations advocating for rights of marginalized populations.

Action - Develop listserv for extensive list of organizations and individual leaders to invite continual participation.

Objective 1.3 - Raise awareness in lay community and develop community networks.

Action - Create education programs on climate change impacts and climate change preparedness.

Action - Employ projects pursued in the Reference the Ready & Resilient: Climate Preparedness in Saint Paul, Minnesota project conducted in St. Paul. Such as, development of local leadership to provide invaluable access to hard to reach communities and empowering those leaders to pursue actions that benefits the community.

Action - Community workshops for co-production of knowledge and visioning of climate change futures.

Objective 1.4 - Cultivate diverse community representation.

Action - Actively work to involve women and people of color in leadership roles.

Action - Provide capacity and leadership building programs to adults and youth in the area, focusing on low to middle income areas and communities of color.

Action - Establish policies for local government and advisory boards that include requirements of tracking and reporting demographic composition such as race, ethnicity, gender, age, ability, etc.

Action - Provide language and translation services to ensure all residents have access to government and resources.

Objective 1.4 - Safer more cooperative meetings.

Action - Provide training to municipal staff and elected employees on anti-oppressive facilitation.[23]

Action - Restructure routines of meetings to include introductions to guidelines of respectful discussions.

Action - Provide a trained mediator or facilitator at meetings with partners or residents in which tensions are expected.

Measure 2: Elevate and Maintain Robust Social Policies

Today's research has shown that CAPs often maintain harmful dynamics that maintain and deepen inequality in communities.[24] CAPS that do not prioritize social policies, or center representative communities, are likely to intensify the vulnerability and inequality in already vulnerable communities.

Therefore, this measure means these policies will need to be considered not as separate from mitigation and adaptation efforts, but as a fundamental part of sustainability efforts.

Objective 2.1 - Ensure no communities are overburdened by environmental pollution.

Action - Conduct comprehensive environmental justice assessments.

Action - Adopt plan to reduce vulnerability and exposure of vulnerable communities to environmental risks.

Action - Create Community Benefit Agreements (CBAs) for remediation and transparency in addressing environmental justice concerns. These can be current concerns or expected concerns related to new development.

Objective 2.2 - Prevent a disproportionate impact on urban low-income residents by aggressively maintaining and developing affordable housing.

Action - Maintain or create strong policies that cap and regulate accommodation costs, particularly rentals, as sustainability improvements are made.

Action - Create policy that ensures low and middle income residents will be given priority in benefits from transit oriented development.

Action - Increase priority and strengthen policies for fair housing enforcement.

Action - Develop policies to ensure those most vulnerable to displacement will be included in decision making processes that will result in changes to housing stock.

Objective 2.3 - Job fairness and security.

Action - Create a skills-based hiring campaign.

Action - Create bridge programs to prepare low-skill job seekers.

Action - Establish and expand industry partnerships, focusing on the benefits that innovation, diversity, and sustainability can bring.

Action - Attract green job industries to increase the job market and create bridge programs that prioritize these opportunities for minorities.

Objective 2.4 - Ensure equitable access to community facilities, services and infra structure.

Action - Identify areas that need increased access and proximity to community assets.

Action - Publicize efforts to identify needs for equitable access, providing opportunities for community input.

Action - Create a plan to establish baselines and targets to improve proximity and access.

Measure 3: Vegetation for Carbon Sequestration and Co-benefits

Vegetation, such as trees and native plants, can provide many benefits. Trees can provide energy demand reductions through shade, decrease the intensity of the urban heat island effect, as well as absorb and store carbon for long periods of time.[25] Native plants are low maintenance, and help secure soil and water that can reduce impacts of flooding and drought.

Objective 3.1 - Increase and maintain native plantings to decrease carbon intensive turf grass plots.

Action - Adapt lawn policies to allow for increased height variability of native planted yards.

Action - Convert all public lands to native plantings.

Action - Through environmental partnerships, create seed libraries to provide low income community members with access to seeds and resources.

Objective 3.2 - Increase and maintain tree canopy.

Action - Identify hardy native species that provide shade for energy savings and locations where maximum energy saving can be achieved.

Action - Create tree planting program, providing free or low cost trees and education on care for land owners.

Action - Focus tree planting program on targeted low-income areas that will benefit the most from cooling and decreased energy costs.

Action - Specifically consider how to reach landlords of low income housing. Bring landlords and tenants together to provide education that demonstrates mutual benefits.

Objective 3.3 - Increase access and proximity to green space, prioritizing areas with the least access and low income areas first.

Action - Identify areas where there is not equitable access to parks or open space.

Action - Create plan to bring every person within a half mile of a park or community garden.

Objective 3.4 - Increase community gardens.

Action - Reclaim unused plots and curb strips and either convert to low maintenance landscaping or use to create garden plot program.

Action - Pilot a garden plot program that will provide access to sliding scale rental plots.

Action - Maintain and publicize community orchards and gardens available for free food and volunteer work.

Action - Partner with locals passionate about urban foraging and gardening to generate map of publicly accessible food plants and gardens.cluded in decision making processes that will result in changes to housing stock.

Measure 4: Reduce Transportation Emissions

Transit oriented development, while having the greatest potential to benefit low-income communities, often creates the opposite effect. With the growing desirability of urban amenities, housing near public transportation and mixed used development is quickly becoming prime real estate. This pushes low income individuals further into suburbs, becoming more reliant on personal transport and spending more of their income on related travel expenses. This explains how CAPs employing conventional uses of pricing schemes (such as taxes on fuel) and land use policy perpetuates inequality.

Therefore, the path forward for this measure must focus on increasing access and proximity to transit options while aggressively protecting affordable housing.

Objective 4.1 - Increase and maintain ridership through proximity to affordable housing.

Action - Create policies that mandate high levels of affordable housing near new transit oriented development.

Action - Ensure policies maintain the longevity of current affordable housing near new transit developments.

Objective 4.2 - Increase safety and ridership by reducing vulnerability of women and LGBTQ+.

Action - Conduct workshops centering the voices of women and LGBTQ+ people on challenges, violence, and harassment faced with using public transportation.

Action - Use input to innovate policies, trainings, designs, or lighting schemes to ensure greater safety.

Objective 4.3 - Increase proximity to transit options, focus on low income areas first.

Action - Coordinate local public transit lines with regional lines to identify possible expansion areas.

Action - Conduct survey of area entry level and low wage employees to provide possibilities for increasing access to their places of employment and neighborhoods.

Action - Consult with expansion area residents to ensure interest and capacity to transition towards public transit.

Action - Consult with large employers and employees to analyze capacity to create new routes, ride shares, or park and rides.

Objective 4.4 - Increase proximity to alternative transit options.

Action - Consult or survey residents to determine necessary safety and expansion measures needed to generate increased use of walking and biking paths.

Action - Identify and plan expansions of bike and pedestrian paths.

Action - Promote and publicize new expansions with neighborhood celebrations that bring together residents, municipal staff, and elected officials.

Measure 5: Energy Use Reduction

This is often addressed with measures such as 'green building policies' that improve energy efficiency in homes through upgrades to insulation, windows, rainwater capture, and more. These policies tend to reproduce and increase economic inequality; upgrades being profitable investments for homeowners but increasing housing prices for non-homeowners. "Those who do not own are forced to spend a growing percentage of their income on housing that is not accruing equity while contributing less to personal saving in the hope of future ownership." Landlords are able to displace the cost of upgrades onto renters, negating discounts gained from upgrades. For some, lack of access to capital often disqualifies those who might wish to make energy and cost saving retrofits.

Therefore, the path forward for this measure is to discontinue the conventional use of 'green building policies' and focus again on ensuring affordable housing stock stays affordable through upgrades. As well as prioritizing robust social policies that provide grants and assistance to low income people seeking energy saving upgrades.

Objective 5.1 - Increase energy efficiency for renters.

Action - Support and increase enforcement of building standards, including increased efforts to address negligent practices of "slumlords."

Action - Point of sale energy efficiency upgrades.

Objective 5.2 - Increase access to energy saving upgrades.

Action - Establish incentive program prioritizing low income households.

Measure 6: Increasing Alternative Energy Generation

Brooklyn Park has already begun work towards this measure as evidenced in the comprehensive plan; analyzing gross solar potential and altering policies to remove barriers to installing solar panels. Low income families have the most to gain from the economic benefits of installed solar pan-

els. However, it is very difficult to get these benefits to this demographic through the standard CAP measures for alternative energy generation. Standard measures include mandating utility companies use more renewable fuels, fees and taxes on energy consumption, and incentives for installing energy generators on the building site. With an increasing alternative energy portfolio often comes increased energy costs. Any increase in energy costs will disproportionately affect lower income Americans because they already spend a greater percentage of their income on energy bills.

Therefore, the path forward for this measure will need to prioritize social programs that provide low-income energy assistance and create innovative solutions with community members that don't exacerbate inequality.

Objective 6.1 - Increase energy efficiency for renters.

Action - Conduct research on programs that have been successful in expanding solar opportunities for rental properties without passing the expenses on to the tenant and maintaining affordability.

Action - Create program to bring solar energy to low income homeowners, Reference the successes and failures of California Single-family Affordable Solar Homes (SASH) program or other related programs for local adaptation.

Action - Create a program to incentivize installation of solar panels for home owners, starting with larger incentives for the lowest income bracket.

Objective 6.2 - Grow energy industries renewable energy portfolio. Focus actions and considerations that counter disproportionate impacts or rising energy costs.

Action - Partner with local and regional organizations such as energy providers, fair housing boards, and energy assistance programs.

Action - Create plan for bulk purchasing of energy through local government or NGOs as a means to regulate energy prices.

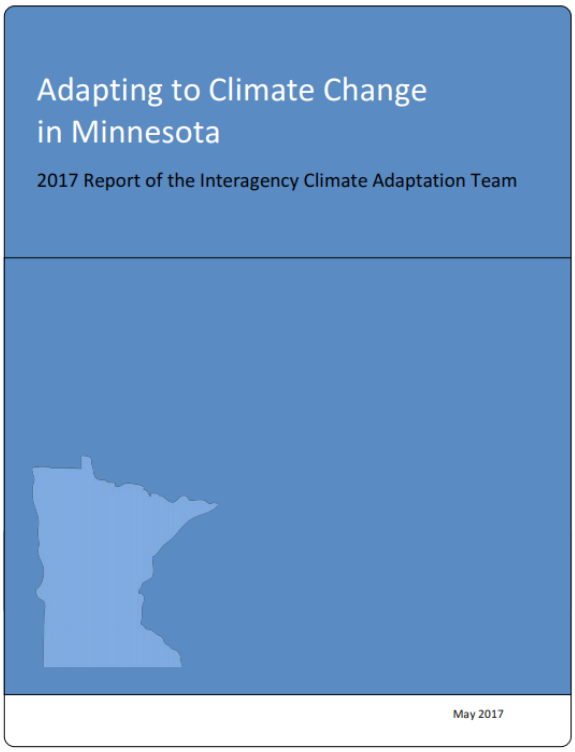
Action - Initiate policy that mandates compensation for low-income communities who are negatively impacted in the effort to meet community reduction challenges.

Climate Adaption

What is adaptation? This is where climate change planning coincides with hazard mitigation planning. Adaptation means planning for current or expected natural hazard impacts. Adaptation differs from natural hazard mitigation through incorporating climate change science and preparing for current and expected impacts of climate change.

Natural hazard mitigation planning can provide history and insight that informs adaptation planning. However, as climate change affects our ecosystems in ways scientists can only predict, the historic patterns used to predict hazards are no longer adequate. For some communities the expected climate change impacts are a continuation or increased severity of experienced historical natural hazards. Other communities will experience new types of natural hazards. Adaptation planning must be used to prepare in ways that can save lives, property, and environmental damage. There is a greater element of uncertainty, or the difficulty in deciding what to prepare for and how to invest, given the complexity on variable predictions associated with climate change. Moving forward means bringing together hazard mitigation and adaptation strategies that are much more flexible, cost-effective, specific, and integrative.

A key text for understanding the impacts, strategies, and extensive resources available to Brooklyn Park in adaptation planning is the 2017 Report: Adapting to Climate Change in Minnesota. This document was produced by a team set up through the Minnesota State Department of Safety and the 2014 Hazard Mitigation Plan. Environmental changes detailed within report predict expected impacts of degraded air quality, increased drought, extreme weather events, changing seasonality, increasing temperatures, and extreme heat.



Many efforts promoted in CAPs can provide benefits for adaptation and mitigation simultaneously.

Climate adaptation practice	Climate adaptation benefits	Climate mitigation benefits
Urban and community trees	• Provides cooling that increases resilience to extreme heat and the urban heat island effect • Increases resilience to heavy rainfall by interception of raindrops by leaves and absorption of water by roots	• Shade from trees can reduce energy use for air conditioning in the summer • Acts as a windbreak that can block cold winter winds, reducing energy needed for heating
Water conservation	• Increases resilience to drought by reducing need for and use of groundwater and surface water	• Reduces need for energy used to purify and transport water
White roofs and green roofs	• Increases resilience to extreme heat	• Reduces need for air conditioning in the summer
Home insulation	• Increases resilience to extreme heat and cold	• Reduces energy needed for cooling and heating

Fig.1-Table depicting adaptation practices and benefits, produced by Interagency Climate Adaptation Team.

The primary goal of adaptation is protection of the most vulnerable populations in Brooklyn Park. To identify vulnerable populations there are two publications by the Metropolitan Council that will narrow down specific areas and demographics to focus on: The Climate Vulnerability Assessment, and Choice, Place and Opportunity. Generally, vulnerability will be found where there are concentrations of populations who are low income, women, people of color, disabled, immigrants, elderly, or gender and sexual minorities. This is not to say people who face one or more of those disadvantages is inherently vulnerable; e.g. people of color are not intrinsically more vulnerable to natural disasters. The problem of vulnerability to climate change and disasters is not because someone is insert demographic indicator here. Rather it's due to institutional and systemic structures (historic and present laws, policies, design, etc.) that produce unintended or intended disadvantage for certain demographics.

The best way to find out in what ways a people experience vulnerability, and what to do about it, is by consulting with those communities. A key to starting this process is to co-produce a social vulnerability index with local neighborhood leaders, organizational partnerships, and residents.

Overall Measures to Consider

Generate community capacity

Social Vulnerability Assessment

Natural hazards preparation

Prepare for increasing temperatures and heat waves

Prepare for flooding and heavier precipitation events

Measure 1: Generate Community Capacity

Similar to the action of raising awareness addressed in the mitigation section, this goal is focused on how to increase knowledge, participation, and self empowered action to identify and reduce vulnerability to expected impacts. A key publication to consult in efforts to develop capacity is Ready & Resilient: Climate Preparedness in Saint Paul, Minnesota.

Endnotes

1 Hurley, Amanda Kolson. "Why Brooklyn Park, Minnesota, Is the New Face of Suburbia." CityLab, 11 Feb. 2016, http://www.citylab.com/housing/2016/02/brooklyn-park-minnesota-suburbia-affordable-housing/461955/.

2 Brooklyn Park 2025: Planning the City's Future - About Us | Brooklyn Park. https://www.brooklynpark.org/brooklyn-park-2025-planning-the-citys-future/.

3 Time Capsule - History - Photo Galleries | Brooklyn Park. https://www.brooklynpark.org/history/.

4 Park, City of Brooklyn. Brooklyn Park 2040 Comprehensive Plan Draft: Community Profile. https://www.brooklynpark.org/assets/1/25/2_-_Community_Profile_for_PH.pdf.

5 Hurley, Amanda Kolson. "Why Brooklyn Park, Minnesota, Is the New Face of Suburbia." CityLab, 11 Feb. 2016, http://www.citylab.com/housing/2016/02/brooklyn-park-minnesota-suburbia-affordable-housing/461955/.

6 Comprehensive Plan - Business and Development | Brooklyn Park. http://www.brooklynpark.org/business-development/comprehensive-plan/.

7 Comprehensive Plan - Business and Development | Brooklyn Park. http://www.brooklynpark.org/business-development/comprehensive-plan/.

8 Administration, County Government. Hennepin, MN: Cool County Initiative. https://www.hennepin.us/your-government/projects-initiatives/cool-county.

9 Great Lakes Integrated Sciences. Climate Change in the Great Lakes Region. NOAA, 8 June 2014, http://glisa.umich.edu/media/files/GLISA_climate_change_summary.pdf.

10 Interagency Climate Adaptation Team, Minnesota Pollution Control Agency, Paul Moss. Adapting to Climate Change in Minnesota 2017. May 2017, https://www.pca.state.mn.us/sites/default/files/p-gen4-07c.pdf.

11 Melillo, Jerry M., Terese (T.C.) Richmond, and Gary W. Yohe, Eds., 2014: Highlights of Climate Change Impacts in the United States: The Third National Climate Assessment. U.S. Global Change Research Program, 148 pp.

12 Phadke, R., C. Manning and S. Burlager. 2015: Making it Personal: Diversity and Deliberation in Climate Adaptation Planning. Project Reports. D. Brown, E. Gibbons, and I. Robinson. Eds. Available from the Great Lakes Integrated Sciences and Assessments (GLISA) Center. http://glisa.umich.edu/projects/making-it-personal-diversity-and-deliberation-climate-adaptation

13, 14 Greg Schrock, Ellen M. Bassett, and Jamaal Green. "Pursuing Equity and Justice in a Changing Climate Assessing Equity in Local Climate and Sustainability Plans in U.S. Cities." Journal of Planning Education and Research, vol. 35, no. 3, Sage Publications, 09/2015, pp. 289.

15 Partnership for Southern Equity | Together We Prosper. http://psequity.org/.

16 Reckien, Diana, et al. "Climate Change, Equity and the Sustainable Development Goals: An Urban Perspective." Environment and Urbanization, vol. 29, no. 1, SAGE Publications Ltd, Apr. 2017, pp. 159–82.

17 Godfrey, Phoebe, and Denise Torres. Systemic Crises of Global Climate Change: Intersections of Race, Class and Gender. Routledge, 2016.

18 Godfrey, Phoebe, and Denise Torres. Systemic Crises of Global Climate Change: Intersections of Race, Class and Gender. Routledge, 2016.

19 Minnesota GreenStep Cities. https://greenstep.pca.state.mn.us/index.cfm.

20 STAR Communities | Sustainability Tools for Assessing and Rating Communities. http://www.starcommunities.org/.

21, Claflin, Anne. Greenhouse Gas Emissioners: 1990-2014 Legislative Report. Minnesota Pollution Control Agency, Jan. 2017, https://www.pca.state.mn.us/sites/default/files/lraq-2sy17.pdf.

22 Claflin, Anne. Greenhouse Gas Emissioners: 1990-2014 Legislative Report. Minnesota Pollution Control Agency, Jan. 2017, https://www.pca.state.mn.us/sites/default/files/lraq-2sy17.pdf.

23 AORTA | Anti-Oppression Resource and Training Alliance. http://aorta.coop/.

24 Godfrey, Phoebe, and Denise Torres. Systemic Crises of Global Climate Change: Intersections of Race, Class and Gender. Routledge, 2016.

Jacobs, Fayola. “Black Feminism and Radical Planning: New Directions for Disaster Planning Research.” Planning Theory, SAGE Publications, Mar. 2018, p. 1473095218763221.

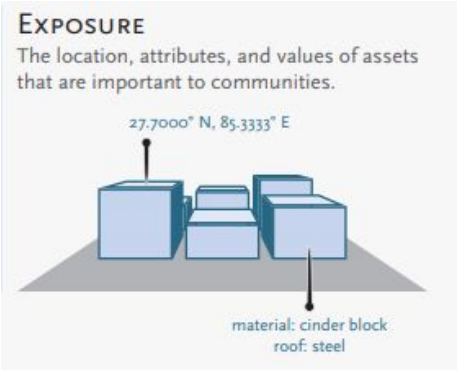
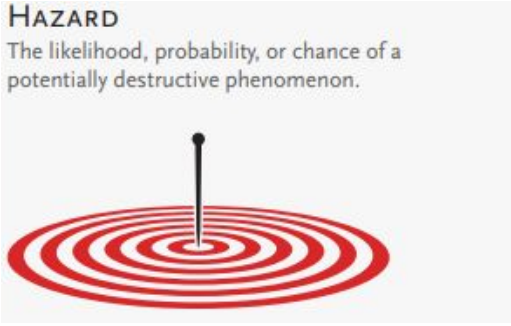
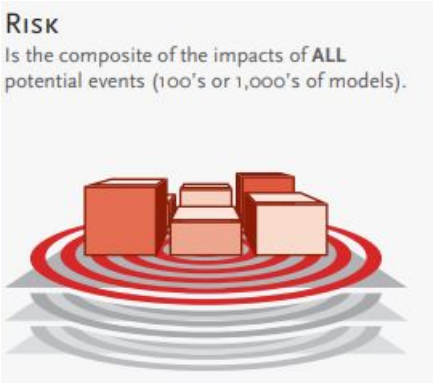
Phadke, Roopali, et al. “Ready & Resilient: Climate Preparedness in Saint Paul, Minnesota.” Project Reports, 2016, pp. 1–14.

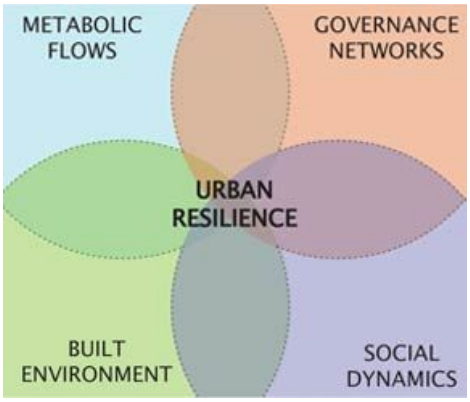
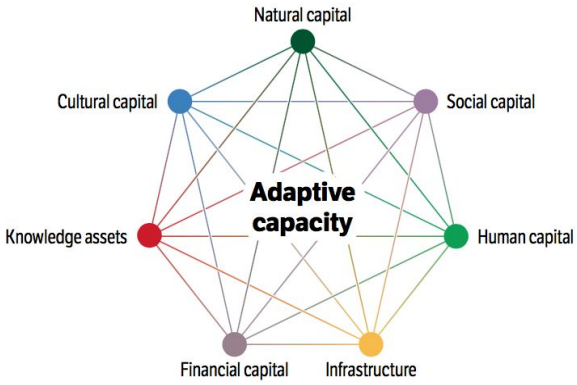
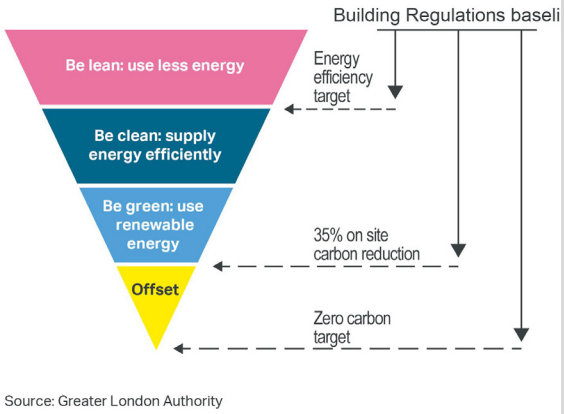
Reckien, Diana, et al. “Climate Change, Equity and the Sustainable Development Goals: An Urban Perspective.” Environment and Urbanization, vol. 29, no. 1, SAGE Publications Ltd, Apr. 2017, pp. 159–82.

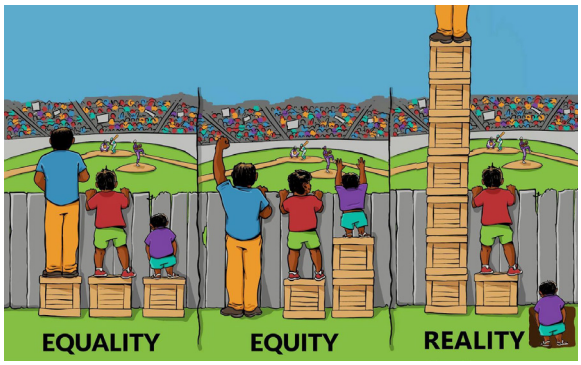
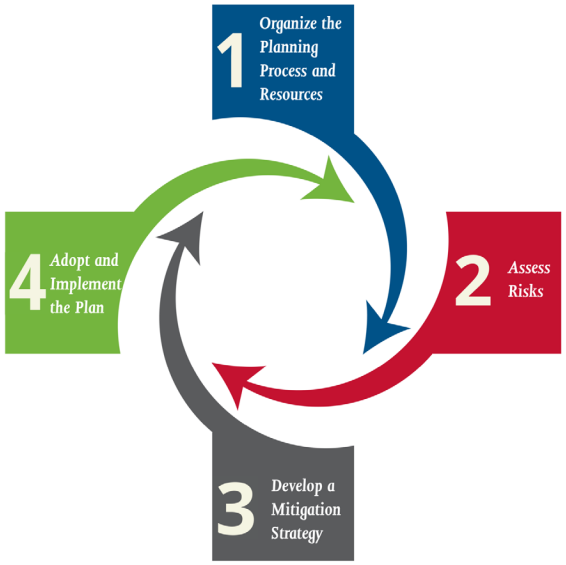
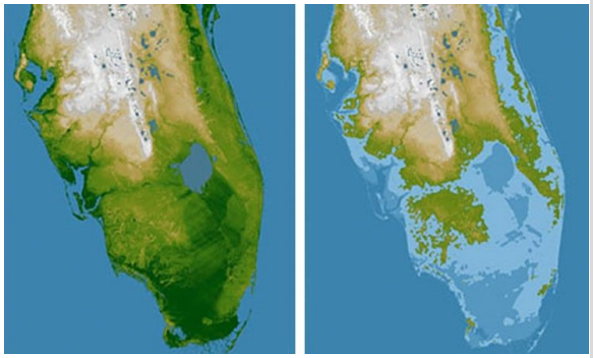
Russo, Chandra, and Andrew Pattison. “Climate Action Planning: An Intersectional Approach to the Urban Equity Dilemma.” Systemic Crises of Global Climate Change: Intersections of Race, Class, and Gender, Routledge New York, NY, 2016, pp. 250–62.

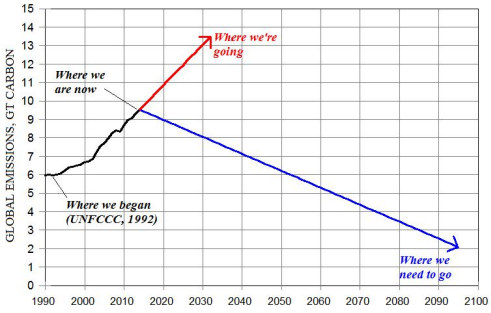
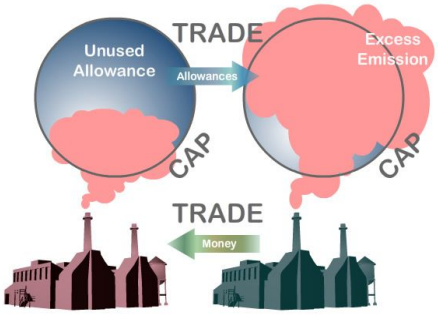
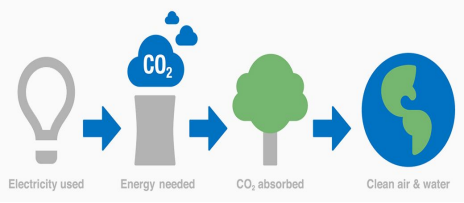
25 Stone, Brian, and Jr. The City and the Coming Climate: Climate Change in the Places We Live. Cambridge University Press, 2012.

Illustrated Glossary
Compiled by Anna Cohen, Courtland Triplett, and Penn Pennel

Exposure		Global Facility for Disaster Reduction and Recovery. ***Open Data for Resilience Initiative Field Guide.*** International Bank for Reconstruction and Development/ The World Bank, 2014.	The degree to which a population, ecological resource, or property is exposed to hazard.
Hazard		Global Facility for Disaster Reduction and Recovery. ***Open Data for Resilience Initiative Field Guide.*** International Bank for Reconstruction and Development/ The World Bank, 2014.	The potential and inherent danger associated with a natural or human-induced problem; such as an earthquake, flood, etc.
Vulnerability		Global Facility for Disaster Reduction and Recovery. ***Open Data for Resilience Initiative Field Guide.*** International Bank for Reconstruction and Development/ The World Bank, 2014.	The degree to which a system is susceptible to, and unable to cope with, adverse effects of exposure to hazards. This includes the effects of climate change, such as climate variability and extremes.
Risk		Global Facility for Disaster Reduction and Recovery. ***Open Data for Resilience Initiative Field Guide.*** International Bank for Reconstruction and Development/ The World Bank, 2014.	Resides at the center of overlap between hazards, exposure to hazards, and vulnerability to damage overlap, it is the probable amount of damage or injury expected.

Potential Impact		Global Facility for Disaster Reduction and Recovery. ***Open Data for Resilience Initiative Field Guide.*** International Bank for Reconstruction and Development/ The World Bank, 2014.	The potential impact is a combination of exposure and vulnerability of a climate hazard. The potential impact can be offset by adaptive capacity, or its ability to bounce back.
Resilience		Greening the Rust Belt http://www.rust2green.org/urban_resilience.php	The ability to absorb disturbances without becoming unable to adapt, bounce back, organize, and learn.
Adaptive Capacity		Arctic Resilience Report 2016 https://www.weadapt.org/knowledge-base/vulnerability/arctic-resilience-report-2016	Similar to resilience, this is the ability of a system to adapt to changes, cope with disturbances, or adjust to consequences when the known system or environment is changing.
Emission Reduction Strategies	 Source: Greater London Authority	The Energy Hierarchy and associated reduction targets from the New London Plan https://www.london.gov.uk/what-we-do/planning/london-plan/new-london-plan/draft-new-london-plan/chapter-9-sustainable-infrastructure/policy-si2-minimising-greenhouse-gas	Strategies are recommended actions that consist of best practices to reduce the amount of greenhouse gases emitted.

Equity		Partnership for Southern Equity http://psequity.org/	Personal and social factors (such as race, gender, religion, ethnicity, size, ability, sexual orientation, class, etc.) can function as barriers to equal opportunities in meeting needs; such as viable housing, jobs, transportation, and recreation. Working towards social equity is recognizing this and working to amend, decrease barriers, and create better access to opportunities for all varieties of residents. For a region to fulfill its potential all of its residents must be able to fulfill their potential.
Hazard mitigation		FEMA Hazard Mitigation Planning Process https://www.fema.gov/hazard-mitigation-planning-process	Collective actions taken to reduce long-term risks of hazards.
Climate Change		NPR article and image demonstrating sea level rise in Florida https://www.ecowatch.com/npr-rising-sea-levels-made-this-florida-mayor-a-climate-change-believe-1891133975.html	A change in the state of climate that is measurable and persists for an extended period of time (decades of longer). It can be attributed to natural processes (such as solar cycles), and directly or indirectly to human activities (such as burning of fossil fuels that release GHG).

Adaptation		Victoria State Government Retrieved from: https://www.climatechange.vic.gov.au/adapting-to-climate-change-impacts	Action which helps to address the various consequences of climate change by making changes to mitigate them.
Business as usual		Energy Matters (2015) Retrieved from: http://euanmearns.com/climate-change-and-carbon-emissions-the-case-for-business-as-usual/	A situation used for predictions of future emissions based on the assumption that no adaptive changes will be made to lessen the severity of a problem.
Cap and trade		Solidarity (2014) Retrieved from: https://solidarity-us.org/response_to_robin_hahnel/	Emission trading plan in which an emissions cap is set by the government and companies can sell/buy allowances by exchanging them.
Carbon footprint		Be Green Commuter	Quantity of carbon used by a person or organization in a set amount of time.
Carbon Offsetting		Arbor Day Foundation Retrieved from: https://www.arborday.org/takeaction/carbon/about.cfm	Counterbalancing carbon emissions with the reduction equivalent in the atmosphere.

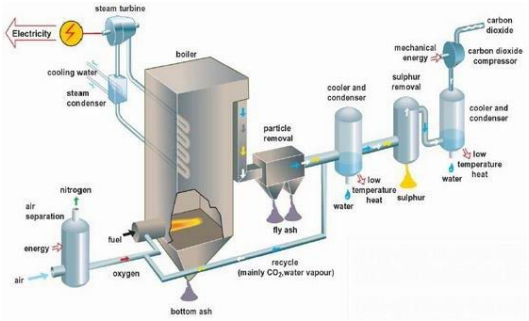
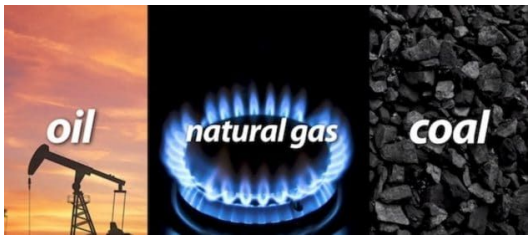
Clean coal technology		Rocky Mountain Coal Mining Institute. Retreived from: http://www.rmcmi.org/education/clean-coal-technology#.W0mkNtJKiUk	This type of technology allows for coal to be burned with putting carbon in the atmosphere.
Climate change		Wall Street Daily (2015). Retrieved from:https://www.wallstreetdaily.com/2015/10/22/un-climate-change-conference/	An observed pattern of changes that affect the Earth's climate. These changes can be due to both human and natural causes.
Fossil fuels		Airneeds (2017) Retrieved from: https://airneeds.com/which-is-not-a-drawback-of-using-fossil-fuels/	These are natural resources which hold hydrocarbons that create carbon dioxide when burned.Examples of this are natural gasses and coal.
Energy Conservation		Energy Conservation Building Code (2017). Retrieved from: https://www.examveda.com/energy-conservation-building-code-2017-launched/	Way of minimizing the amount of wasted energy, such as turning off lights, using less water, etc.
Green Building		HHDC GREEN: Building a Sustainable Future (2017) Retrieved from: http://hhdcgreen.blogspot.com/	Comprehensive strategy to innovate, construct, and demolish structures in a way that reduces impact on the community and environment.

Image taken from Calum Prasser's blog about Urbanism

Liveability: Liveability is a way to measure how liveable a certain environment is, for most suburban/urban residents it accounts for; how close certain services are within walking distance, access to services (such as; grocery stores, postal, parks, schools, etc.), parking, etc. An ideal neighborhood has great liveability if a resident can walk to services in 10 minutes, sidewalks and roads are in good condition, and it is safe.

Image taken from Austin Food Magazine

Non-Motorized Travel/Active Transportation: Commonly referred to as alternative transportation methods, both active and non-motorized transportation include; walking and biking.

Image taken from Boston Museum of Science

Extreme Weather Events: These events are based off of historical weather data in your area. Extreme weather events could be severely high temperatures, severe thunderstorms, to other weather events that are beyond the area's norm.

Image taken from the US Land Trust Alliance

Climate Mitigation: Climate Mitigation refers to reducing behaviors or processes that cause greenhouse gas emissions. Climate mitigation strategies often refer to new technologies like renewable energy or, by changing behavior like using alternative transportation methods.

Image taken from Concerned Scientists Blog

Climate Adaptation: Adaptation refers to taking actions to cope to the new climate conditions. For example, some cities along the East Coast are adapting to rising sea levels and higher rates of floods by re-zoning floodplains and enacting a development moratorium along the coasts.

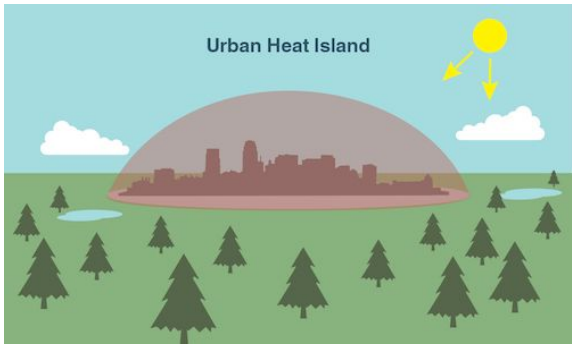


Image taken from NASA Climate Kids

Urban Heat Island: An Urban Heat Island is an area that is particularly warmer than the rest of a city or region. Cities often have urban heat islands due to excessive impervious surfaces, large amount of cars on the road at all times, and a dense amount of buildings producing greenhouse gas emissions.

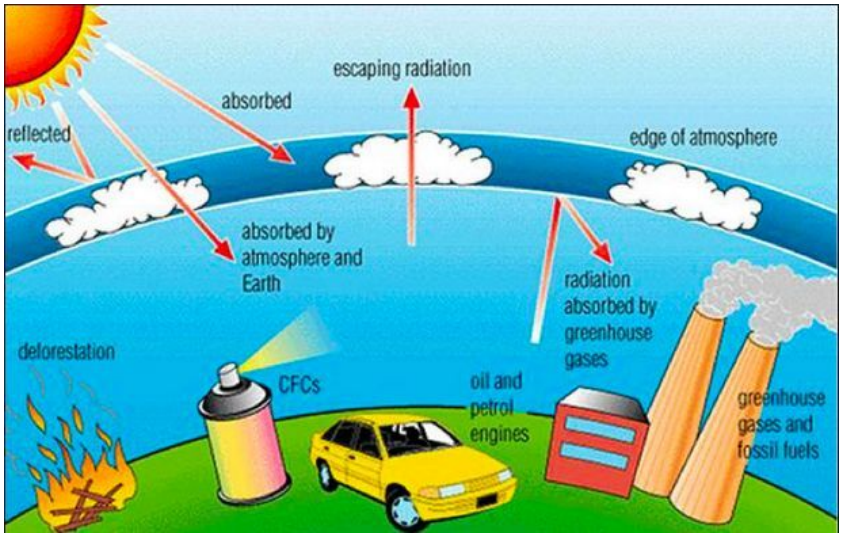


Image taken from Jazlene Early for Council Blog

Anthropogenic: Anthropogenic looks at human behavior and actions that cause greenhouse gas emissions which are attributed to climate change. It also refers to human actions that cause other types of pollution such as water pollution or, actions that harm ecosystem services like soil erosion.

Image taken from Atlanta Healthcare

Co-Benefits: This term refers to benefits gained from climate mitigation efforts. Examples include; improved health benefits from improved air quality, clean drinking water, new efficient technologies, and sustainable energy sources.

Image taken from Margulies Perruzzi Architects

LEED: LEED stands for Leadership in Energy and Environmental Design, buildings designed to mitigate their greenhouse gas emissions and mitigate their climate impact. There are varying levels of a LEED certified building (designated by the U.S. Green Building Council); certified, silver, gold, and platinum. LEED takes into consideration the building materials, indoor quality also known as occupant comfort, smart grid technologies, and water efficiency.

Image taken from Sintef, a leading European independent research organization

Anticipatory Planning: This refers to climate adaptation planning, a plan that anticipates the changing climate rather than reacting to climate change. Most Climate Action Plans are reactive, they react to what has already happened (i.e, natural disasters as seen above).

Image taken from Global Forest Atlas - Yale University

Forest Disturbance: A disturbance means a temporary change that reverts a system from its normal functions. Forest disturbance is anything that would disrupt a natural forest ecosystem process such as; flood control, providing a habitat, sequestering carbon dioxide, and producing oxygen. A forest disturbance could be from cutting down trees for production, poor air quality, limited water access, and forest fires.

Annotated Bibliography for Climate Action Planning
Compiled by Anna Cohen, Courtland Triplett, and Penn Pennel

International

***The University of Western Ontario*. "Adapting to Climate Change: The Case of Multilevel Governance and Municipal Adaptation" (2016) Retrieved from https://ir.lib.uwo.ca/cgi/viewcontent.cgi?article=5066&context=etd**

This study uses Nova Scotia as an example of good climate change planning. It discusses how to incentivize reducing emissions.

***United Nations*. "The Sustainable Development Goals Report" (2018). Retrieved from https://unstats.un.org/sdgs/files/report/2018/TheSustainableDevelopmentGoalsReport2018.pdf**

This United Nations study provides a list of goals to reach for climate action plans. The study also does a great job of describing how various communities of people are/will be affected by climate change.

National - United States

Knapp, Don, and Amruta Sudhalkar. *Climate Extremes Communications Guidebook*. ICLEI, WWF, Resilient Communities for America, 2014, *Climate Extremes Communications Guidebook*, icleiusa.org/wp-content/uploads/2015/06/ExtremeWeatherGuidebook-0109.pdf.

The *Climate Extremes Communications Guidebook* teaches integral skills for climate action planning that go beyond collecting technical data. It goes in depth on how to communicate future impacts of climate change with an emphasis on climate extremes. Public engagement will be a large step in preparing the plan as well as implementing the plan. Many changes will require a change in behavior which is best done through education and public outreach, this guide helps local planners gather language and ideas.

Boswell, Michael R., et al. *Local Climate Action Planning*. Island Press, 2012.

Boswell takes the reader step by step on how to create a climate action plan. The book details the very beginning steps of preparing a climate action plan from what type of plan may be most effective to forming the climate action team. Throughout the book they highlight cities that have already adopted and implemented plans, they vary in city size and goals/objectives.

"Greenhouse Gas Protocols - ICLEI USA." *ICLEI USA*, http://icleiusa.org/ghg-protocols/.

Several protocols, or official tools, that help communities calculate and report GHG emissions. These are technical tools that can be used by local governments or other sustainability professionals.

***American Planning Association.* "Policy Guide on Climate Change" (2011). Retrieved from https://www.planning.org/policy/guides/adopted/climatechange.htm**

This guide provides great information for how to go about planning for climate change. This guide is very useful because it describe the role a climate change planner should play.

***American Planning Association.* "Policy Guide on Climate Change" (2011). Retrieved from https://www.planning.org/policy/guides/adopted/climatechange.htm**

This guide provides great information for how to go about planning for climate change. This guide is very useful because it describe the role a climate change planner should play.

Regions – Midwest

"National Climate Assessment." ***National Climate Assessment*****, https://nca2014.globalchange.gov/report/regions/midwest.**

Highly interactive and internet user friendly report on the climate impacts expected now and in the future, broken down by region, sectors, and response strategies. This report contains information broken down by region, including other relevant regions such as the Great Plains and the Southwest.

State Specific Resources - Colorado and Minnesota

United States, City of Boulder, et al. "Climate Action Plan." ***Climate Action Plan*****, City of Boulder, 2002, pp. 1–72.**

Boulder, Colorado is another leading city in climate action planning, they have been researching and implementing "green policy" since 2004. It has remained a high priority leading the city to hire a full time planner who dedicates 75% percent of their time ensuring plan policy is implemented and working. The plan gives an overview of how climate change will impact Colorado which will be loss of snowpack and an increase in wildfires. Boulder does an outstanding job of breaking down the funding for their plan and the strategy to keep the cost down. Their main strategy is partnering with local businesses by offering incentives for sustainable behavior and by collaborating with the University of Colorado-Boulder.

"Colorado Climate Plan." Colorado, Colorado, July 2017.
https://firebasestorage.googleapis.com/v0/b/torid-heat-3070.appspot.com/o/Resources%2FCOCP-2018-PDF-ExecSumOnly.pdf?alt=media&token=97526ea0-5632-4c7b-b3b3-4d6ca04028c5

The state of Colorado adopted a state-wide climate plan in 2017 that became an executive order. It is known that plans are dictated by state and federal statutes, an executive order will play integral role in any Colorado city's plan. This will be a key resource in understand the larger goal for the state of Colorado and how cities can help and utilize state resources.

Claflin, Anne. ***Greenhouse Gas Emissioners: 1990-2014 Legislative Report.*** **Minnesota Pollution Control Agency, Jan. 2017, https://www.pca.state.mn.us/sites/default/files/lraq-2sy17.pdf.**

Most recent statewide emissions inventory, useful for clear graphics and explanations. Brooklyn Park hasn't done an emissions inventory, so this in addition to cities in county who have, will form the basis of understanding for where to target reduction strategies.

***Minnesota GreenStep Cities*. https://greenstep.pca.state.mn.us/index.cfm.**

A voluntary statewide program that helps cities identify sustainability goals and accomplishments. Provides a framework for initial and continued evaluation.

Equity

Schrock, Greg, et al. "Pursuing Equity and Justice in a Changing Climate: Assessing Equity in Local Climate and Sustainability Plans in U.S. Cities." *Journal of Planning Education and Research*, vol. 35, no. 3, SAGE Publications Inc, May 2015, pp. 282–95.

Provides academic and theoretical support for equity to be a key theme of CAPs. Provides real world support through examples of three cities that centered equity within their sustainability plans.

Jacobs, Fayola. "Black Feminism and Radical Planning: New Directions for Disaster Planning Research." *Planning Theory*, SAGE Publications, Mar. 2018, p. 1473095218763221.

Key article to argue for nuancing vulnerability assessments and working to center residents, activists, and the specific community within which work is being done to generate social equity and justice.

Choice, Place and Opportunity - Metropolitan Council.
https://metrocouncil.org/Planning/Projects/Thrive-2040/Choice-Place-and-Opportunity.aspx.

An equity assessment focused on the Twin-cities region. This report re enforces and supports Brooklyn Parks' equity and diversity community goals as well as provides statistical evidence and opportunities to be integrated into their CAP.