City of Appleton
Climate Action Plan Proposal:
Initial Recommendations of the Task Force on Resiliency, Climate Mitigation and Adaptation

November 1, 2020

TABLE OF CONTENTS

I. Land Acknowledgment
II. Introduction
III. Energy and Sustainability Coordinator
IV. Greenhouse Gas Inventory
V. Renewable Energy
VI. Transportation
VII. Zero Waste
VIII. Green Infrastructure
IX. Ecosystem
X. Education & Community Engagement

Please note that this document was prepared with bookmarks. You can direct click on links in the Table of Contents which will take you directly to the referenced section.

LAND ACKNOWLEDGMENT

The City of Appleton is located on the ancestral homelands of the Menominee Nation. Its' five clans, the Bear, Eagle, Wolf, Moose and Crane clans, were created at the mouth of the Menominee River. The Menominee people occupied an estimated 10 million acres before a series of treaties eroded their territory to a small area now centered north of Appleton. The Task Force on Resiliency, Climate Mitigation and Adaptation acknowledges the stewardship of this land by the Menominee Nation over hundreds of generations, as well as that of other Indigenous Nations in the area. These Indigenous Peoples have maintained a balanced and mutual relationship with the natural world that non-native communities must strive for. The City of Appleton and the Task Force on Resiliency, Climate Mitigation and Adaptation have much to learn from the Menominee Nation and other Indigenous Nations regarding respect for and collaboration with local and native plants, animals, waterways and weather events.

INTRODUCTION

A climate action plan is a comprehensive set of goals and strategies that addresses climate change. Mitigation, resiliency and adaptation are the three pillars in a successful response to climate change, and is recognized in the name of the Committee. Mitigation is aimed at reducing the effects of climate change through reductions in greenhouse gas emissions. Resiliency focuses on the ability to anticipate and recover from hazardous events related to a changing climate. Adaption encompasses changes in processes, practices, and structures to moderate potential damages or to benefit from opportunities associated with climate change. The use of a climate action plan will help our community address these areas while simultaneously improving the overall health and economic vitality of the community.

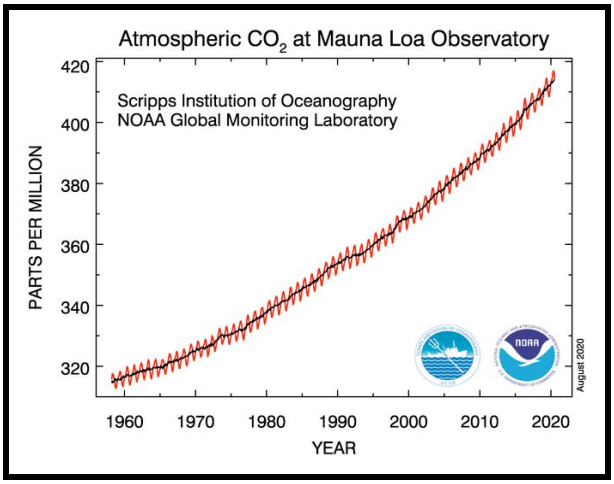
Appleton is located in northeast Wisconsin, in Outagamie, Winnebago, and Calumet Counties. During the first years of its history, there were three villages where Appleton now stands: Lawesburgh on the east side, Grand Chute on the west end and Appleton in the middle. The three settlements were incorporated under the name of Appleton as a village in 1853, and later as a city in 1857. The Fox River, which runs through the city, has always played a vital role in the life of the city. In the mid-nineteenth century, the Fox River provided a route for early fur traders, water power for flour mills and paper mills and electricity from the Vulcan Street Hydroelectric Central Station, one of the earliest commercial hydroelectric plants. Now the river is a center for recreation with a number of the city's parks and trails along its banks. Appleton was home to approximately 75,000 people with a median income of $55,817 in 2017. The largest employers are in health care, financial service, education, government and manufacturing.

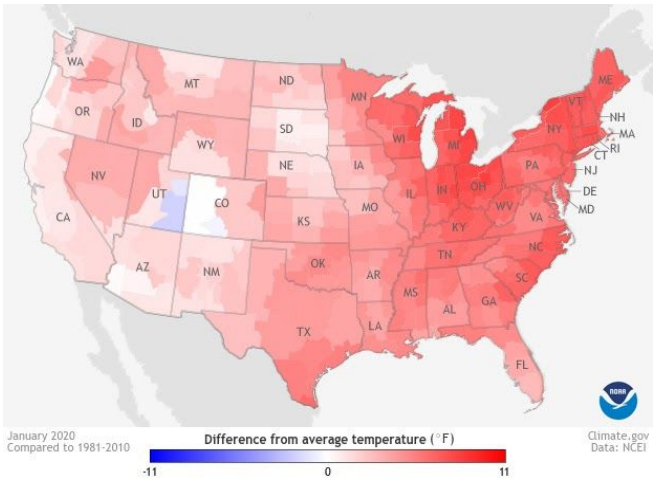
The City of Appleton has a history of addressing environmental quality. The City's Creating a Sustainable City Master Plan promotes "responsible management and effective stewardship of the City's built and natural environments; transforming the City of Appleton into a model government agency that is clean, healthy, resource-efficient, and environmentally conscientious." The actions described in that Master Plan have led to tangible and important accomplishments related to energy use reduction and cost savings. The approved Resolution (#13-R-19) creating the Task Force on Resiliency, Climate Mitigation and Adaptation builds on the City's efforts to promote sustainability. The purpose of this Task Force, per the Resolution, is to develop a climate action plan that "significantly moves our community toward the goal of achieving net zero greenhouse gas emissions by 2050 and address the overwhelming threats from climate change and human induced stressors to our environment, infrastructure, economy, and residents' health."

The climate action plan proposed by the Taskforce includes creation of an Energy and Sustainability Coordinator, a greenhouse gas inventory and strategies that span seven major sectors. Those seven sectors are: renewable energy, transportation, zero-waste, infrastructure, ecosystem, and education and community engagement. The recommendations contained in this Climate Action Plan engage the City of Appleton and families, businesses and industries within the City, and the success of the plan will require participation from all members of our community.

Beyond the City's responsibility to do its part in mitigating climate change through reducing greenhouse gas emissions and increasing ecological conditions that sink carbon, technological advances and market conditions are increasingly making renewable energy more fiscally responsible than fossil fuels. Sustainability encompasses people, planet and profits. Reducing greenhouse gas emissions and caring for our ecosystem to capture carbon and improve our health are good for all three pillars of sustainability - people, planet and profits.

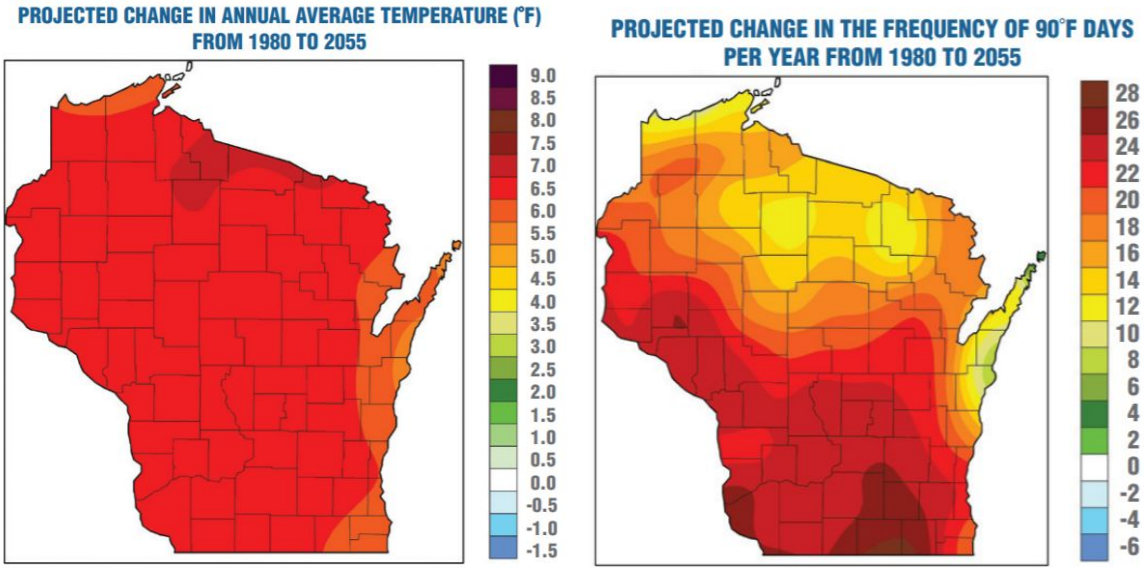
Greenhouse gases trap heat and contribute to the greenhouse effect. The primary greenhouse gases are carbon dioxide, methane and nitrous oxide. These gases can be emitted into the atmosphere through human activities, including combustion of fossil fuels for electricity and transportation, deforestation, livestock, and waste decomposition in landfills. The amount of CO_2 in the atmosphere has been increasing since the 1960s (see graph) and the United Nations Intergovernmental Panel on Climate Change (IPCC) concluded "there's a more than 95 percent probability that human activities over the past 50 years have warmed our planet." January 2020 was the fifth warmest January on record; Wisconsin experienced some of the most dramatic changes in temperature (See US map). Further, the IPCC projects an increase of 2.0°C (3.6°F) under current emissions. At around 2°C of global warming the risk from food supply instabilities are projected to be very high. The stability of food supply is projected to decrease as the magnitude and frequency of extreme weather events that disrupt food chains increases. Increased atmospheric CO_2 levels can also lower the nutritional quality of crops. Global crop and economic models project higher food prices and increased risk of food insecurity and hunger. The most vulnerable people will be more severely affected.





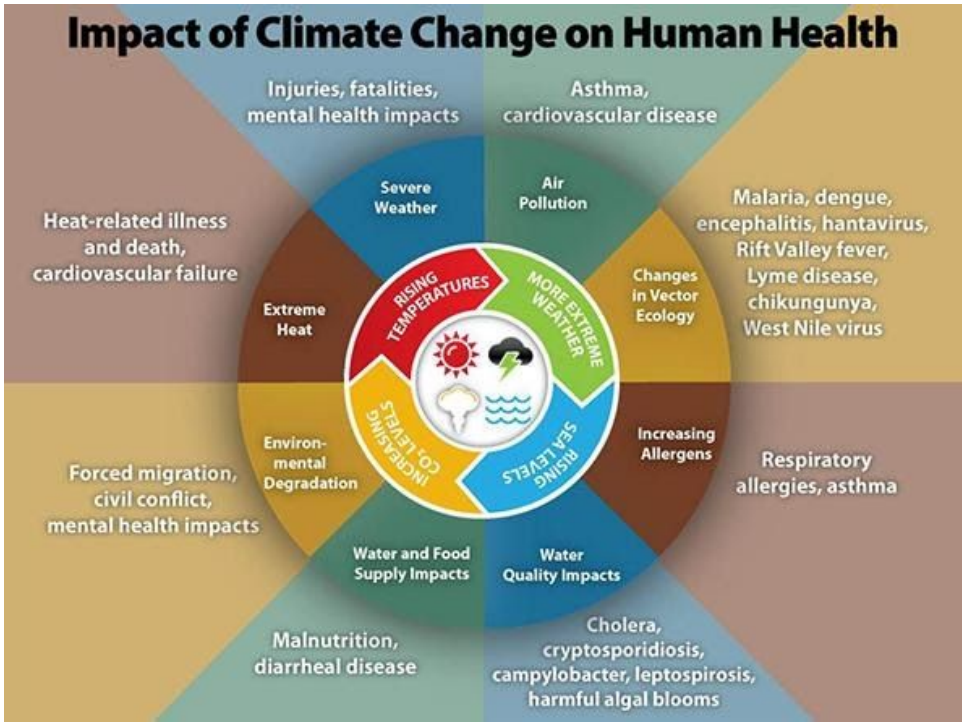
Wisconsin has experienced warming consistent with the global trend. The Wisconsin Institute climate projections show that Wisconsin's average annual temperature is expected to warm by 4 to 9 degrees Fahrenheit by the middle of the century (see Wisconsin map). Overall, the expected rate of warming is four times greater than what we experienced since 1950. The model also projects that annual snowfall will decline by about 14 inches per year, and that the frequency of very hot days will double - up to 25 more days with temperatures above 90 degrees in the southern part of the state. A 25 percent increase in intense precipitation days is projected, but rising temperatures and little change in summer rainfall increases the likelihood of summer drought. These changes would have an adverse effect on the important agriculture segment of the state's economy and an impact on winter recreation, harming the local economies that benefit from these activities. The risks to housing and infrastructure from more frequent and severe storms disproportionately affect disadvantaged populations.

From Common Council Resolution #13-R-19: "The Environmental Protection Agency on Wisconsin's future climate affirmed that Wisconsin's climate has already warmed about two degrees Fahrenheit. These warming trends will lead to greater algal blooms, more frequent and severe storms which increase pollutant run-off into the lakes, and produce heat waves dangerous to vulnerable populations like the young, elderly, sick and poor."



Climate change is a public health crisis. The Centers for Disease Control note:

> *In the U.S., public health can be affected by disruptions of physical, biological, and ecological systems, including disturbances originating here and elsewhere. The health effects of these disruptions include increased respiratory and cardiovascular disease, injuries and premature deaths related to extreme weather events, changes in the prevalence and geographical distribution of food- and water-borne illnesses and other infectious diseases, and threats to mental health.*
> ***(https://www.cdc.gov/climateandhealth/effects/default.htm)***



CDC also observes that these problems will not be evenly distributed, but will disproportionately affect more vulnerable populations, including the old, the young and the economically disadvantaged. These groups are less likely to have equal access to health resources.

The well-being of the Appleton community depends on a healthy, safe and sustainable environment. Efforts to mitigate and adapt to climate change will be required. The more people are engaged in these efforts, and the sooner they engage, the more effective the efforts will be and the better the health of the community.

Appleton recognized the need to become a sustainable city and became a Green Tier Legacy Community (GTLC) in 2010 - one of the five pilot communities. Green Tier Legacy Communities agreed to implement the charter by developing a Sustainability Implementation and Monitoring plan. The annual GTLC Sustainability Strategies Scoresheet is posted on the Sustainability page of the city website. Appleton has also been named a Tree City, USA by the National Arbor Day Foundation and has received a Tree City USA Growth Award for demonstrating progress in its community forestry program, recognizing environmental improvement and higher levels of tree care. The city is also a Bird City Wisconsin, having demonstrated that we understand the importance of protecting birds and creating a healthy urban habitat. In 2019, the City was designated a Bee City, USA, and Lawrence University was designated a Bee Campus USA by the Xerces Society, which recognizes communities which create sustainable habitats for pollinators.

At the end of 2017, Appleton enacted a Health in All Policies ordinance, becoming the first community in Wisconsin to do so. In the policy, the City recognizes that 10 percent of health can be attributed to the built and natural environment and that health should be considered in all decisions made in all sectors of society.

We view the recommendations below as long-term investments in the health and well-being of our community. There are several sources of funding to cover the capital costs required for the transition to the environmentally sustainable systems we recommend, and furthermore, once the initial investment is made, many will save annual costs. One source is the loan program from the Wisconsin Board of Commissioners of Public Lands, which invests in public projects in the state. Another funding source is myriad grants that support everything from renewable energy production systems to public education.

We know that climate change affects all residents of Appleton, but disproportionately affects residents living in poverty, residents living with disablities or chronic illness and residents disadvantaged by racism and other discrimination embedded in our systems. We also know that these residents create fewer greenhouse gas emissions, create less waste and have less access to natural resources and parks. Actions we take in Appleton to mitigate climate change advance social equity. Furthermore, before enacting policies, the City must evaluate proposals to determine the specific impact on poor residents, disabled and chronically ill residents, and Black, Indigenous and People of Color. That evaluation process must include substantial input from the impacted communities described here.

References:

1. Wisconsin's Changing Climate: Impacts and Adaptation. 2011. Wisconsin Initiative on Climate Change Impacts. Nelson Institute for Environmental Studies, University of Wisconsin-Madison and the Wisconsin Department of Natural Resources, Madison, Wisconsin. https://wicci.wisc.edu/wisconsin-climate-change-impacts-adaptation
2. Intergovernmental Panel on Climate Change. 2019. 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse GAS Inventories. https://www.ipcc-nggip.iges.or.jp/public/2019rf/vol1.html
3. Legacy Communities Green Tier Charter. 2016. Wisconsin Department of Natural Resources. https://dnr.wi.gov/topic/GreenTier/Participants/CharterPages/documents/LCCharter.pdf
4. Legacy Communities - A Green Tier Charter. 2018. Appleton is the 1st Community in WIsconsin to pass a Health in all Policies Ordinance. GTLC Health in All Policy

ENERGY AND SUSTAINABILITY COORDINATOR

Sustainability encompasses every department and office in the City. A coordinator for these efforts can oversee the various efforts toward sustainability efficiently so that policies are uniform and work is not duplicated. A coordinator can also keep sustainability efforts organized and free up other employees to focus on their other assigned work. Finally, designating a coordinator position properly highlights the importance and multi-dimensional nature of the work involved to mitigate climate change.

GOAL: Prioritize and organize sustainability and climate change mitigation and resiliency efforts by the City

STRATEGY: Create Office of Energy and Sustainability and hire a coordinator to lead the office, which will develop strategies and equitably implement policies to reduce greenhouse gas emissions and waste and speed the transition to renewable energy. This position can also coordinate efforts between Appleton and other Fox Cities communities, Outagamie, Winnebago and Calumet Counties and other communities in NorthEast Wisconsin.

ACTIONS:

1. **I**dentify roles for the Energy and Sustainability Coordinator, including tasks identified in Climate Action Plan, included but not limited to: infrastructure updates for energy efficiency and renewable energy production; annual program audit and continuous improvement; policy implementation for energy efficiency and sustainability in municipal operations; ensure that City sustainability policies do not exacerbate inequities among residents of different races, abilities and socio-economic status; promote sustainability practices in families, businesses and farms in Appleton and surrounding areas; coordinate joint sustainability efforts with other nearby communities and counties; and coordinate with other communities to procure large-scale renewable energy through the utility company or other sources.
2. Define the Coordinator's role to particularly include frequent listening sessions and collaboration with community partners and to emphasize community feedback on policy proposals in terms of justice and equity for groups that are most affected by climate change, and that are least able to implement adaptations, specifically disabled and chronically ill residents, Black, Indigenous and other People of Color and poor residents.
3. Define the position within the Mayor's office and its relationship with other city departments.
4. Identify potential revenue sources, such as state funding, grants, collaborative funding with other Fox Cities and Outagamie, Winnebago and Calumet Counties, and define a budget for the office and coordinator and include in the 2022 budget.
5. Hire Energy and Sustainability Coordinator.

GREENHOUSE GAS INVENTORY

An inventory is essential to monitor progress towards the Climate Action Plan goals. A greenhouse gas inventory identifies sources of emissions that are emitted over a period of time, in this case, the greenhouse gas emissions from the City of Appleton annually. By identifying emissions sources, we can better identify the most impactful solutions.

"You can't cut what you don't count." In order to set greenhouse gas (GHG) reduction goals, the City of Appleton must first know the current GHG emissions in the City. A GHG inventory will provide an emissions baseline. Understanding the relative contributions of different sources of GHG emissions also will allow the Climate Change Task Force to prioritize goals and strategies that target sectors that are the biggest contributors. Furthermore, completion of a GHG inventory also will provide a means for the Energy and Sustainability Coordinator to evaluate progress toward the goal of net-zero carbon emissions by 2050.

GOAL: Calculate greenhouse gas emissions for the City of Appleton

STRATEGY: There are numerous greenhouse gas inventory tools available online. The Global Covenant of Mayors for Climate and Energy (GCoM) share a long-term vision of supporting voluntary actions to combat climate change. It has commitments from over 10,000 cities and local governments, including Eau Claire, LaCrosse, Racine, Milwaukee, Ashland, and Wisconsin Rapids in Wisconsin. Importantly, GCoM offers valuable assistance in creating a greenhouse gas inventory. The EPA also offers a free interactive spreadsheet that calculates GHG for local government operations and for community-wide GHG emissions.

ACTIONS:

1. Join the Global Covenant of Mayors for Climate & Energy
2. The Mayor, or his designee, will select a team of City officials, community members and business leaders to work on the greenhouse gas inventory
3. Select an inventory tool and define methodology.
4. Complete a greenhouse gas inventory by July 1, 2021
5. Create a City Dashboard that displays progress toward GHG reduction goal (See also Infrastructure goal on sustainability website)

References:

1. Global Covenant of Mayors for Climate and Energy https://www.globalcovenantofmayors.org/join-us/
2. Community Greenhouse Gas Inventory Tool https://www.mapc.org/planning101/community-ghg-assessment/
3. Greenhouse Gas Protocol https://ghgprotocol.org/greenhouse-gas-protocol-accounting-reporting-standard-cities
4. EPA Local Greenhouse Gas Inventory Tool https://www.epa.gov/statelocalenergy/local-greenhouse-gas-inventory-tool

RENEWABLE ENERGY

Renewable energy is key to mitigating climate change by reducing greenhouse gas emissions and improving health through improved air and water quality. Energy harnessed from solar, wind and geothermal sources are examples of clean and renewable energy. Fossil fuels, like coal, oil and gas, emit greenhouse gases and are difficult and expensive to access, while renewable energy is sustainable and affordable. Renewable energy is better for our economy and for the health of our community. This section includes recommendations focused on implementing renewable energy and reducing energy usage.

Climate scientists agree that mean temperature and sea level rise are occurring and will intensify as a result of human greenhouse gas emissions, causing massive global and local ecological harm, including for ecosystems, agriculture, business and recreational opportunities in the Fox Valley. The economic opportunities for Appleton and its residents from a renewable energy transition exceed economic opportunities from fossil fuels, which are not produced in this area. Renewable energy sources, such as solar and wind, are more cost-effective than fossil fuels. Importantly, eliminating fossil fuel use in Appleton will improve air and water quality leading to improved health.

Appleton has already committed itself to sustainability and energy efficiency through various policies and goals highlighted in its Creating a Sustainable City Master Plan and in its membership in the Green Tier Legacy Communities. The actions described in the Creating a Sustainable Master Plan demonstrate tangible and crucial progress in the City's responsibility toward climate mitigation and achieving net-zero carbon emissions. The actions described there also represent significant cost savings for the City and its residents. The recommendations below intend to build on the actions already taken and in progress.

Scientists agree that we need to move quickly to transition to renewable energy to prevent the most irrevocable damage. The Intergovernmental Panel on Climate Change is clear that we must halve our emissions by 2030 in order to prevent catastrophic global warming. Furthermore, a quick transition saves the most money for the city. Other cities in the Midwest, such as Monona, Wisconsin, Chicago, Illinois, Traverse City, Michigan, and St. Louis Park, Minnesota, have committed to achieve 100% renewable energy or a similar goal by 2040.

MUNICIPAL GOALS

GOAL: Commit to meeting 100% of the City's electrical needs through renewable energy resources by 2040.

STRATEGY: Pass a resolution that defines timelines for reducing energy use and transitioning to renewable energy sources, and which directs the City to create a Climate Action Plan that will outline

the steps to achieving the commitment in the resolution. A resolution with a commitment to achieving 100% renewable energy by 2040 gives direction to all city departments to contribute to this goal. Appleton can lead in Northeast Wisconsin on prioritizing climate change mitigation and sustainability, and uphold our duty to the health of our citizens and our economy.

ACTION: Adopt Resolution #__-__-20 Resolution to Address Climate Change Through Renewable Energy.

Consultants: City of Madison, Dane County, City of Eau Claire, City of La Crosse, City of Milwaukee, City of Monona, City of Middleton, Wisconsin League of Conservation Voters, RENEW Wisconsin

STRATEGY: Install solar arrays on all municipal buildings where feasible and maximize solar array size in order to produce as much electricity from solar power as possible. Solar energy has become a cost-effective and reliable source of energy. Implementing solar energy sources are a form of resiliency as fossil fuels become more expensive, and as we prepare for power outages related to severe thunderstorms.

ACTIONS:

1. Evaluate each municipal building for the feasibility of solar power, and appropriate funds for solar array installation on each appropriate building, beginning on those with the most solar power potential and with existing appropriate roof structure.
2. Accept the request by the Director of Parks, Recreation and Facilities Management for capital improvement funds for solar array installation in the 2021 budget.

   Consultants and Partners: Director of Parks, Recreation and Facilities Management, City of Madison, Dane County, Appleton Solar, LLC.

STRATEGY: Install diverse renewable energy sources, such as micro-wind, geothermal and hydropower on all municipal buildings where possible and efficient. A diverse array of renewable energy sources is the most resilient and is important for reducing the need for battery storage and resorting to non-renewable energy sources.

ACTIONS:

1. Evaluate each municipal building for the feasibility of micro-wind, geothermal power, hydropower and other renewable energy sources.
2. Appropriate funds in the budget when it is determined that a municipal building is an appropriate candidate for the identified renewable energy solution.
3. Continue to monitor energy storage technology and feasibility, such as battery storage.

STRATEGY: Procure renewable energy from off-site sources where renewable energy cannot be produced by on-site sources such as solar arrays. Sourcing off-site renewable energy contributes to the private sector transition to renewable energy and supports the local economy through local energy production, in contrast to importing fossil fuels, which are exclusively extracted out-of-state.

ACTIONS:

1. Continue to explore power purchase agreements, such as the Dedicated Renewable Energy Resource (DRER) from WE Energies.
2. Negotiate with WE Energies to speed the utility's transition to renewable energy sources. Work in tandem with the City of Green Bay, as our cities obtain power from the same parent company, and the City of Green Bay has also made commitments to a renewable energy transition.
3. Procure renewable energy from community solar projects, where and when available.
4. Explore establishing joint solar garden projects with adjacent communities.
5. Purchase renewable energy credits.

Consultants and Partners: Director of Parks, Recreation and Facilities Management, Director of Community and Economic Development, WE Energies, City of Green Bay, Arcadia, WIPPI, Cities of Menasha and Kaukauna.

GOAL: Reduce City energy consumption by 50% by 2040

STRATEGY: Reduce electricity used by street lights. Street lights constitute a substantial portion of municipal electricity use in Appleton. Although street lights can contribute to both actual safety and a feeling of safety to pedestrians and drivers, many lighted streets are not actually traversed by pedestrians or drivers for hours each night and therefore that electricity is wasted. Street lights contribute to light pollution, which adversely affects wildlife and human health and blocks our view of the natural beauty and wonder of the night sky.

ACTIONS:

1. Complete existing program to convert street lights to LED bulbs.
2. Install smart street lighting that dims when no vehicle or pedestrian activity is detected.

Consultants and Partners: WE Energies, Department of Public Works

STRATEGY: Reduce City electricity use by using motion or other sensors to turn indoor and outdoor lights off when an area is not in use.

ACTIONS:

1. Install motion or other sensors in City buildings for indoor lights that don't already have them.
2. Evaluate existing exterior lights to determine if a light is actually needed in that location. If no exterior light is needed, remove. If a light is needed only periodically, implement policy that the light will be on only when needed. If a light is needed when there is activity in the area, install motion detectors to turn off the light when no activity is detected.

STRATEGY: Reduce City electricity use by implementing a policy regarding heating and cooling that reduces the time when heating and cooling is used.

ACTIONS:

1. Complete installation of digital smart thermostats in any municipal building that does not already have them.
2. Set temperature controls to cool the building only when the temperature exceeds 80 degrees fahrenheit and to heat the building only when the temperature is below 65 degrees fahrenheit.

GOAL: Implement reinvestment fund that preserves energy cost savings in a fund for future capital improvement costs related to energy use reduction or transition to renewable energy.

STRATEGY: Pass Resolution defining the percentage of future project savings that will be held in the Reinvestment Fund which can be applied to improve the ROI of other important projects.

ACTIONS:

1. Review all proposed projects to establish estimates of savings that may be realized.
2. Select key projects that may need additional $ support to improve their estimated ROI.
3. Contact other Wisconsin communities to obtain historical project information where Appleton may need additional supporting data.

Consultants and Partners: WE Energies, Director of Community and Economic Development, Dane County, Focus on Energy

RESIDENTIAL AND COMMERCIAL GOALS

GOAL: Increased renewable energy for private property by 75% by 2040

STRATEGY: Incentivize solar arrays, micro-wind, geothermal power and other small-scale renewable energy sources for private property in the City. Private citizens and businesses want to reduce their carbon emissions footprint and save money by owning renewable energy production systems that satisfy all or a portion of their energy needs. Those desires align with the City's goals of reducing fossil fuel use and increasing community resilience through diverse renewable energy sources.

ACTIONS:

1. Work with the utility to expand energy buy-back program for renewable energy produced by privately-owned property to encourage privately-owned small-scale renewable energy production systems.
2. Streamline permitting process for solar installations, micro-wind installations and other small-scale renewable energy production.

3. Provide property tax credits for property owners that install renewable energy production systems.

   Consultants and Partners: Director of Community and Economic Development, Director of Public Works

STRATEGY: Incentivize microgrid construction on private property in the City. A microgrid is a small, local group of energy sources, generally including solar, wind, geothermal and sometimes other power sources, along with energy storage or backup generation and load management. A microgrid serves a neighborhood or a small community, whereas a utility serves a city or region. The most nimble and resilient renewable energy system is a local microgrid which employs one or more renewable energy sources, along with energy storage systems.

ACTIONS:

1. Work with the utility to expand energy buy-back program for renewable energy produced by privately-owned property to encourage privately-owned small-scale renewable energy production systems.
2. Streamline permitting process for small-scale renewable energy production installations.
3. Provide property tax credits for property owners that install solar installations

   Consultants and Partners: Director of Community and Economic Development, Director of Public Works, Bubolz Nature Preserve

GOAL: Reduce energy consumption by private households, businesses and industry by 50% by 2040

STRATEGY: Incentive businesses and households to reduce exterior lighting and install motion sensors instead of lighting all night. See the same strategy and actions above for the City under Municipal Strategies.

STRATEGY: Implement the 60-80 rule for heating and cooling homes and businesses. Turn on the heat only when the temperature is below 60 degrees fahrenheit and turn on the air conditioning only when the temperature exceeds 80 degrees fahrenheit. See the same strategy and actions above for the City under Municipal Strategies.

References:

Report from Intergovernmental Panel on Climate Change https://www.ipcc.ch/
Project Drawdown https://drawdown.org/

TRANSPORTATION

Transportation includes all the modes of getting around the city: walking, biking, driving in electric or gas-powered vehicles, and bus. The City's goals and commitments are reflected in the transportation infrastructure the City invests in, such as dedicated bike lanes and electric vehicle charging stations. Transportation infrastructure and habits have a profound impact on greenhouse gas emissions, and, in turn, climate change. Updating transportation infrastructure, policies and habits are key for reducing our impact on climate change.

The transportation sector accounted for the largest proportion of greenhouse gas emissions in 2018 – 28%. Of that amount, 59% is attributable to light duty passenger trucks and automobiles. There are many ways to reduce those emissions, from moving to hybrid vehicles that use much less gasoline and therefore emit much less CO2, to electric vehicles that produce no emissions, although we must factor in the emissions from generation of electricity used to charge the batteries.

Public transportation, even using fossil fuel vehicles, reduces greenhouse gas emissions; a bus only 28% full reduces the greenhouse gas emissions per passenger mile 33%.

Bicycling and walking, of course, produce zero greenhouse gas emissions, and have substantial health benefits as well. The distance from Appleton City Hall and downtown to the most distant point in the city is under eight miles. Cycling and walking are not only good for the environment and healthy; they are also very practical for traveling around Appleton. While the average automobile emits about a pound of CO2 per mile from burning fuel, bicycling is carbon free. Making just half of trips less than a mile by bicycle or on foot would save $575 million in fuel costs and 1 million metric tons of CO2 emissions per year, or the equivalent of taking 400 million cars per year off of the road.

Families, businesses and the city can all take action to reduce the vehicle miles traveled (VMT) in the city of Appleton, reducing greenhouse gas emissions and promoting the health benefits of active transportation.

References: 1. EPA GHG Emissions Source
2. EPA/Dept. of Energy Fuel Economy Calculator

MUNICIPAL GOALS

GOAL: Increase the number of electric and hybrid vehicles registered in the City of Appleton by creating incentives to switch from internal combustion engines to hybrid or electric vehicles.

STRATEGY: Develop a baseline and goal for hybrid and electric vehicles registered in Appleton.

ACTIONS:

1. Use the state registration database to determine the total number of vehicles and the number of hybrid and electric vehicles registered in Appleton.
2. Determine a goal for the percentage increase per year in the number of hybrid and electric vehicles registered in Appleton.

STRATEGY: Create incentives for driving hybrid and electric vehicles.

ACTIONS:

1. Work with state legislators to reduce the auto registration surcharge for hybrid and electric vehicles
2. Work with state legislators to identify additional revenue streams for highway maintenance other than the surcharge and gasoline taxes.

STRATEGY: Increase the availability of electric vehicle charging stations downtown.

ACTIONS:

1. Install electric vehicle charging stations in the library parking lot.
2. Apply for the Federal EV Tax Incentive (30% up to $30,000 if unit is purchased and installed prior to 12/31/2020)
   If needed act as a liaison between Appleton Public Works and their chosen EV Charger
3. Investigate possible locations for other stations downtown
4. Pursue sponsorships for additional charging stations downtown
5. Survey downtown businesses about interest in adding EV charging stations to their facilities

GOAL: Promote biking for commuting and general travel to reduce automobile use

STRATEGY: Infrastructure changes to make biking easier and safer

ACTIONS:

1. Install bicycle lockers outside of downtown to allow commuters to ride to a bus stop and make the rest of the trip by bus or to allow commuters to store a bicycle, drive part of the way to the city and take their bicycle the rest of the way.
2. Add bicycle parking requirements to new development building permits and increase bicycle parking options, including indoor and protected options, for existing buildings.
3. Increase bicycle capacity on and inside of city buses.
4. Ensure that bike lanes are maintained and kept free of debris such as leaves, clippings and trash and do not plow streets so that the bike lanes and sidewalk ramps are blocked in winter.
5. Build future bike paths so they can accommodate snow removal equipment.

6. Apply for any applicable state or federal grants for advancing Complete Streets implementation
7. Test infrastructure changes to help make active transportation an easier choice
    a. Bike Boulevards
    b. Contraflow bike lanes
    c. Protected bike lanes
    d. Access ramps to switch from street to side path
8. Plan for cyclists and pedestrians in construction projects to prevent unreasonable detours.

STRATEGY: City promotion of biking

ACTIONS:

1. Join the Wisconsin Bike Fed as a Bike Focus member to have a partner for promoting Appleton as a bicycle friendly community.
2. Work with other state and national groups to increase Appleton's ratings for active transportation.
3. Regular city sponsored education on bicycle safety – offered through Parks and Recreation through partnership with Wisconsin Bike Fed. Connect to Riverview Gardens Earn-A-Bike program and immigrant/refugee program for bike education.
4. Explore insurance benefits for bicycle friendly driver classes and promote through the police department via social media or other outlets. Employers should offer bike friendly driver class as an incentive for parking fees.
5. Bicycle friendly signage throughout the city
6. Create a staff position for bike/pedestrian issues. Duties are split among multiple positions/departments now.
7. Require city contractors with fleet vehicles in the city to complete pedestrian and cyclist friendly education.
8. Proclamation observing Bike to Work Week – highlight city staff and officials participating through city social media.

RESIDENTIAL AND COMMERCIAL GOALS:

GOAL: Increase the use of public transit, RIDESHARE programs, bicycling and walking by employees of Appleton businesses

STRATEGY: Create incentives for Appleton businesses to implement programs to engage employees and encourage them to use public and alternative transportation.

ACTIONS:

1. Identify baseline measures for each form of city transportation use and track trends of use.
2. Develop a list of Appleton businesses who are ideal candidates for employee participation in public and alternative transit programs by working with area business organizations such as the Fox Cities Chamber of Commerce, Appleton Downtown, Inc. and Appleton Northside Business Association.

3. Meet with the key stakeholders and decision makers in these businesses to inform them of the benefit of participation.
    a. Tax savings - transportation expenses are a tax-free benefit
    b. Employee productivity gains from reduced commuting stress
    c. Reduced need for parking
    d. Potential for reduction of health care claims by encouraging active transportation
    e. Goodwill gained with reputation for being a "green" employer - RIDESHARE can provide reports of accumulated environmental savings
    f. Transportation benefits are inexpensive and employers can receive partial reimbursement for expenses incurred in the Guaranteed Ride Home program
4. Partner with RIDESHARE to develop and implement leveraged practices.
5. Partner with Fox Valley Transit to further develop access to public transit.

GOAL: Encourage businesses to promote biking for commuting and shopping

STRATEGY: Employer incentives for commuting by bicycle

ACTIONS:

1. Explore partnerships between the city, community groups and employers to install shared bicycle storage and shower facilities for commuters.
2. Incentives for businesses to promote active commuting-emphasize savings on parking and health benefits to employees – retention of employees.

STRATEGY: Promote shopping and running errands by bicycle.

ACTIONS:

1. Make sure that bicycle parking accommodates all types of bicycles – trailers, cargo bikes, family bikes, trishaws
2. Provide bicycle parking that is convenient, accessible and secure near shopping areas and city/county offices.
3. Work with Appleton Downtown, Inc. for a cross promotion for the Appleton Farm Market to sell branded bike bags – backpack or basket liner.
4. Work with Appleton Downtown, Inc. to make as many events as possible accessible to trishaws.
5. Explore creating a local program like the Bicycle Benefits or the library card promotion to get more businesses to give discounts/perks to cyclists.
6. Encourage private bike rental companies to establish or franchise in Appleton, such as LIme, Citibike or Uber.

References:

1. Wisconsin DOT Rideshare
2. Center for Climate and Energy Solutions Global Emissions Data.
3. EPA Green Vehicle Guide
4. Public Transit Role in Responding to Climate Change

ZERO-WASTE

A zero waste initiative is a widely recognized strategy to divert waste from landfills or incineration by implementing systems that go beyond just recycling to focus on preventing waste by reducing the material used in products and packaging, reusing and repairing products rather than discarding them and finally by recycling and composting material that is at the end of its useful life. A circular economy is a model of production and consumption which is a more sustainable alternative, but it will require significant efforts to change consumption patterns. Some of these efforts are achievable on a municipal scale.

A number of cities around the world have adopted zero waste plans; the U.S. Conference of Mayors adopted a resolution in 2015 in support of municipal zero waste principles.

The City of Appleton has increased recycling from 18.8% to 23.7% from 2013 to 2016, but the vast majority of the waste generated in the city still goes to the landfill. The City of Appleton spends almost $1 million on tipping fees for landfilling solid waste. The Outagamie County landfill is expected to reach capacity in 2022. Transport of solid waste is likely to increase in cost with the switch to the new landfill in Brown County after 2022. Moving toward zero waste will reduce greenhouse gas emissions from trash pickup and transport, and reduce overall methane emissions from the landfill. Moreover, the reduction of solid waste could significantly reduce the $1 million in tipping fees the City currently pays.

GOAL: Reduce the amount of waste going to the landfill or incineration by 60% by 2030, 80% by 2040. In order to meet this goal, municipal, residential, commercial and school producers of waste must take actions simultaneously

MUNICIPAL STRATEGIES

Strategy: Analysis to determine baseline of reusable/recyclable material going to landfill and recycling facility.

Materials characterization studies (also known as waste composition studies) are conducted to find out how much recyclable (e.g., paper, glass) or compostable (e.g., food, yard trimmings) materials are discarded into the trash and sometimes into the incorrect recycling or compost cart. The data is collected by taking samples of waste and sorting it into material types such as newspaper, aluminum cans, glass jars, plastic bottles and weighing each type.

Actions:

1. Residential trash analysis – pick up trash and recycling carts from a household in each pickup zone of the city and manually sort it into categories:
    a. Recyclable – should have gone in recycling bin
    b. Compostable – organics that can be composted
    c. Reusable – could be donated or reused for another purpose

    d. Problem materials – cannot be recycled or reused
    e. Dispose elsewhere – electronics, etc., that are not appropriate for trash disposal
2. Residential recycling analysis – sort the recycling carts to determine the percentage of material improperly placed in the recycling bins.
3. Commercial analysis – inspect a sample of commercial loads brought to the landfill for the same analysis as above
4. Calculate the percentages of each type of material to determine the baseline for material sent to the landfill that could be disposed of another manner

Reference: City of Mountain View, CO

Strategy: Create financial incentives for residents to send less trash to the landfill.

Actions:

1. Consider increasing the weekly charge for the large trash bin after analysis of impacts to low-income residents. New residents will get the smaller bin unless they request the larger size. Charge a fee for the container switch to a larger bin.
2. Give a credit in addition to weekly charge difference for switching to the small bin. This should be justified by the assumed decrease in tipping fee over time.

Strategy: Seek repeal of preemptive ban on local restrictions on single-use plastics (WI AB 730)

According to the Natural Resources Defense Council, 300 million tons of plastic are produced each year, half of which is for single use items. 91% of this plastic is not recycled. Included in this plastic are the 4 trillion single use plastic bags used each year worldwide. The recycling statistics for these is even worse – Waste Management estimates that only 1% of these bags are recycled. They cannot be recycled with other plastics, as the thin plastic tangles and jams the sorting machinery. According to the Environmental Protection Agency, other than a small amount that is incinerated, every single bit of plastic ever manufactured is still on the earth. Much of that gets into waterways and will make its way to oceans, killing millions of marine animals and seabirds each year and contaminating seafood with microplastics. In spite of these statistics, lobbyists for the plastics industry have succeeded in getting 17 states, including Wisconsin, to enact preemptive bans on local legislation, removing local control of the environment from the cities and towns within those states.

Local governments are responsible for solid waste management including litter prevention and collection, recycling, storm drain maintenance, tourism promotion, community health, and protecting the local environment. Plastic pollution negatively impacts each of these community functions and costs tax dollars. There is simply too much plastic packaging waste generated and cities can't afford to pay for capture and management of all of it.

Actions:

1. Educate citizens about the dangers of single use plastics
2. Hold listening sessions to find out the citizens' values and concerns around preemption of local control on environmental issues
3. Work to build a coalition of neighboring communities
4. Unite local activists in pursuit of the goal.
5. Bring in non-traditional allies; i.e. hunters and fishermen, to speak to the damage caused by plastics in waterways.

6. Hold an advisory referendum with the spring election of 2022 to evaluate the degree of support.
7. Approve Common Council resolution asking state legislature and governor for repeal. Coordinate with neighboring municipalities to pass identical resolutions simultaneously.
8. Pursue litigation as a last resort.

Strategy: Use the city's operations and purchasing power for leverage and to be an example for other businesses and organizations.

Actions:

1. Update Article V of Chapter 7 of the Municipal Code, the "Health in All Policies" ordinance, to specifically include sustainability practices and consideration of products' disposal options at end-of-life.
2. Review City purchasing policies to purchase only recyclable, compostable or reusable plastics by 2030; reward reusable, less toxic and more recyclable options:
    a. Choose Nos. 1, 2 and 5 plastics as safer and more recyclable, and phase out purchases of Nos. 3, 6 and 7 plastics whenever possible.
    b. Award points for companies that deliver with reusable packaging such as pallets, ice packs and shipping crates.
    c. Penalize companies that deliver products individually wrapped in plastic, such as clothing.
    d. Require companies to take back their products at end of life (as many cities do with electronics).
    e. Ask how much post-consumer recycled content is used in durable goods, choose the highest amount available and then ask companies to add more.
    f. Avoid black plastics; they are problematic for recycling programs and often contain hazardous chemicals.
    g. Give preference for durable and modular products such as carpet tiles.

3. Prohibit city departments from purchasing plastic food ware, such as utensils, straws and cups, while ordering them to supply reusable or conventionally compostable alternatives instead.
    a. Utensils, straws, stirrers. Ensure that appropriate straws are available for those with disabilities who need straws.
    b. Foodservice ware (cups, bowls, plates, etc.)
    c. Clamshells and to-go containers
    d. Bottled water (minimal & emergency use)
    e. Polystyrene (styrofoam) containers
    f. Condiment packets and individually wrapped items (K-cups, napkins, etc.)
    g. Plastic bags
    h. Black plastic food service ware (platters, etc.)

4. Ensure that drinking fountains in public buildings and outdoor spaces are designed to facilitate filling water bottles. Set a target date for conversion of existing facilities.

5. Consider ordinances to reduce foodservice waste, including:

a. Fees for disposable cups (currently blocked by AB 730)
b. Utensils, straws and napkins available only upon request or at self-service stations
c. Takeout food to be served only using conventionally composable dishes and utensils
d. Dine-in food to be served only using reusable dishes and utensils
e. Require all fast food operations to have trash and recycling cans at the exit of the drive-through lanes to avoid on-the-go disposal of fast food packaging.

6. Support container deposit and extended producer responsibility laws at the state level by advocating with the state legislature and other municipalities.

7. Review city purchasing policies and revise to include an evaluation of the supply chain.
    a. Choose local vendors where possible to minimize transportation impact.
    b. Choose vendors who minimize packaging or whose packaging is fully conventionally compostable or recyclable, preferably not plastic.

RESIDENTIAL STRATEGIES

Strategy: Decrease food waste through composting

For millennia, kitchen scraps and organic waste from plants has been used around the world to enrich soil and improve land productivity. Recently, however, we have let that richness be termed as waste as we send our uneaten food to the landfill, where, instead of renewing the soil, it inefficiently decomposes into methane, a dangerous greenhouse gas. An estimated thirty-one percent of the food grown, produced, and transported in the United States is wasted annually. This waste translates into ninety-six billion pounds of food and $165 billion in lost economic value.

Two different actions plans are presented here – installing bins where residents would drop off their own food waste and a curbside pickup plan. The proposal is to implement the drop off solution in the short term and eventually implement the curbside plan.

Actions:

1. Install city compost bins where garbage and recycling bins are located in public areas, such as parks, trails, parking lots and city buildings.
    a. Determine number of new disposal containers needed to match the number of garbage and recycling containers provided by the city.
    b. Determine whether additional transportation infrastructure and staff is required, or if municipal personnel and vehicles that service the existing garbage and recycling containers can also service new compost containers.
    c. Determine where compost collected will be deposited and managed to produce compost, such as the wastewater treatment plant, or a new compost site.
    d. Create signage installed by garbage, recycling and compost containers to educate the public regarding proper disposal of waste.
    e. Purchase and install new compost containers alongside existing garbage and recycling containers.
    f. Hire any needed additional staff to pick up organic deposited in compost containers and to manage compost.

    Consultants: City of Denver, CO

2. Implement curb-side pick-up of compostable household waste.
    a. Determine number and type of cart or container needed for households and entities to collect compostable material and take curbside for pick up.
    b. Determine site for compostable materials to be taken to for processing.
    c. Determine customers or recipients of finished compost product and how the finished compost will be delivered or picked up by customer or recipient, including whether the customer or recipient will pay for finished compost.
    d. Determine transportation needs to move compostable material from curbside to compost production site.
    e. Determine appropriate cost to residents to participate in curbside pick up of compostable material.
    f. Council Resolution describing implementation and costs of program.
    g. Purchase carts or containers and any additional vehicles needed to transport. Purchase or prepare compost production site.
    h. Obtain appropriate permits from DNR for compost site.
    i. Hire needed additional staff for transportation of compostable material and for maintenance of compost production facility.

    Consultants and partners: City of Iowa City, WI DNR (Dan Kroll), Rising Sand Organics (private enterprise from Custer, WI)

Strategy: Create a community tools shed that offers area residents would have access to these tools and programs could be offered to help people learn valuable skills. About 1.8 million people bought a wheelbarrow in 2013 and 1.6 million shears, yet these tools are often used only a few times per year. A tool shed would reduce consumption and promote reuse.

Action:

1. Explore possible partnerships, interest, costs, and spaces, to create a space for a centrally-located tool shed.
2. Explore option of "virtual" tool shed for neighbors to share tools with each other, similar to the popular "Buy Nothing" online group.

Strategy: Develop public education programs to explain Zero Waste and teach correct recycling and composting (see Education and Community Outreach goals)

Actions:

1. Create and send a flyer with water bills
2. Article in the Public Works Guide to explain the concept of Zero Waste
3. Create a "Hold your Bin" campaign to encourage residents not to put out their trash carts when less than half full.

COMMERCIAL STRATEGIES

Strategy: Reduce food waste from grocery stores and restaurants by 50% by 2026.

As much as 30-40% of food in the United States is wasted and sent to the landfill, where it creates methane, a strong greenhouse gas. At the same time, residents of our community face ongoing food insecurity. We have an opportunity to reduce food waste, save landfill space, reduce greenhouse gas emissions from landfills and transport to landfills, and reduce local food insecurity. Reducing food waste is in the top 5 most effective ways to mitigate climate change.

Actions:

1. Create tools for measuring the amount of current food waste so we can keep track of progress.
2. Gather information about where food is needed in the city and whether an organization is in place addressing the need, such as St. Joseph Food Program.
3. Make connections between restaurants, grocery stores, food pantries and other outlets to ensure that food nearing expiration can be distributed to those in need rather than wasted.
4. Enact ordinance, resolution or other method of providing incentive to restaurants and grocery stores to redistribute food that would otherwise be landfilled.

Consultants and partners: Stone Arch Brewpub, The Free Market, Festival Foods, Pillars, Salvation Army, FVTC, St. Joseph Food Program

Strategy: Increase recycling by businesses, particularly small businesses

Residential recycling has become mainstream, but it is less prevalent in businesses, particularly small businesses who do not see being "green" as a marketing incentive. An often quoted, though widely contested, figure is that 97% of all the waste generated is from business and industry and only 3% is from households. Anecdotally, there are stories of the recycling containers being emptied into the same bins as the non-recyclable containers by office cleaning crews. Appleton discontinued commercial recycling service in 2020, as only 16% of businesses were being served and the service was losing $15,000 per year. Businesses will need to participate fully in the program in order to achieve the zero waste goal.

Actions:

1. Develop a proposal for a recycling cooperative for businesses.
2. Develop recycling standards for construction and demolition that will become part of the building permit process.
3. Complete a study to determine if it is feasible to restart the commercial recycling program through cost savings or increased revenue by attracting more customers.
4. Create a public list of local Zero Waste companies to promote active participation in DNR recycling programs.

   Consultants: Mountainview, CO; Racine, WI

SCHOOL STRATEGIES

Strategy: School participation in Zero Waste Program

Actions:

1. Provide assistance to AASD and private schools for developing recycling and food waste composting programs.
2. Partner with AASD and private schools to support recycling and compost education, including field trips to recycling facilities and landfill and caregiver and family education.

GREEN INFRASTRUCTURE

Infrastructure is the built environment that supports our daily activities. It includes buildings, roads, sidewalks, bike paths, wastewater management and treatment and more. Smart innovations can lower greenhouse gas emissions, conserve water, mitigate the urban heat island effect, save energy costs, reduce waste, connect community members to each other and to nature, and improve health and quality of life for community members.

BACKGROUND: The built environment has an enormous effect on the health and wellness of the City's Triple Bottom Line: people, planet, and profit. The operation and management of City infrastructure impacts our waste, our energy and water consumption, our community connectivity, the health and wellness of building occupants, the transportation we use, the materials we purchase, and the air we breathe. Historically, the most effective method of reducing the impact of the built environment on people, planet and our bottom line, is to measure what we manage. Building certification systems such as LEED, Fitwel, WELL, Living Building Challenge, and Zero Energy are examples of the most well-known and widely used building standards in the country. A building standard or rating system is a tool that enables stakeholders (employees, community members, etc.) to establish a baseline from which to set goals on reduction of energy, water and waste, and increase indoor air quality. It provides measurement and verification of these elements that are approved and qualified by the third party. Transportation, purchasing, and community connectivity are also measured and verified, all with the aim of improving the health and wellness of building occupants and users, reducing the impact on the environment and improving the stakeholder's bottom line (cost savings).

MUNICIPAL GOAL: Utilizing third-party building certification systems, buildings and structures become more resource efficient, carbon neutral, improve waste diversion and indoor air quality, improve occupant health and comfort, and reduce overall operating costs.

Examples:

1. Milwaukee City Hall: LEED Gold certified Existing Building
2. 222 W. College Avenue: LEED O+M certification in progress
3. Eau Claire Net Zero Energy Building Guide

STRATEGY: The City selects one existing municipal building per year to maintain a third party certification system for, such as LEED O+M (Operations and Maintenance) for existing buildings.

ACTIONS:

1. Research examples of other municipal and business use of rating systems for existing buildings
2. Make cost benefit analysis of existing building certifications for a City building
3. Issue RFP for existing building certification administration and select partner
4. Sustainability Coordinator manages certification with partner and City stakeholders OR Sustainability Coordinator manages certification process without a partner

5. Update, track and report on baseline, goals and progress of certified buildings on Appleton sustainability website
6. City incorporates sustainable infrastructure including on-site renewable energy sources such as solar and wind, green roofs/walls, water saving fixtures, rain gardens, charging stations, bike-share program, sustainable purchasing policies, green cleaning products, daylighting, habitat restoration and more.

STRATEGY: All new construction City projects include a cost benefit analysis of a building certification system in the pre-design phase planning.

STRATEGY: Convert all City buildings to Net Zero Energy by 2030.

ACTIONS:

1. Research existing municipal plans on Zero Net Energy such as City of Eau Claire
2. Create Zero Net Energy plan for City of Appleton buildings showing cost payback analysis
3. Create RFP for Zero Net Energy partners
4. Report measurement and verification of energy savings and carbon reduction from ZNE buildings on Appleton sustainability site

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RESIDENTIAL GOAL: Reach goal of 25% of residential properties with at least one component of renewable energy or feature contributing to carbon reduction by 2025 and 40% by 2040.
Source: Center For Climate and Energy Solutions (C2ES)

STRATEGY: Promote opportunities, share individual successes, recognize neighborhoods, broadcast measurable results and impact.

ACTIONS:

1. Find/Create/Offer low interest loans or grants
2. Group buy discounts for neighborhoods - through contractors
3. Rock the Block - Neighborhood Assoc
4. Green home infrastructure program (base on LEED criteria -solar, green roofs/walls)
5. Use Appleton sustainability page to share programs and champion participants
6. Neighborhoods create their own energy and sell it back - Utility management
7. Return cost savings to neighborhoods with green features to improve the quality of life
8. Work with health care providers and advocacy groups to share impact and results impacting residential
9. Create neighborhood discussions, make carbon neutral part of every decision and how we enjoy living
10. Messages on site of changes to further understanding of impact to neighborhoods and property values

STRATEGY: Connecting residential communities to basic resources safely with bike and walking infrastructure with active transportation, encouraging healthy, active lifestyles.

ACTIONS:

1. Offer bike share from each neighborhood to food, health care and work/community center
2. Require minimum bike parking and accommodations from new construction and a timeline for adapting existing buildings. (standards need to be defined)
3. Add bike repair stations to all parks
4. Add water stations along walking and biking routes
5. Create residential bike hubs in high density residential with secure storage, vending of common parts and workstations with a mobile bike repair with regular scheduled visits in each neighborhood.

COMMERCIAL GOAL: Reduce carbon footprint of each commercial business by 25% in 2 years while improving their profitability and quality of environment for employees, vendors and customers.

STRATEGY: Clarify, communicate and exemplify expectations for active transportation for all who work and do business in the city
Offer strategies and programs to reach goals and assistance implementing them, introduce funding opportunities, CIPs and follow up with encouragement and sharing success stories which promote businesses.

ACTIONS:

1. Connect with mentors in industry with successful plans
2. Submit an annual report to the City on the past 12 months accomplishments.
3. Bike Hub building - shared by area businesses, including: secure indoor storage for bikes, showers, lockers, fix it stations
4. Help businesses realize the benefits of active transportation
    a. conduct local traffic studies - through traffic vs stopping to visit businesses (# cars on facing street # customers/day and # bikes and # bike customers/day)
    b. share comparable success stories
    c. Bike friendly business
5. City incorporate solar, wind, green roofs/walls as examples
6. Increase parking fees to cover cost of parking facilities, ROI goal of __ years
7. Charging stations available in any new parking area with a ratio of 1:10
8. Commercial motor vehicles 6 ft law. Company owned vehicles fines doubled for violations.
9. Annual 60 minutes training on bike and pedestrian safety for drivers. Annual training on benefits of active transportation, total of 3 hours (15minutes/month)

Built Environment Goal: Built environment/Alternative Transportation
Strategy: Make Appleton a more walkable and bikeable city by creating spaces that make it safe and convenient for transportation, recreation and sport.
Actions:

1. Welcome sign at entrances to City. “Welcome to our sustainable community. In Appleton we encourage leaving the car behind. Please walk, bike or roll whenever possible.”
2. Communicate clearly Appleton’s support for active lifestyles and the various modes of active transportation including: purpose, speeds, facilities, compatible shared use, common destinations, who will use that facility
3. Include all purposes for active lifestyles in all new and upgrade plans prior to approval.
4. Install more benches along walking paths to give those who are not as mobile the opportunity to rest more frequently as they walk.
5. Install public water bottle fillers/fountains along walking trails (water map - Green Bay, WI)
6. Install fix it stations along trails
7. Incentivise more small businesses to open in residential areas to create a more walkable, pocket community.
8. Education for pedestrian friendly drivers and walking skills as pertain to infrastructure
9. Signage to encourage walking for health and environmental reasons
10. “Twenty is Plenty” and Pace Car Pledge to encourage drivers to slow down.
11. Easier, equitable access to the “Fox River Valley” all of our most beautiful trails are a significant down and up hill for access. Explore options to add assistance at a minimum of 2 locations on these trails.
12. Prioritize biking, share benefits of access by bicycle, economic, health, community. Give people biking safe, comfortable and easy access to amenities.
13. Fund bike share, include family bikes and bicycles for all abilities.
14. Seek and create opportunities for non-profits to support green, healthy and active lifestyles by sharing expertise about infrastructure.
15. Create community library of assets (shared resources): Wave delineator, bike parking, Bike and ped counters (permanent and mobile), Bike Fed

Consultants and Partners: WE Energies, Director of Community and Economic Development, Dane County, Focus on Energy

References:

1. LEED Operations and Maintenance project checklist
2. Fitwel building certification
3. WELL building certification
2. City of Eau Claire Net Zero Energy Building Guide
3. City of Eau Claire Sustainability Plan
4. City of Milwaukee Sustainability Plan
5. Housing Authority of the City of Milwaukee

Green Infrastructure Connectivity and Conservation

Municipal Goal: The City of Appleton's will serve as a leader of sustainable conduct: buildings, vehicles, construction, and operations will strive to reduce energy consumption, greenhouse gas emissions, waste, natural resource depletion, and deleterious public health impacts.

Strategy: The City will continue to implement, infuse, and install green technology, practices, and infrastructure.

Actions:

1. Adopt "Sustainability in All" policy.
2. When older City vehicles require replacement, purchase fuel-efficient alternatives and, when appropriate, smaller class models, including hybrids and alternative-fueled vehicles.
3. Identify municipal buildings suitable for green roofs and/or green walls and plan installation.
4. Identify municipal building roofs suitable for white coating and plan application.
5. Implement a City loan program to make energy efficiency improvements more affordable.
6. Provide sustainability programs for City employees: reduce vehicle idling, increase fuel efficiency, and other best practices.
7. Collaborate with residents and commercial entities to sponsor sustainability fairs to share best practices and innovative solutions.
8. Study potential use of recyclable plastic for asphalt.

Municipal Goal: The City will encourage water conservation, control stormwater infiltration, and expand natural habitats.

Strategy: The City will continue to modernize plumbing as well as improve and promote effective water conservation practices.

Actions:

1. When older City plumbing requires replacement, install low-flow fixtures.
2. Continue development of water main break detection systems.
3. As part of a sustainability awareness campaign, include options for residential water conservation, including fixture retrofits and shifting residential water discharge away from peak hours.
4. Provide incentives and programs to promote residential and commercial rain barrel use.

Strategy: Establish rain gardens and pervious pavement at suitable City-owned locations to provide models and inspiration for residential and commercial spaces.

Actions:

1. Develop guidelines, determine methods and resources, and identify areas suitable for rain gardens, focusing on public visibility, existing conditions, and flood control potential.
2. Collaborate with local experts, gardeners, and student organizations to solicit private funding as well as in-kind donations of expertise, materials, and labor for community rain gardens.
3. As part of a sustainability awareness campaign, share information about rain gardens and pervious pavement - including benefits, design, and endorsements - to provide guidance for residents and commercial businesses.

4. Develop guidelines, determine methods and resources, and identify areas suitable for rain gardens, focusing on low-volume pavements, residential roads, driveways, sidewalks, parking lots, patios, swimming pool decks, well linings, and walls.
5. Increase incentives for introduction of rain gardens and pervious pavement to private spaces.

Strategy: Increase natural landscapes and vegetation integration within Appleton through preservation requirements, enhanced maintenance, and green infrastructure education and incentives.

Actions:

1. Expand City tree-planting program and encourage residents and commercial entities to plant more trees.
2. Provide education and incentives for installation of green roofs, including built-in, modular, and biosolar, on residential and commercial buildings.
3. Provide education and incentives for installation of green walls, including green facades and living walls, on residential and commercial buildings.
4. Educate and facilitate sustainable lawn and garden care, including encouraging the establishment of native landscapes
5. Increase the urban forests within Appleton through preservation requirements, enhanced maintenance, and an expanded planting program.

Resources

a. Dane County Office of Energy and Climate Change: Green Infrastructure Report
b. Appleton Comprehensive Plan: Transportation
c. Climate Smart Communities: Climate Action Planning Guide
d. New Rochelle Sustainability Plan 2010-2030
e. Eau Claire Net Zero Energy Building Guide

ECOSYSTEM

Our ecosystem is the interaction of the biological organisms with the physical environment. The protection and conservation of the ecosystem is critical in addressing climate change because forests and prairie landscapes absorb and store carbon, removing it from the atmosphere. This topic area also includes biodiversity, stormwater management, and health and wellness.

BACKGROUND

Appleton has parks scattered throughout the City that offer many benefits, including wildlife habitat, and opportunities for recreation and relaxation. The City also was designated a Tree City for the 29th year in a row and manages thousands of trees. Trees and prairie plants act as a carbon sink by directly removing carbon dioxide from the atmosphere. As noted in the City's Sustainability Report, parks and natural areas mitigate climate change by moderating temperatures from the urban heat island effect. By reducing temperatures in the heat of summer and by improving air quality, trees also lower energy costs and improve quality of life. Beyond air quality and temperature moderation, trees and prairie plants improve human and animal health in myriad ways, including lowering blood pressure, boosting

the immune system, reducing stress and improving mood. Forests, trees and prairie plants make us healthier.

Climate change, on the other hand, threatens our ecosystem. Trees will become stressed due to increasing temperature and it is expected that Wisconsin will see an increase in heavy rain events leading to flooding. Maintaining and preserving these natural areas is important in mitigating further climate change by sequestering carbon, preventing erosion and cooling the air. Agriculture in Wisconsin is likely to be affected by climate change, while the City of Appleton does not have large tracts of agricultural land community gardens and prairies can sequester carbon.

MUNICIPAL STRATEGIES

GOAL: Conserve wooded lots

STRATEGY: Recognize wooded lots as community assets and adopt land use development rules to preserve woodlots, including small undeveloped tracts on the riverfront and in ravines. This strategy aligns with the Creating a Sustainable City Report that states, "The City can implement more sustainable development types mostly through jurisdiction over land use, issuance of building permits, and provision of transportation infrastructure."

ACTIONS:

1. Work with city officials, developers, and residents to identify wooded areas to conserve.
1. Determine whether City will purchase identified lots or if a rule will be implemented for developers to conserve an identified wood lot.
2. Develop a conservation plan and management strategies to ensure quality of woodlots.
3. Implement woodlots ordinances and integrate conservation values in zoning codes and policies.
4. Standards should promote at least 50% of wooded areas in residential zoning districts as natural woodland spaces.
5. Encourage species diversity in woodlots.
6. Enforce a construction danger zone of at least 30 feet between development and woodlots to prevent damage to established tree roots. If this cannot be achieved, utilize temporary crossing bridges to reduce soil compaction and injury to trees and their roots.

GOAL: Expand urban forest and ensure tree equity

STRATEGY: Analyze where tree canopy is lacking and plant trees there. According to the Wisconsin Department of Natural Resources Urban Tree Canopy Analysis, Appleton has an existing tree canopy of 22%, and, importantly, trees could cover an additional 43% of the city's land surface. Urban forest, like any forest, provides valuable ecosystem services, like cleaning the air and water regulation. Expansion of the forest is a key piece in most climate action plans. Understand whether trees are equally plentiful and healthy in all areas of the city, and, if not, make neighborhoods with sparse tree canopy a priority for new trees and tree maintenance. Trees are essential to maintaining health, increasing wealth and to climate resiliency to city-dwellers, according to American Forests, Inc. Yet in many areas of the United

States, urban tree cover is sparse in low-income communities and communities of primarily People of Color. Trees purify the air, provide shade and lower temperatures, and increase property values.

ACTIONS:

1. Collect data on average income, home values, and racial makeup in City of Appleton neighborhoods.
2. Update tree canopy GIS layer or create a new GIS layer that includes both tree cover and data showing average income, average home values and racial make-up of City of Appleton neighborhoods.
3. Partner with Wisconsin DNR i-Tree Landscape program; American Forests and Outagamie County for home value GIS data.
4. Use GIS map to identify blocks that have insufficient tree cover with a special focus on areas with tree inequity and plant trees in those areas
5. Create a tracking system to understand which neighborhoods frequently request trees for their terrace, and which neighborhoods do not often request trees. Evaluate whether education is needed in those areas where residents do not contact the city to request trees when tree cover is low, or whether the city needs to proactively surveil those areas and plant trees where they are missing.
6. Promote public awareness of tree planting in the terrace by the City

GOAL: Conserve and expand prairie landscapes

STRATEGY: Prairie plants and tall grasses store carbon, and also support biodiversity and pollinators. In a 2018 study, a land management approach using prairie plants and tall grasses were identified as one of the most cost-effective techniques to mitigate climate change. Therefore, we recommend establishing additional prairies on public and private lands.

ACTIONS:

1. Increase public awareness of City program that permits residents to plant prairie plants and tall grasses on the terrace
2. Identify space for a new prairie walk with educational signage on City property
3. Increase participation in No Mow May to at least 50% on City property

GOAL: Support and promote gardens in the community

STRATEGY: Community and backyard gardens can be an important part of a community's green infrastructure to address climate change. Gardens can help sequester carbon and a recent movement calls for so-called Climate Victory Gardens. These gardens have the added benefit of providing access to fresh local foods and further reduces GHG emissions. One study stated, "Policies that address climate change should explicitly incorporate community gardens." The dissolution of the Community Garden Partnership by Goodwill has left a void of community gardens in the area. Therefore, we recommend developing new partnerships with organizations to support and expand gardens in the community.

ACTIONS:

1. Identify existing community gardens on publicly-available map
2. Collaborate with city officials, non-profits, and interested residents to identify spaces and need for additional community gardens; in particular, identify areas of the City without access to fresh produce to prioritize as community garden sites.
3. Analyze opportunity to establish compost drop-off sites for nearby households at community gardens.
4. Form local partnerships and develop a plan for installation and maintenance of community gardens.
5. Provide gardening education to encourage homeowners to plant Climate Victory Gardens.

Goal: Promote water conservation strategies

STRATEGY: Wisconsin is expected to experience 145% increase in the severity of summer droughts by 2050. This projection necessitates implementation of water conservation strategies.

ACTIONS:

1. Use rainwater collection tanks and passive water collection systems for irrigation
2. Incentivize use of rain barrels by homeowners

Consultants and Partners:

1. Outagamie County Master Gardener Association http://www.ocmga.net/
2. Wisconsin DNR i-Tree Landscape program;

References:

1. **Climate Victory Gardens by Green America:** https://www.greenamerica.org/climate-victory-gardens
2. **American Forests, Inc.** https://www.americanforests.org/

EDUCATION & COMMUNITY ENGAGEMENT

Climate resiliency, adaptation and mitigation requires not only city efforts, but community awareness and participation. As a community, we need to develop opportunities for learning and sharing together, engaging other levels of government as well as neighbors, and including business, education, nonprofit and faith communities.

Background

The work of climate education and engagement is shared and mutual. While schools have the mission of educating youth, colleges and universities provide higher education, libraries provide community education and information resources, and the city keeps the public informed of municipal activities and plans, climate change requires broader and deeper engagement.

UNESCO (United Nations Educational, Scientific and Cultural Organization) states:

> *Education is an essential element of the global response to climate change. It helps people understand and address the impact of global warming, increases "climate literacy" among young people, encourages changes in their attitudes and behaviour, and helps them adapt to climate change related trends. Education and awareness-raising enable informed decision-making, play an essential role in increasing adaptation and mitigation capacities of communities, and empower women and men to adopt sustainable lifestyles.* ***(https://en.unesco.org/themes/addressing-climate-change/climate-change-education-and-awareness)***

While this report is preliminary, the ongoing work of the Task Force should include engaging with City elected officials and staff as well as community members and institutions to share information and gather input.

In order for any city's sustainability initiatives to succeed, they must have the support of the residents and one of the best ways to increase support for a program is to provide adequate information to people about the benefits – and the costs of the program not succeeding. Building a reciprocal relationship with local, state, and regional schools is vital to sharing information, resources, and expertise. Pre-K-12 students will enhance knowledge of climate change, environmental science, and stewardship. Community-based seminars, workshops, and programs facilitated by local experts, educators, and students will inform the public of climate change impacts and mitigation strategies. Education will shore up the community's foundation for resiliency and adaptation. Moreover, our city's sustainability efforts require cooperation, collaboration and consensus between government bodies and among neighboring municipalities for the mutual benefit of all.

The goals and strategies discussed below should be facilitated by the CIty's Energy and Sustainability Coordinator.

MUNICIPAL GOALS

GOAL: Create community opportunities for learning and sharing across a broad range of groups, including local Indigenous Nations, business, education, nonprofit and faith communities

Strategy: Develop a communication, education and engagement plan

Actions:

1. Sustainability Coordinator and Communications Specialist should work together on the plan
2. Engage Appleton Public Library staff in planning
3. Seek additional public input on the best ways to engage diverse elements of the community, and budget for paid consultations and collaboration with these groups when appropriate.
    a. Neighborhood groups
    b. Community organizations
    c. Faith based organizations
    d. Advocacy groups
    e. Educational organizations
    f. Business organizations
    g. Indigenous Nations
    h. Immigrant groups
    i. Non-English speaking groups
    j. Communities of color
4. Public engagement may include
    a. broad awareness raising
    b. diverse engagement initiatives that inspire people to action, working together to develop directions on how we can all be part of the solution
    c. awards and storytelling that showcase successes in our community, demonstrating what's possible
    d. working with existing networks to broaden reach

GOAL: Provide a dynamic platform where the community can get information and engage with the city's sustainability efforts

Strategy: Create a new sustainability website that will provide information to citizens and highlight successes and the progress the city is making toward climate mitigation and resilience. Use the Parks and Recreation site as a model.

Actions:

1. Create a social media page for the Appleton Task Force on Resiliency, Climate Mitigation and Adaptation.

2. Link to these pages from the City of Appleton website.
3. Work with city staff, using the model of the Parks and Recreation Department and possibly with the help of an outside consultant, to make a plan for maintaining up-to-date and engaging content.

Consultants and Partners: Appletons Parks and Recreation Department
References: San Diego, CA https://www.sandiego.gov/sustainability
Emeryville, CA http://emeryville.org/1053/Sustainability
Albuquerque, NM https://www.cabq.gov/sustainability

GOAL: Work with governments of surrounding cities, counties and intergovernmental agencies and organizations to share information about climate and sustainability initiatives and to work together on initiatives that are mutually beneficial. This will be an important role of the Sustainability Coordinator.

Strategy: Collaborate with other city governments.

Actions:

1. Contact leaders of other Green Tier Legacy communities to discuss their sustainability initiatives and opportunities to collaborate.
    a. Green Bay
    b. Oshkosh
    c. De Pere
    d. Stevens Point
2. Contact leaders of other neighboring communities to discuss their sustainability initiatives.
    a. Neenah
    b. Menasha
    c. Kaukauna
    d. Kimberly
    e. Little Chute
    f. Grand Chute
3. Invite representatives of these communities to meet with Sustainability Coordinator, Task Force and Common Council members in recurring workshops or roundtable discussions.

Strategy: Collaborate with county governments

Actions:

1. Contact county representative to discuss sustainability initiatives and opportunities to collaborate.
    a. Outagamie
    b. Calumet
    c. Winnebago
    d. Brown

2. Invite representatives of these communities to meet with Sustainability Coordinator, Task Force and Common Council members.

Strategy: Investigate opportunities to share information with intergovernmental groups and agencies.

Actions:

1. Research sustainability programs of the East Central Wisconsin Regional Planning Commission.
2. Research Wisconsin Initiative on Climate Change Impacts to foster solutions.
3. Contact ECWRP about any programs that would relate to Appleton.
4. Research programs of the League of Wisconsin Municipalities.

GOAL: Engage other levels of government

Strategy: Engage directly with other units of government

Actions:

1. Encourage the State of Wisconsin to support municipal efforts toward sustainability
2. Work with the Wisconsin Department of Natural Resources to provide input for the Governor's Task Force on Climate Change and the Office of Sustainability and Clean Energy and to get policy information
3. Explore Community Revitalization Assistance opportunities through the United States Environmental Protection Agency

References:
EPA Community Revitalization
DNR Climate Change Solution

RESIDENTIAL GOALS:

Goal: Educate the community about climate change, mitigation, resilience and adaptation

Strategy: Engage schools in both providing information and in leading by example

Actions:

1. Include climate change in school environmental science curriculum
2. Offer content to add environmental significance to existing education programs from other groups/organizations (for example: Driver's Education, Health, SRTS)
3. Encourage divestment from fossil fuels and transition to renewable energy in schools and universities.

4. Encourage schools, colleges and universities to reduce carbon footprint and move towards zero waste, 100% clean energy and zero net emissions.
5. Promote conversations through school PTOs
6. Curriculum Partnerships with AASD, Appleton parochial schools, FVTC, UW-Fox, Lawrence University, Appycademy, Free School (UW-Oshkosh)

Strategy: Collaborate with non-profit organizations working to educate communities about climate change

Actions:

1. Meet with area organizations to learn about their education and community outreach programs
    a. Menominee Community Rebuilders
    b. League of Women Voters Climate Study Group
    c. Sustainable Communities Network - Fox Valley
    d. Citizens' Climate Lobby Appleton-Fox Cities
    e. Sierra Club - Fox Valley Chapter
    f. Aldo Leopold Foundation
    g. Sunrise - Fox Valley Chapter
    h. Youth Climate Activists - Fox Valley Chapter
2. Reach out to faith communities concerned with sustainability and environmental issues
    a. Esther Environmental Justice Task Force
4. Work with groups concerned with food, energy, housing and transportation equity
    a. Riverview Gardens
    b. Esther Transportation Task Force

GOAL: Provide opportunities for the community to receive information about climate from a variety of sources

Strategy: Build a coalition of local public and private elementary, secondary, and post-secondary schools to design curriculum, programs, and workshops for community members, from pre-K students to senior citizens. Partner with local Indigenous Nations to teach traditional and contemporary land stewardship and climate change problems and solutions.

Actions:

1. Engage Appleton Public Library to develop book studies, clubs and programming that address climate change and solutions.
2. Taskforce members may take on an ongoing role in public education and engagement (consistent with the charge from Council, and approved City plans and policies)
3. Invite local Indigenous Nations to teach traditional and contemporary land stewardship understanding, ensuring that Indigenous teachers are appropriately compensated for their work.

4. Work with organic farmers, local chefs and nutritionists to provide menu planning and cooking workshops that feature plant-based and local food menus. Coordinate with existing Parks and Recreation Department cooking classes for children and adults.
5. Have health and or fitness experts give workshops on the benefits of a plant based diet and switching to active modes of transportation.
6. Offer workshops (include and compensate teachers from Indigenous Nations) on relating to nature and the mental health benefits of spending time in nature.

Consultants and partners: City of Appleton, Appleton Area School District, Xavier Catholic School System, Fox Valley Lutheran Schools, homeschool associations, Fox Valley Technical College, Lawrence University, University of Wisconsin-Oshkosh at Fox Cities, Menominee Nation, Oneida Nation, Potawatomi Nation, Thedacare, Ascension

Strategy: Engage the community by hearing their ideas on climate change and climate action

Actions:

1. Hold listening sessions on proposals in the climate action plan
2. Provide comments sections on the social media/websites
3. Offer surveys for citizen input

References: **Center for American Progress Framework for Local Action**

COMMERCIAL GOALS:

Strategy: Engage the business community, providing resources to educate stakeholders and their teams, but also providing a forum where they can showcase their work on climate mitigation and adaptation.

Actions:

1. Meet with business organizations such as the Fox Cities Chamber of Commerce and Appleton Downtown, Inc. to understand business concerns, get input and share plans.
2. Provide in-house access to the programs offered to the community at large - lunch and learn sessions
3. Invite businesses to present at workshops or seminars to showcase what their companies are doing to reduce greenhouse gases and otherwise mitigate climate change. Many companies have robust sustainability initiatives that could inform the city and the public.